ARIVU NERAVU FOR MATERNAL HEALTH

What communities should know and do

Gender and Health Equity Project

Series on Decoding Maternal Safety

OTHER BOOKS IN THIS SERIES:

Yaara Hone? Building collective responsibility for maternal safety

Identifying and Assessing Maternal Risks: A handbook for healthcare providers

Over the years, the Gender and Health Equity Project received financial support from the Swedish International Development Cooperation Agency (Sida), the John D. and Catherine T. MacArthur Foundation, the Rockefeller Foundation, the Ford Foundation and the International Development Research Centre (IDRC).

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Gender and Health Equity Project

Centre for Public Policy
Indian Institute of Management Bangalore

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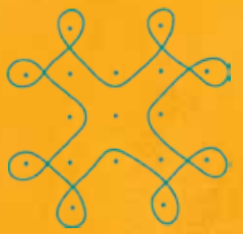

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FOREWORD

The Gender and Health Equity Project has worked on maternal safety and rights from 2000 to 2014 in Koppal district, Karnataka. Maternal safety in gender-adverse contexts such as Koppal is seriously compromised by a refusal among families and communities to recognise or acknowledge women's health needs. There is also little sense of individual or shared responsibility for maternal safety in such contexts. Under the banner of the Surakshita Taytana Andolana, the Project developed strategies (addressing pregnant women, their families, communities, and healthcare providers) to improve awareness and recognition, strengthen access to health services, and build in accountability for maternal safety and rights.

Engaging with a range of stakeholders on this issue led to a number of different strategies. The Odala Maatu: a newsletter on safe motherhood has been one such key strategy for reaching out to local people in Koppal district. Dr. Anuradha Sreevathsa (Obstetrician Gynaecologist), the Project's medical consultant, regularly contributed to this newsletter by bringing out a column called Doctor's Advice. Her short articles touched upon a variety of factors that affect maternal safety, from the cultural to the medical. These addressed the ways in which beliefs and practices resulting from lack of information and superstition cause preventable harm to pregnant and postpartum women. These articles were intended to help people understand their entitlements in terms of health services, and motivate people, young and old, to work for safe motherhood. A readers' survey revealed that these articles were well received.

Given this response, we decided it would be useful to compile these articles into a book so that these can be used by individuals and groups in communities from different parts of the country. The book is entitled Arivu Neravu For Maternal Health: What communities should know and do. The term Arivu Neravu means awareness and support. We hope that this book, put together by Anuradha Sreevathsa, Vinalini Mathrani and Lakshmi Viswanatha, will generate awareness and will support women to go through pregnancy safely.

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Disclaimer:
This book is intended to facilitate a lay person to understand issues that are common during pregnancy and childbirth. This book should not be used as a substitute for professional medical advice.

ACKNOWLEDGEMENTS

We wish to thank everybody who contributed to this book.

- The women and other community members, who asked relevant and insightful questions about pregnancy related issues.
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- Prof. Gita Sen, who took the manuscript in hand and transformed it in to this book!

LIST OF ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
ANC	Antenatal Care
ANM	Auxiliary Nurse Midwife
ASHA	Accredited Social Health Activist
AWW	Anganwadi Worker
cm	Centimetre
CVT	Cortical Venous Thrombosis
EDD	Expected Date of Delivery
g	Gram
Hb	Haemoglobin
Hg	Mercury
HIV	Human Immunodeficiency Virus
IFA	Iron and Folic Acid
IQ	Intelligence Quotient
IUGR	Intrauterine Growth Restriction
kg	Kilogram
mg	Milligram
ml	Millilitre
mm	Millimetre
MTP	Medical Termination of Pregnancy
NFHS	National Family Health Survey
NRHM	National Rural Health Mission
PHC	Primary Health Centre
PROM	Premature Rupture of Membranes
PWDV Act	Protection of Women Against Domestic Violence Act
RTI	Reproductive Tract Infection
STI	Sexually Transmitted Infection
TB	Tuberculosis
TBA	Traditional Birth Attendant
TT	Tetanus Toxoid
UTI	Urinary Tract Infection
VDRL	Venereal Disease Research Laboratory
WHO	World Health Organisation

GLOSSARY

Abortion: Spontaneous or induced termination of pregnancy before foetal viability.

Amniotic: Pertaining to the amnion, the membranous sac surrounding the embryo.

Amniotic fluid: The liquid that surrounds the foetus inside the womb.

Amniotic sac/membranes: The bag of fluid around the foetus inside the womb.

Anaemia: Deficiency of the oxygen carrying molecules (haemoglobin) in the red blood cells.

ANC: The care a woman should receive from healthcare providers during pregnancy.

Anus: The end portion of the large intestine from where stool is passed.

Aorta: The main blood vessel in the heart.

Arteries: Blood vessels that take blood away from the heart.

Atrium: The right and left upper portions of the heart.

Bacterial vaginosis: An RTI caused by an imbalance of 'good' and 'harmful' bacteria.

Birth canal: The passage formed by the pelvic bone, dilated cervix and vagina, through which the baby can come out.

Blood vessel: A tube-like structure carrying blood through the tissues and organs.

Caesarean/C-section: Delivering a baby by operating on the womb.

Cell: The building block of all life, like bricks that are used to make a building.

Cortical venous thrombosis: Presence of a blood clot in the venous system of the brain, which restricts blood flow.

Cervix: Mouth of the womb.

Chlamydia and gonorrhoea: Two STIs that usually occur together; these are caused by bacteria and may affect the cervix.

Chromosomes: Thread-like structures located inside all animal and plant cells, containing the material through which physical, mental, behavioural features and some illnesses are inherited.

Colostrum: Yellow coloured breast milk secreted during the first few days after delivery, which is rich in antibodies and proteins.

Condom: A thin rubber sheath worn on a man's penis during sexual intercourse as a contraceptive or as a protection against infection.

Contraception: The deliberate use of artificial methods or other techniques to prevent pregnancy as a consequence of sexual intercourse.

Copper T: A T-shaped plastic contraceptive device containing copper that is inserted into the womb.

Dehydration: Loss of water from the body.

Diabetes: A medical condition in which the level of sugar in a person's blood is higher than normal over a long period of time.

Early separation of placenta: Separation of the placenta from the wall of the uterus prior to labour.

Ectopic pregnancy: Pregnancy in which the foetus develops outside the uterus, such as in one of the fallopian tubes or ovaries.

Embryo: An unborn offspring in the process of development before eight weeks of pregnancy.

Emergency contraceptive: A birth control method, used to avoid pregnancy after unprotected sexual intercourse.

Episiotomy: A surgical cut made in the area between the vagina and the anus to enlarge the vaginal opening for the baby to pass through during delivery.

Excessive vaginal bleeding: This refers to the loss of more than half a litre of blood after a normal delivery and one litre after a C-section within 24 hours of delivery.

Fallopian tubes: Long tubes that carry the eggs from the ovaries to the uterus (womb), located on either side of the womb.

Family planning: The practice of taking an informed decision about when to have a child, how many children to have and to postpone an unwanted pregnancy using a method of contraception.

Fertilisation: The process of the sperm entering the egg after sex.

Fistula: An abnormal connection between the vagina and urinary bladder or the vagina and rectum (end portion of large intestine).

Foetus: An unborn offspring in the process of development after eight weeks of pregnancy.

Genital herpes: An STI caused by a virus.

Genital warts: An STI caused by a virus that is also known to increase the chances of cervical cancer.

Gestational diabetes: Diabetes, detected for the first time during pregnancy. [See also, 'diabetes'.]

Haemoglobin: A molecule containing iron (haeme) and protein (globin) that transports oxygen and is present in the red blood cells.

Hallucinations: Apparent perception of seeing imaginary objects/ people or hearing imaginary voices.

Heart attack: A sudden emergency condition in which a part or whole of the heart is unable to pump blood, usually caused by a clot in the blood vessel supplying oxygen and nutrition to the heart muscles.

Heart failure: Inability of the heart to pump enough blood to meet the needs of the body.

Hepatitis B: An infectious disease caused by a virus that affects the liver.

Hepatitis: Inflammation of the liver.

High blood pressure: When the blood pressure (the force that pumped blood exerts on the walls of blood vessels) reading is consistently 140/90 mm Hg or higher.

Hook worm infections: An infection caused by a parasitic bloodsucking round worm.

Hormones: Chemical substances produced in the body that control and regulate activities of certain cells/ organs.

Human Immunodeficiency Virus: A virus that lowers immunity, which can ultimately lead to Acquired Immunodeficiency Syndrome (AIDS).

Hydramnios: A condition of pregnancy in which excess amniotic fluid accumulates inside the amniotic cavity.

Infant death: The death of a baby who is less than one year old.

Insulin: A hormone produced by the pancreas that enables simple sugar in the blood to enter the cells.

Intrauterine growth restriction: Poor growth of the foetus within the womb during pregnancy.

Low birth weight baby: A baby weighing less than 2.5 kg. at birth even after completing nine months of pregnancy.

Low lying placenta: A condition in which the placenta is at or very close to the mouth of the cervix.

Malaria: A parasitic infection spread by a particular kind of female mosquito.

Malpresentation: The condition in which the foetus presents its face, shoulders, hands, buttocks or legs (as the leading part) at the birth canal, instead of the head.

Medical termination of pregnancy: A process by which the embryo/foetus is aborted with the use of medicines.

Miscarriage: Spontaneous termination of pregnancy before foetal viability.

Morbidity: Any illness, which has an adverse impact either over a short or long period of time, causing other health problems or affecting the person's daily life.

Multi-parity: The condition of having two or more viable previous pregnancies.

Nerves: Pipe-like structures that help in sending signals from the brain and spinal cord to other parts of the body and vice-versa.

Newborn: An infant who is less than 28 days old.

Normalisation: The process of considering a health condition as considered 'normal', merely because it is widespread.

Obstructed labour: A complication of labour in which the womb contracts hard to push the baby out, without success.

Oral contraceptives: Pills, that when taken by a woman regularly, prevent pregnancy.

Pancreas: An organ in the abdomen that produces insulin.

Penis: The external male sexual organ. It also serves as the male organ for urination.

Placenta: The organ supplying oxygen and nutrients from the mother to the embryo/foetus through the umbilical cord.

Plasma: The liquid component of blood.

Platelets: Blood cells that help in the blood clotting process.

Postpartum blues: A non-severe mental health problem that usually lasts only for the first few weeks after delivery.

Postpartum depression: A relatively serious mental health problem that can last for more than a year.

Postpartum period: The time period from the birth of the baby until six weeks after delivery.

Postpartum psychosis: A rare, but very serious mental health problem, where women display sudden and severe mental symptoms after childbirth.

Premature Rupture of Membranes: A condition of pregnancy, in which the bag of waters break open before the onset of labour.

Preterm birth: The birth of a live baby before 37 weeks of pregnancy.

Preterm labour: Labour occurring before 37 weeks of pregnancy.

Prolonged labour: A condition in which a woman does not deliver despite being in labour for more than 24 hours.

Red blood cells: Blood cells that contain haemoglobin.

Rheumatic heart disease: A severe heart problem, which usually affects children and young people, caused by an infection, which affects the flaps of the heart.

RTI: Infection that affects the reproductive tract.

Rubella: An infectious condition, popularly known as German measles, caused by Rubella virus.

Salivary glands: The glands present in and around the mouth that produce saliva or spit.

Semen: A sticky, whitish fluid containing sperm.

STI: Infection that spreads from an infected person to a healthy person through unsafe sex.

Stillbirth: The birth of a dead baby who has died at or after seven months of pregnancy.

Surgical termination of pregnancy: A process by which the pregnancy is ended by removing the foetus surgically.

Syphilis: A type of STI caused by bacteria.

Testes: The male reproductive organs that produce sperm.

Tetanus Toxoid: Vaccine used for prevention of tetanus.

Trichomoniasis: An STI caused by a parasite, which affects the vagina.

Tubectomy: A permanent method of family planning for women, in which fallopian tubes that carry eggs from the ovaries to the womb are cut and stitched.

Tuberculosis: An infectious bacterial disease, in which there is a growth of nodules (tubercles) in the tissues, especially the lungs.

Ultrasound scan: A diagnostic imaging technique that uses ultrasonic sound waves.

Umbilical cord: The cord that connects the placenta to the mother.

Ureters: Two tubes that carry urine from the kidneys to the urinary bladder.

Urethra: The tube that carries urine out of the body from the bladder. In males, it also carries semen.

Urinary bladder: A sac, located in the lower abdomen which receives urine from the kidneys and stores it until it goes out of the body.

UTI: Infection of the urinary tract caused by bacteria.

Vagina: A tube-like sex organ that forms the lowermost part of the female reproductive system.

Vasectomy: A permanent method of family planning for men, in which a duct that transports sperm is surgically cut so that the sperm cannot come out.

Veins: Blood vessels that bring blood from all parts of the body to the heart.

Venereal Disease Research Laboratory test: A blood test, named after the place where it was developed, which is used as a screening test for syphilis (STI).

Ventricles: The lower right and left portions of the heart.

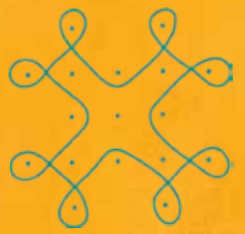
Vulva: The external part of the female reproductive system.

White blood cells: Blood cells that protect the body from infections.

Womb: The organ in the lower abdomen of a woman where offspring are conceived and in which they grow during pregnancy.

Womb inside out: This is a rare condition, in which the inside of the womb comes out of the vagina along with the placenta, as the placenta is being removed from the womb.

Yeast infection: An RTI caused by a type of fungus.



INTRODUCTION

MATERNAL SAFETY: A SOCIAL OBLIGATION

Women contribute to society when they bear children. So, maternal safety is a social obligation; the responsibility of every family, community and healthcare provider. Maternal safety refers to the survival of a mother, as well as the absence of illness or disability due to pregnancy.

Maternal safety can be assured quite easily with the available obstetric knowledge and technology. Yet, social and health system factors can serve as barriers. Here are some examples:

- Early marriage without contraception[1] puts teenagers at risk of untimely pregnancies.[2]
- Multiple pregnancies because of son preference endanger the lives of women[3].
- Women and girls in poor homes typically suffer from undernourishment and anaemia.
- Anaemia weakens a woman's ability to undergo pregnancy safely and is a serious threat in districts like Koppal.[4]
- Oppressive gender relations make women vulnerable to domestic violence and sexually transmitted infections.
- Not being able to afford or access treatment during emergencies denies women the knowledge and technology that could save their lives.
- Even healthcare institutions can contribute to harm, if they treat women with disrespect or abuse them.
- Traditional practices that restrict movement or water intake after delivery can actually threaten postpartum women's survival.

[1] Contraception refers to the deliberate use of artificial methods or other techniques to prevent pregnancy as a consequence of sexual intercourse.

[2] The risks associated with teenage pregnancies include high blood pressure, preterm labour and/or obstructed labour.

[3] The risks associated with multiple pregnancies include anaemia, gestational diabetes, high blood pressure, preterm labour, obstructed labour and malpresentation.

[4] According to the DLHS-4 (2012-13), 51.9 percent of girls aged six to nine years, 46.8 percent of those aged 10-19, and 53.2 percent of all those pregnant in rural Koppal had haemoglobin levels below 11 g%. However, since haemoglobin was measured by the highly inaccurate filter paper method, these percentages are rough estimates at best.

The field staff of the Gender and Health Equity Project encountered these factors (which played out in myriad ways) in the course of their work. While engaging with different segments of the community (pregnant and postpartum women, their families and the community), they were confronted by practical and sharp questions surrounding maternal safety and risk that demanded simple and clear answers. Members of the field staff themselves had their own concerns and questions, for which there were no ready answers. This led on to a search for resource material in the local language, which did not yield positive outcomes. The Health and Family Welfare Department's IEC material partly addressed a few questions but did not adequately factor in women's needs and rights. Hence, the need for information on maternal health that non-medical people in the community could easily understand. The Project viewed the community as an important stakeholder for working on the issue of maternal safety.

As a response to this felt/articulated need of the community, there came a series of articles in a column entitled Doctor's Advice. This column featured in the Odala Maatu: a newsletter on safe motherhood which was brought out by the Gender and Health Equity Project. This newsletter was a key strategy for reaching out to the local community in Koppal district. A readers' survey indicated that this column was extremely well received. Therefore, these articles were compiled into this book: Arivu Neravu for Maternal Health: What communities should know and do. Two other books in this series address other stakeholders who are responsible for maternal safety. Addressing Maternal Risks: A handbook for healthcare providers, is meant for doctors and staff nurses. Yaara Hone? Building collective responsibility for maternal safety, takes community based organisations through the Project's approach to building collective responsibility for maternal safety.

WHO CAN USE THIS BOOK?

Arivu Neravu means awareness and support. These articles are designed to raise awareness levels in different sections of the community, which will provide support in enabling maternal safety. As evident from the title, the key audience for this book is the community. It is meant for people who may not have any training in medicine or community health.

All members of rural communities are not necessarily literate. Therefore, it is anticipated that non governmental organisations (NGOs) will use this volume while working with communities on this issue. It can serve as a resource book.

When these articles featured in the newsletter, healthcare providers (especially grassroots health workers) also expressed appreciation upon perusal. These articles can play a critical role in making healthcare providers sensitive to the socio-economic and cultural context within which women experience pregnancy, delivery and the postpartum period. This will make them less dismissive of their patients. It is also likely to make them proffer medical advice in a nuanced manner.

HOW DOES THIS VOLUME CONTRIBUTE TO MATERNAL SAFETY?

Arivu Neravu for Maternal Health considers the human body as both biological and social - one that is shaped by the environment, by culture, by gendered practices. It conveys an experienced doctor's advice to the community, where health is seen as a combination of the biomedical and the social. Thus it provides complex biomedical information simply, without jargon, caveats and unhelpful riders. Medical information is presented in small capsules so that it can be easily understood and acted upon.

The community in general and women in particular are often not privy to basic biological information. This leaves women disempowered when it comes to handling the maternal phase. This book seeks to empower women by equipping them with relevant information pertaining to their requirements and entitlements in this phase. This will make them more confident while interfacing with their families and healthcare providers. It tries to empower them with knowledge so that they can leverage better services.

This book is also intended to counter the tendency to treat many symptoms of women's ill health as 'normal' simply because these are so common in poor rural communities. This 'normalisation' leaves these symptoms unaddressed. Arivu Neravu for Maternal Health describes these symptoms and associated implications in detail to make the community sit up and take notice.

Typically, illnesses tend to be blamed on one's fate. The book counters this. Up to a point, people do shape health and have control over what happens when there is illness. Maternal risk partially arises due to acts of omission or commission. This book draws attention to these acts to generate awareness around the implications of these acts. How do these play a role in threatening maternal safety? How do families, communities and even healthcare providers become important contributors to harm? It presents the implications of these decisions and behaviours on the health of pregnant and postpartum women. Finally, it shows readers how they can proactively prevent risks and problems to enable maternal safety.

HOW TO USE THIS BOOK?

This book is divided into seven major parts. Each part is further sub-divided into sections. Each section is a stand-alone article that appeared in a newsletter. This stand-alone feature has been retained for this book. Hence, readers are also not obliged to read this book end to end. They can pick up any part/section they find relevant, as efforts have been made to keep each of these comprehensive and self-contained. However, to avoid undue repetition, there is extensive cross referencing across sections.

Some of the parts (Part 3 on Pregnancy) can become quite heavy for semi-literate community members to absorb in a single sitting. As section titles are self-explanatory, readers are advised to select relevant sections based on their needs.

All sections end in a brief summary, which presents a gist of the section. Readers in a hurry can directly go to the sub-section entitled Remember to obtain an overview.

Finally, to make this book accessible to different communities across the country where maternal safety is an issue, simple language has been used. This makes it amenable to easy translation in different local languages.

STRUCTURE OF THE BOOK

PART 1 is the backdrop to the book. It provides the social context to reproduction. It explains the role played by gender unequal relations, poverty and caste in leading on to teenage marriage, multiple pregnancies and poor spacing between pregnancies. It also discusses the phenomenon of domestic violence. It then presents the implications of all these, for the expectant mother and her foetus.

This social context provides explanations, not justifications, for certain practices. It also seeks to establish that these are not set in stone and need to be questioned and altered to protect women during the maternal phase. Throughout the book, reference is made to this social context as this underpins a range of maternal risks.

PART 2 explains how the female and male reproductive systems work. Both women and men are often unaware of both the appearance and functioning of these systems because this information is regarded as private and embarrassing. Therefore, knowledge of the reproductive systems can be both useful and empowering.

This part also touches upon the issue of infertility, which arises when reproductive systems do not function properly. It explains the biological basis for this condition and questions the stigma associated with it.

PART 3 takes the reader through the domain of pregnancy. It first details the different stages of pregnancy. It establishes the importance of preparing for the birth. It explains how ectopic pregnancies occur. It then highlights the need for proper nutrition during pregnancy.

The remaining sections in Part 3, focus on the different problems during pregnancy, which put women at risk. Some of these may be pre-existing conditions but may have gone undetected till the woman got pregnant (e.g., some heart diseases). Others may have been have been diagnosed earlier (e.g., anaemia, high blood pressure, diabetes) but can worsen during pregnancy. Some conditions arise during pregnancy (e.g., hydramnios, vaginal bleeding, gestational diabetes).

Part 3 describes each of these conditions, identifies the causes, explains who is at risk, what the symptoms are, what the consequences of this problem are during pregnancy, how the risk can be reduced and what the treatment should be. All this information is couched in very practical terms. This will enable community members to take action and to approach healthcare providers with a sound knowledge base.

PART 4 focuses on delivery. Delivery and childbirth are usually associated with pain, confusion and lack of control. Part 4 attempts to equip women and their families with relevant information to handle this crucial period with clarity and confidence. The first section on Labour and Childbirth distinguishes between true and false labour pains. This will prevent the woman from making unnecessary visits to the facility. It explains the different stages of labour so that the woman understands what is happening to her and more importantly knows what to expect during the different stages. It details some of the complications that can arise during labour. It highlights the importance of respect and care during delivery. In this context, it lists the responsibilities of the family and the healthcare providers as well as the rights of the woman. It also explains what a C-section is and when it is warranted.

There is a section on unsafe deliveries which explores both causes and consequences. This will enable women to understand the implications of opting for these.

The last two sections deal with Premature Rupture of Membranes and Preterm Labour. These explain who is at risk for these conditions and what are the symptoms and consequences.

PART 5 moves on to the Postpartum Period. It starts by referring to two fairly serious problems that can arise soon after delivery: excessive vaginal bleeding and cortical venous thrombosis. It explains who is at risk, what are the causes, symptoms and treatment. It is anticipated that this knowledge will enable women and families to seek both timely and appropriate healthcare. The third section elaborates the nature of care that is mandatory for both the mother and the newborn. It questions some cultural practices, which can put the mother and newborn at risk. It then concludes with Mental Health Problems that may arise in the postpartum period. It distinguishes between different types of mental health problems. This will enable the community to identify which problem the woman is suffering from. This will result in seeking appropriate care as the different problems need different kinds of treatment. It also addresses the issue of stigma associated with mental health problems.

PART 6 looks at some of the outcomes associated with pregnancy, delivery and the postpartum period. The first section explores conditions during pregnancy which cause long term morbidity. The second section looks at the causes and consequences of maternal deaths. It also guides the community as to how these can be averted. The third section goes into the causes, symptoms, consequences and treatment of miscarriages. It sensitises the families to the care and support the woman needs after a miscarriage.

The remaining sections focus on infant death, stillbirth, preterm birth, intrauterine growth restriction, low birth weight babies and fits in the newborn. All these sections explain who is at risk and what the causes are in terms of risk factors. There is a description of symptoms, consequences and treatment.

PART 7 deals with Services. All the services presented here are essential for enabling maternal safety. Ideally, women should be entitled to all these services at no cost, as these play a critical role in helping them to go through pregnancy safely. Some of the components of antenatal (e.g., IFA tablets, TT injections) and postnatal care (home visits by the healthcare provider) are available as free entitlements, while others (ultrasound scanning) have to be paid for. Part 7 underscores the importance of ante and postnatal care and its different components. It provides information on the schemes available for pregnant and postpartum women.

It touches upon the area of abortions by listing the reasons for which pregnancies are terminated. It distinguishes between medically and surgically terminated pregnancies. It alerts the reader about barriers to safe abortions and some of the problems associated with abortions. It also presents the Medical Termination of Pregnancy (MTP) Act.

One section is devoted to family planning services where the both temporary and permanent methods of family planning are described. This will enable the reader to make the desired choice rather than being coerced into either method due to lack of awareness.

The concluding section in this volume deals with blood donation. Blood donation/transfusion plays a critical role during obstetric emergencies. This section explains what blood donation is, why is it necessary, who is eligible to donate blood, when should blood donation be avoided and whether there are any side effects to blood donation. It also debunks some of the myths surrounding blood donation.

We hope this volume will generate awareness and will support women to go through pregnancy safely.

PART 1

SOCIAL CONTEXT OF REPRODUCTION AND ASSOCIATED ISSUES

SOCIAL CONTEXT OF REPRODUCTION AND ASSOCIATED ISSUES

1.1 THE SOCIAL CONTEXT OF REPRODUCTION

A woman's experience of pregnancy, delivery and the postpartum period is related to the social context in which she is born, grows up and becomes a mother.

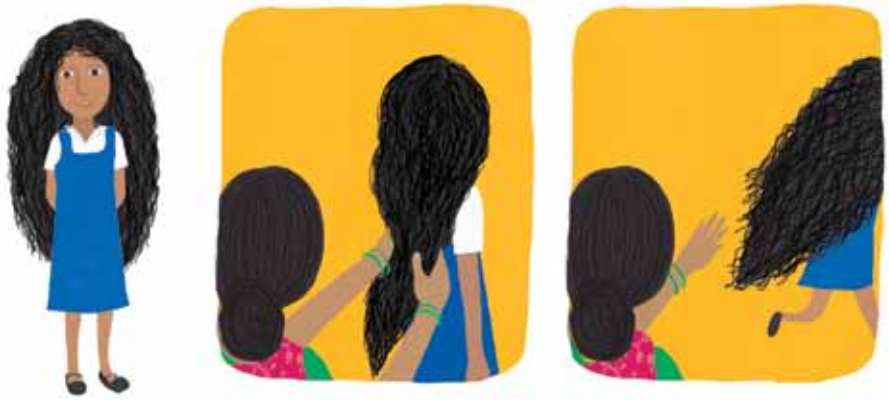
Sarayu a young dalit [5] girl looks at the world around her and wonders 'why' things are the way they are [6].

[5] Dalits are the lowest end of the hierarchy in the traditional Indian caste system. They have been termed Scheduled Castes by the Government of India. They are entitled to reservation in different spaces to counter the historical discrimination they have faced.

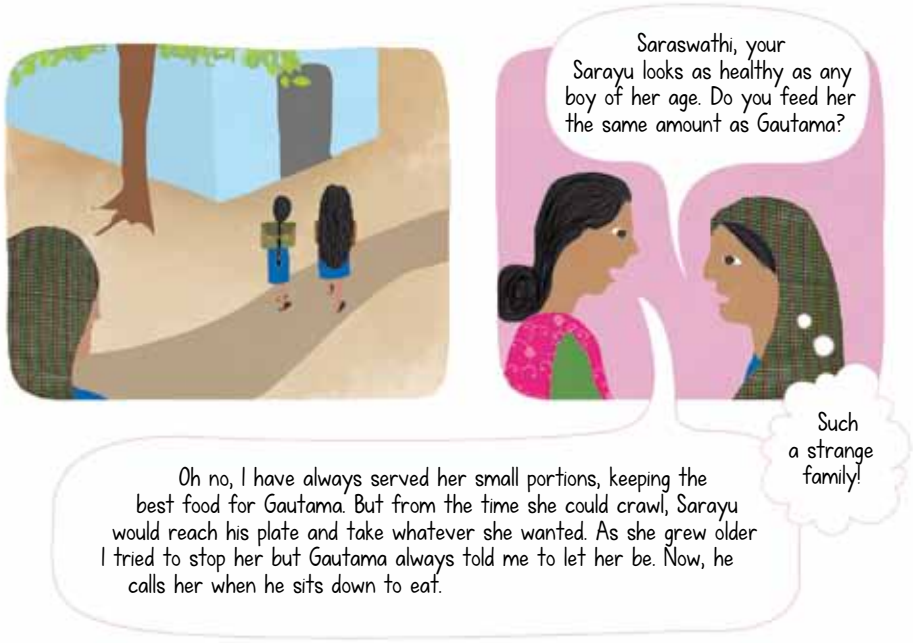
[6] Thanks are due to Mahashweta Devi for giving us 'The Why Why Girl'. Our Sarayu asks the same question in the face of injustice. We took the liberty of borrowing Bonu Singh's red and black Natraj pencil from Anuja Chauhan's book, 'The House that BJ Built'.

Sarayu was born to Rajanna and Saraswathi in a small village in India. Sarayu had an older brother, Gautama, and an older sister, Ragini. When Saraswathi's neighbours heard about Sarayu, they came to console her about the birth of another daughter. Saraswathi looked surprisingly calm and even content as she presented her new baby girl to the world. The neighbours looked at this tiny baby, so tightly wrapped that they could see nothing but a small nose and lots of curling black hair.

Sarayu grew fast but her hair grew even faster. It covered her ears, crept down her neck and reached her waist by the time she was ready for school. Her mother warmed oil, massaged her daughter's head and tied her hair. Sarayu shook her curly hair loose and ran to her friend, Gayatri's house.



Gayatri's mother, Sukanya, stood at the doorstep to send Gayatri to school with Sarayu. She saw that her daughter looked small and weak next to Sarayu. When the girls left, she walked over to Saraswathi's house.

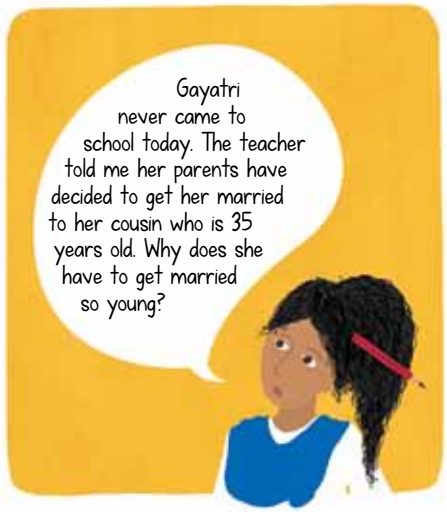


The two girls had, meanwhile, reached their favourite place, the large tamarind tree on the way to school. They chased each other around the tree and gathered the fallen ripe tamarind in their school bags. Sucking on the tamarind, they reached school.

The teacher harshly told Sarayu to tie her hair and ordered the two girls to sit far away from the other children. Sarayu bundled her hair on top of her head and stuck her black and red Natraj pencil through her curls to keep them in place.

When Sarayu turned 14, she returned from school one day in a flood of tears.

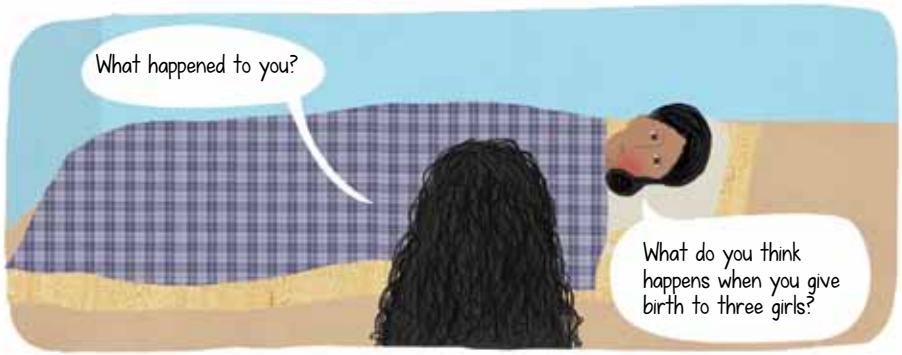
Sarayu pulled out her pencil and stuck it in her hair. Her mother knew a 'why' question was on its way.



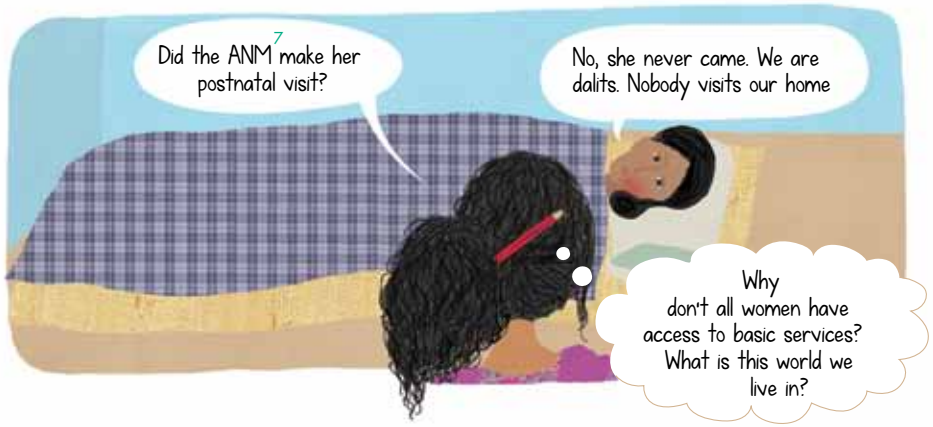
Saraswathi explained that these are social customs, which are hard to change.

As expected, Gayatri got pregnant when she was 15. In a few years, Sarayu's pencil could hardly hold her hair up, but her questions kept coming

Sarayu visited Gayatri after she delivered her third child. Gayatri was unable to lift her head. She had a bruise on her left cheek.



Sarayu angrily jerked her pencil out of her bag. She did not say it, but she wondered why a girl should be battered for not giving birth to a boy. The pencil stayed in its place on top of her head.



The next day Sarayu took the goats out to graze. She stretched out on the grassy field and stared at the sky. As she lay there, one of her goats idly nibbled on her curls. Pushing him away, she sat up but left her hair loose.

A gentle breeze lifted her hair, as if in support of her decision.

Is this a true story? Maybe, maybe not. Whether true or not, it provides a quick look into what happens to some women in India. Although the social context influences women's lives, this does not mean it cannot be changed. We hope this book will provide the community with both information and knowledge to first understand and then question what happens to young girls and women. May many Sarayus start asking, understanding and acting. From there, we hope, there will be change for the better.

This story introduces some of the problems associated with teenage marriages; multiple pregnancies; poor spacing between pregnancies and even domestic violence. Why do these situations arise?

[7] The Auxiliary Nurse Midwife (ANM) is employed by the government Primary Health Centre (PHC) to ensure that all women receive essential services for safe motherhood.

[8] The Accredited Social Health Activist (ASHA) is the village level community health worker. This post was instituted under the National Rural Health Mission (NRHM) to bring healthcare to the grassroots.

1.2 SOME KEY ELEMENTS AT PLAY

GENDER INEQUALITY

A core reason for all these situations is gender inequality by which women and men are seen to not be equal to each other[9]. In many parts of India, male privilege is strongly established, and social beliefs and practices place the woman below the man in authority and privilege. This leaves her with poor control over decision making; and little information about or access to resources such as land, income or knowledge. This inequality is heightened by the preference for sons over daughters, which worsens the treatment of daughters and of women who give birth to 'too many' girls. These social beliefs and customs combine to create the problems described in the story.

Male privilege operates both within the home and in society at large. Hence, men tend to misuse power and control through domestic violence. A woman is often not in a position to question this because of social norms which isolate her. Once she is married, she is expected to live with her husband no matter how he treats her. She usually has poor or no support systems within the marital (married) home or even in her natal family (mother's home). She is regarded as a 'burden' if she goes to live in her mother's house once she has been married. In this context of male privilege, she has very little control over decision making.

This means that both teenage girls and adult women often have no say about when to have sex; how many children to bear; or what the gap between pregnancies should be. Battered women[10] have even less control over decision making.

Poor control over decision making goes hand-in-hand with lack of information about, and access to different resources. Contraception is one such resource. Since sex and related topics are not openly discussed, women are either unaware or have poor knowledge about contraception. However, even if some women are well informed, they may not be able to use contraception because

[9] Women and men are not treated as equal partners in their home, community and society.
[10] Women who are beaten by their husbands and/or families.

the husband or in-laws may not allow them to visit the healthcare centre or shop that sells these products. Getting the husband to agree to use contraception can be quite difficult. Multiple and frequent pregnancies are the result.

In most communities, the bride's family has to pay the groom a dowry at the time of marriage, and usually sons, not daughters, inherit their parents' wealth and property. Hence, daughters are seen as a burden. Even if a woman has already given birth to one or more daughters, she is pushed into frequent and more pregnancies until one or two sons are born.

The problem of gender inequality is further complicated by poverty and caste.

POVERTY AND CASTE

In rural areas, there are varying levels of poverty in different sections of society. Studies show that usually the dalits (Scheduled Castes), tribes (Scheduled Tribes) and minorities (Muslims) are poorer with less access to information and resources due to their social status. They are either small farmers or landless labourers. If they are small farmers, they often do not have the resources to increase the farm size, use modern methods of farming or hire labourers to raise productivity. Hence, they may choose to have many children as they see them as free labour. This leads on to multiple and frequent pregnancies.

Poverty, low education and the inability to obtain healthcare, affects young girls in their childhood, as well as after marriage. Their lives become a cycle of hard labour, early marriage, repeated pregnancies, loss of infants and children, poor access to health services, disrespect, abuse and violence.

These elements combine in different ways and lead to some of the problems seen in young Gayatri's life.

1.3 ASSOCIATED ISSUES AND THE IMPACT ON PREGNANT WOMEN AND THEIR FOETUSES

WHAT IS CHILD/EARLY MARRIAGE?

Child marriage is a marriage in which either one or both parties is below the legal age of marriage, which is 18 years for a girl and 21 years for a boy.

Puberty (the first menstrual cycle) is a life-changing event in a young girl's life. As her body begins to develop, her reproductive organs mature for a number of years after puberty until she is in her late teenage years. Until then, her body is not yet ready to deal with pregnancy. However, according to social beliefs, the very first menstrual cycle is associated with attaining 'maturity'. In communities across the country, families get girls married off in their early teens, sometimes to much older men.

Problems for the mother

- **Psychological trauma:** Childhood is often associated with being carefree and happy. Early marriage puts an end to this. At a time when she should be playing, studying and exploring possibilities in life, the young daughter-in-law is made to labour hard within and outside the house, cope with in-laws and a husband who may be unfriendly or violent, and submit to forced sex. These experiences can lead to psychological problems such as low self esteem and depression.

- **Early marriage** leads on to early, frequent and multiple pregnancies, long before her body is really ready for the burden of child-bearing.

- **Sexually Transmitted Infections (STIs) and Human Immunodeficiency Virus (HIV):** Young girls are at an increased risk for STIs and HIV for two reasons. First, when their under developed bodies are exposed to regular sexual contact, they become more vulnerable to infections. Second, their husbands may have other sexual partners and these young girls are not in a position to question them. (For additional details on STIs and HIV refer to Part 3, section 3. 13.)

- **Anaemia:** Undernutrition from an early age is a major reason for anaemia. As happened to Gayathri in our story, girls are often given less food than boys due to gender inequality and poverty. This puts the girl at risk of several serious complications during pregnancy, such as infections, high blood pressure and heart failure. In the case of girls who are severely anaemic, even normal quantities of bleeding after delivery can worsen anaemia and may cause death.

- **High blood pressure:** Teenage pregnancy increases the risk of high blood pressure because there is an increased demand for blood flow during pregnancy. This can strain the teenage mother's cardiovascular system and make it hard to handle the extra circulatory load. Blood pressure may go up at anytime during pregnancy or after delivery, causing seizures (fits). Fits may lead to bleeding in the brain and affect breathing, which may result in death.

- **Prolonged and obstructed labour:** Since the reproductive system in young girls is under developed, delivery may be difficult. Prolonged labour increases the risk of bleeding after delivery because the womb is tired of pushing the baby out and is unable to contract after delivery. Obstructed labour is when the foetus may be too big for the mother's birth canal, causing a delay in delivery, increasing the likelihood of a Caesarean birth[11].

Problems for the foetus

- **Preterm labour:** Since the young girl may be undernourished and suffering from anaemia, her foetus is likely to be small. This increases the risk of preterm labour and birth. Babies born early have a higher risk of picking up infections as their capacity to fight illness is low. Hence, such babies are at an increased risk of death.

- **Low birth weight babies:** Poor blood flow to the womb because of under development, undernutrition, anaemia and high blood pressure increases the risk of low birth weight babies being born. Such babies are unable to maintain a steady body temperature or feed properly. This makes them even weaker. They are at high risk for infections as their capacity to fight illness is low. As a result, these babies may even die.

Given the risks associated with teenage marriages for both the mother and child, the Government of India has passed the Prohibition of Child Marriage Act, 2006. The punishment for adults who are involved in child marriages is two years imprisonment and/or a fine that may extend to Rs. 1 lakh.

[11] For details on Caesarean birth refer to Part 4, section 4.1.

WHAT ARE MULTIPLE PREGNANCIES?

Multiple pregnancies are termed as multi-parity. A multi-parous woman is one who has given birth to two or more children while a grand multi-parous woman is one who has given birth to four or more children.

Problems for the mother

- Multiple pregnancies, combined with poverty, poor hygienic conditions, under-nutrition, digestive disorders as well as round worm and hook worm infections aggravate anaemia in women.
- Repeated pregnancies can cause a drooping belly and weaken the stomach muscles.
- As women age during the course of pregnancies, there is an increased risk for high blood pressure. Additionally, women are also at risk for bleeding before delivery due to poor blood flow to the womb. This, combined with anaemia and high blood pressure can increase the risk of preterm labour and low birth weight babies.
- The woman is more likely to suffer from gestational diabetes (diabetes during pregnancy), than a younger woman in the same situation. Given that women with diabetes tend to give birth to big babies, the woman may have obstructed labour. (For details on diabetes refer to Part 3, section 3.9.)
- The foetus is at a higher risk for malpresentations, which increases the possibility of Caesarean births. (For details on malpresentations refer to Part 4, section 4.1.)

Problems for the foetus

- Multi-parity often results in premature birth because of inborn abnormalities. A premature baby may have inadequate physical and mental development. This lifelong disability can be challenging for both the mother and the child.
- Multiple pregnancies can result in stillbirths either due to premature birth or inborn abnormalities.
- Repeated pregnancies can lead to other health problems for the baby (e.g., difficulty in breathing and weakness).

WHAT IS SPACING BETWEEN PREGNANCIES?

Spacing refers to the gap between two pregnancies. It is important to have a gap of at least two years between pregnancies. This is termed as appropriate spacing. Such a gap ensures that the mother has enough time to regain her health and strength. It also provides her sufficient space and time (physically and psychologically) to adequately care for the newborn child[12]. Insufficient spacing can result in a number of problems.

Problems for the mother

- Anaemia.
- Miscarriage.
- Preterm labour.
- Postpartum depression.

Problems for the foetus

- Increased risk of premature birth.
- Low birth weight.

Given the increased risks associated with multi-parity and poor spacing, for both the mother and the baby, the Government of India has recommended that women should not have more than two children. Couples, who want to limit the number of children, can choose to use contraception. (For more information about the different kinds of contraception, refer to Part 7, section 7.4.) However, as mentioned earlier, use of contraception can be challenging for the woman.

There are other problems in addition to the problem of having babies too young, or poorly spaced, or having too many pregnancies. In recent years, the problem women face of violence in the home is being recognised as widespread, and needing greater attention.

[12] The newborn is an infant less than 28 days old.

WHAT IS DOMESTIC VIOLENCE?

The World Health Organisation (WHO) defines domestic violence as, "behaviour by an intimate partner or ex-partner that causes physical, sexual or psychological harm, including physical aggression, sexual coercion, psychological abuse and controlling behaviours".

The Indian government has termed domestic violence as an act where a woman is subject to physical, mental, sexual, economic, or verbal abuse usually by her husband/partner, or his relatives.

Physical violence includes beating, slapping, hair pulling, burning, cutting and kicking. Threatening to harm the woman and/or her family members and the children, locking her up, preventing her from maintaining communications outside the marital home, verbally abusing her, humiliating her, threatening to throw her out of the house, are forms of psychological (mental) violence. Some examples of sexual violence are forcing the woman to have sex when she does not want to; injuring her body (including her private parts) during sex; and denying her the right to use contraception for preventing pregnancy or protecting her from STIs. Economic abuse occurs when a man does not provide financial resources for supporting the family including the woman; and even takes away what the woman earns.

Domestic violence has no valid reasons and is a violation of women's and children's human rights. It can occur if the woman brings in a poor dowry; fails to fulfil household responsibilities; disagrees with her husband and in-laws; communicates with people outside the marital home; visits or maintains relations with her natal home; or fails to bear children.

Problems for the mother and foetus

- Physical violence may cause injuries to the foetus and the pregnant woman. For instance, injuries to the stomach may cause abortion, bleeding, and possible maternal death.

- Physical abuse also includes not giving the woman enough food. This can lead to anaemia and poor maternal weight gain, and may result in heart failure, difficulty during delivery, preterm labour and low birth weight babies.

- The psychological impact of domestic violence includes anxiety, depression, low self esteem, lack of interest in oneself and inability to sleep. The woman may consider suicide. Since the woman is made to feel so unwanted, it results in poor healthcare seeking behaviour during pregnancy.

- When the woman is forced into sex, there is a high risk of an unwanted and unintended pregnancy. In such situations, the woman may want to abort the foetus. Since abortion, without the knowledge of the marital family, is considered socially unacceptable, the woman may not seek professional help. This can force her to reach out to an unregistered practitioner, leading to an unsafe abortion.

- Women facing domestic violence may also be forced into sex without the use of a condom because they are unable to negotiate either sex or the use of contraception with their partners. Therefore, they are at an increased risk for getting STIs, vaginal infections and HIV.

A WOMAN MUST KNOW

- Violence has a negative impact on the health of the woman, her foetus and/or her children.
- Violence should not be accepted as normal behaviour. There are non-violent ways of communicating disagreements between two people, especially a husband and a wife.
- Developing a support system is necessary. The woman facing violence at home must come forward to discuss the problem with someone she trusts. If she cannot take this first step, it will not be possible for anyone to help her. While it is easier said than done, the woman must realise that accepting violence will only make matters worse for her.
- Support centres and shelter homes are available. She can use these to stay away from a violent situation for some time, if she chooses.
- During the first pregnancy, she should protect herself from violence by moving into her natal home, as this is socially acceptable. She should try and build a support network during this period. This may not be possible for later pregnancies, as traditionally women remain in the marital home for these pregnancies.
- The woman must keep some money with her at all times. She and her children must also remember phone numbers of some key people, in case of any emergency.

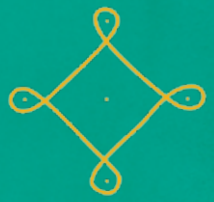
- Protection of Women against Domestic Violence Act (PWDVA), 2005 makes domestic violence a non-bailable offence. This is a civil case where the woman can legally get protection under different kinds of orders. Protection order allows the woman to stay in her marital house with the family without being subject to violence. Custody order allows the woman to stay in her marital home and gain custody of her children [13]. Monetary relief order allows the woman to get money from her husband for daily expenses. An ex-parte order is passed in favour of the woman, when the husband does not appear before the court. If the woman wishes to apply for any order, then she will need a ration card as proof of her residence, wedding card and wedding photograph as proof of her marriage, and the birth certificate of her children. It is important for the woman to keep these documents ready in advance.
- Women can get official protection under this Act. For this, she has to meet the protection officer/ doctor/police or magistrate.

If the husband fails to follow the court orders, then domestic violence becomes a criminal offence. The punishment is imprisonment that may extend to one year and/or a fine, which can go up to Rs. 25,000.

[13] Custody is the control and care of the children when granted by the court.

Remember!

- There is a social context of reproduction that includes gender inequality, poverty and caste oppression.
- This has associated problems such as teenage and multiple pregnancies, poor spacing between pregnancies, and domestic violence. All these issues put girls and women at risk.
- Child marriage is a marriage in which either one or both parties is below the legal age of marriage, which is 18 years for a girl and 21 years for a boy. Problems associated with child/early marriage are psychological trauma, early pregnancies, increased risks of STIs and HIV, undernutrition, severe anaemia, high blood pressure, risk of prolonged or obstructed labour, preterm labour and low birth weight babies.
- Problems of multiple pregnancies (multi-parity) for the mother are anaemia, weak stomach muscles, high blood pressure, bleeding before delivery, obstructed labour, preterm labour, and malpresentations during delivery. Problems of multi-parity for the foetus are premature birth, stillbirth, low birth weight, inborn physical and/or mental abnormalities and breathing problems. Given the risks associated with multi-parity, the government has recommended that women should not have more than two children.
- Spacing refers to the gap between pregnancies. It is important to have a gap of at least two years. The problems of poor spacing for the mother are anaemia, miscarriage, preterm labour and postpartum depression. The problems of poor spacing for the foetus are increased risk of premature birth and low birth weight.
- Contraception use can prevent teenage or multiple pregnancies and poor spacing.
- WHO defines domestic violence as, "behaviour by an intimate partner or ex-partner that causes physical, sexual or psychological harm, including physical aggression, sexual coercion, psychological abuse and controlling behaviours".
- Some of the consequences of domestic violence include injuries to the mother and the foetus, complications of unsafe abortion, poor maternal weight gain, poor healthcare seeking behaviour, preterm labour, low birth weight babies and mental health issues such as anxiety, depression and attempts to commit suicide.
- A woman facing domestic violence should know there is a law against it, and that she does not have to accept it. She should develop a support network and stay in her mother's house at least during the first pregnancy. Support centres are available for temporary stay; and domestic violence is a punishable offence under the PWDV Act 2005.



PART 2

REPRODUCTIVE SYSTEMS

REPRODUCTIVE SYSTEMS

2.1 FEMALE AND MALE REPRODUCTIVE SYSTEMS

INSIDE A WOMAN'S BODY

The female reproductive organs are located in the lower abdomen, below the belly button. These are protected by the pelvic bones. The external part of the female reproductive system, i.e, the vulva, is visible. The vulva is covered by hair and is located between the legs. It consists of the vaginal and urinary openings. The internal part of the female reproductive system is the vagina, cervix (mouth of the womb), womb, fallopian tubes and ovaries. The upper part of the vagina is connected to the cervix and the womb. The fallopian tubes lead from the ovaries to the uterus (womb) and are on both sides. The womb holds and nurtures the embryo after fertilisation. (Fertilisation is explained later in the section.)

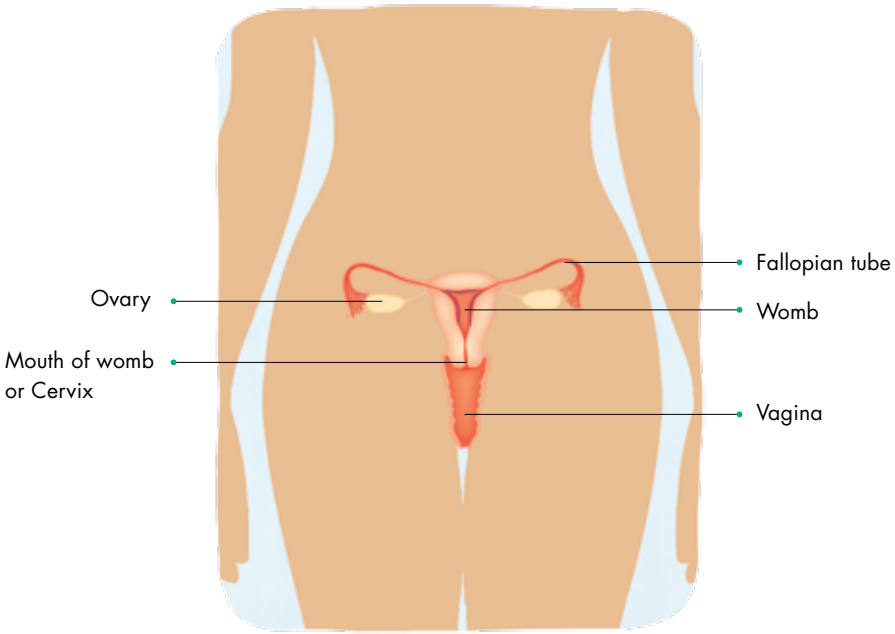


Fig 1. Female reproductive system

OVULATION

The ovaries are important organs for pregnancy. At birth, the ovaries carry millions of immature eggs. Of these, around 400 are used during a woman's reproductive lifetime and the remaining eggs get destroyed. Due to circulating hormones[14], 15 days before the menstrual period, an egg gets released from an ovary. After this, the woman's body anticipates a possible pregnancy. Thus, the womb prepares to receive the egg by making a soft bed of blood and tissue, which lines it. The egg that is released, before the period, stays alive only for a day. If there is no sexual contact, the released egg gets destroyed. 15 days later, because the egg has not been fertilised, there is a fall in the hormonal level, and the soft bed, lining the womb comes out as a discharge of blood and dead tissue from the vaginal opening. This is called the menstrual period. During a menstrual period, a woman loses around three to five tablespoons of blood. It can last for three to five days.

INSIDE A MAN'S BODY

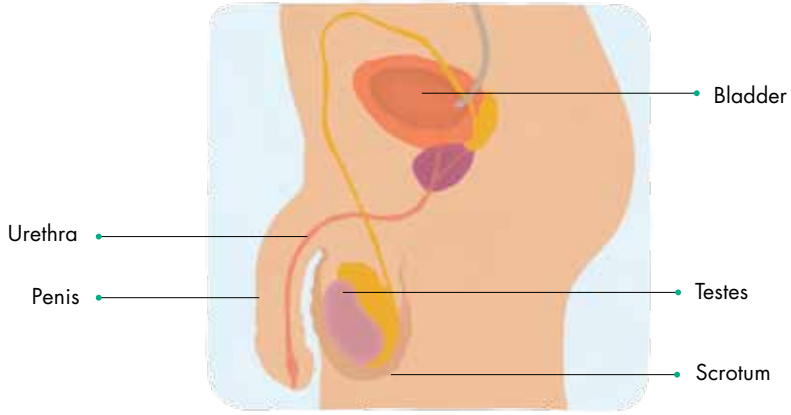


Fig 2. Male reproductive system

The male reproductive system is located in the lower abdomen, below the belly button. It is protected by the pelvic bones and consists of the penis, urethra, bladder and testes. The penis is the external visible part of the male reproductive system. The urethra is a pipe-like structure within the penis, through

[14] Hormones are chemical substances produced in the body that control and regulate the activity of certain cells or organs.

which both urine and semen[15] are released. The inner end of the urethra is attached to the bladder. The bladder is a sac/bag, which receives urine from the kidneys and stores the urine until it goes out of the body. The testes are located in the scrotum (bags of skin). These produce the sperm.

SPERM PRODUCTION

Sperm are produced inside a man's testes due to circulating hormones. These are too small to be seen by the naked eye. Sperm stay alive in the man's body for about a week and are stored in a six metre long tube above and around the testes. During sex, millions of sperm are released from the man's penis. Unlike the eggs in the woman, which get released once a month, sperm are continuously produced and released. Therefore, a man is capable of fathering a child anytime in the month.

FERTILISATION (UNION OF SPERM AND EGG)

During sex, if sperm are released into the vagina, they meet the egg in the fallopian tube, which is situated between the ovaries and the womb. Although many sperm reach the egg, only one succeeds in entering it. This process is called fertilisation. As a result of fertilisation, an embryo (which is the future baby) starts to grow, after which no more sperm can enter the egg. Fertilisation is the first step in pregnancy. The fertilised egg then travels through the fallopian tubes to the womb. The embryo normally grows in the womb for a period of 38 to 40 weeks.

Pregnancy occurs when both the female and male reproductive systems are functioning properly. This may not always happen. This is known as infertility (discussed in the next section).

[15] Semen is a sticky whitish fluid containing sperm.

Remember!

- ☐ The female reproductive organs are located in the lower abdomen below the belly button and are protected by the pelvic bones.
- ☐ The external part of the female reproductive system is the vulva.
- ☐ The internal part of the female reproductive system consists of the vagina, cervix (mouth of the womb), womb, fallopian tubes and ovaries.
- ☐ A menstrual period is the discharge of blood and dead tissue from the vaginal opening. It occurs when the egg released from the ovary gets destroyed because there has been no fertilisation.
- ☐ During a menstrual period, a woman loses around three to five tablespoons of blood and it can last for three to five days.
- ☐ The male reproductive system is located in the lower abdomen, below the belly button and is protected by the pelvic bones.
- ☐ The male reproductive system consists of the penis, urethra, bladder and testes. *cont. >>*

- ☐ Sperm stay alive in the man's body for about a week and are stored in a six metre long tube above and around the testes.
- ☐ During sexual contact millions of sperm are released.
- ☐ Unlike the eggs in the woman, which get released once a month, sperm are continuously produced and released. Therefore, a man is capable of fathering a child anytime in the month.
- ☐ Fertilisation is the process of the sperm entering the egg after sex.
- ☐ As a result of fertilisation, an embryo starts to grow, after which no more sperm can enter the egg. Fertilisation is the first step in pregnancy.
- ☐ Female and male reproductive systems may not always function properly. As a result pregnancy may not occur. This is known as infertility.

2.2 INFERTILITY

WHAT IS INFERTILITY?

Infertility is when a woman is unable to conceive even after the couple have had sex regularly for over a year without using any contraception. There can be situations where the couple already has a child, but are unable to conceive again.

Generally, young women and men (below the age of 30) tend to have higher rates of fertility because they have more eggs and sperm when compared to older women and men (above the age of 30). As the couple grow older, other conditions like diabetes and high blood pressure may arise, which make it more difficult to conceive.

WHAT ARE THE SYMPTOMS OF INFERTILITY?

The only symptom of infertility is the inability to conceive.

WHO IS RESPONSIBLE FOR INFERTILITY?

Pregnancy is a biological event. It occurs when the sperm meets the egg. If there is a problem in conceiving, there could be a biological problem for either the man or the woman.

WHAT CAUSES INFERTILITY IN WOMEN?

- A number of underlying conditions such as undernourishment and diabetes can lead to infertility.
- Obese women may have hormones stored in the fat, and therefore less of these are available to help release the egg.
- There may be other difficulties in releasing the egg because of diseases of the ovary.

- The egg that is produced is unable to reach the womb due to infections such as tuberculosis (TB) and STIs. These infections can affect the fallopian tube making it difficult for the egg to travel to the womb.

- There may be problems related to the womb, cervix or ovaries.

WHAT CAUSES INFERTILITY IN MEN?

- There may be a problem in sperm production or the quality of the sperm, resulting in a low sperm count. This occurs because of infections of the testes. For example, mumps (an extremely contagious infection), affects both the salivary gland [16] and the testes.

- Under some circumstances (in the absence of any infection) even where sperm production is adequate, conception may still not occur because of defective sperm.

- There may be difficulties in releasing the sperm because of physical problems in the tube that carries sperm.

- STIs affect the testes and the tubes that carry sperm and therefore may lead to infertility.

HOW DOES INFERTILITY AFFECT THE COUPLE?

While infertility is just another physical condition (like high blood pressure), it can be very difficult for the couple to cope with, socially and psychologically. Often the woman is blamed because she is the one who bears the child. Since infertility means being childless, it gets called 'barrenness' and there is immense shame attached to this status. She is considered an incomplete woman, and is repeatedly disrespected and humiliated. This is unfair because the problem can also lie with the man.

Being infertile can be just as difficult for the man as it is for the woman, since a man's social identity is tied to his ability to father children. If he is unable to do so, then he is considered a 'failure'.

[16] Salivary gland is the gland that produces saliva/spit.

The constant taunts and stigma associated with infertility can be difficult for the couple to deal with. This can affect their marital relationship, leading to conflict. As a result, they may have low self worth, fear of meeting people, anxiety and depression. Unfortunately, seeking treatment for infertility can become an open announcement of 'failure'.

WHAT IS THE TREATMENT FOR INFERTILITY?

In most cases, treatment for infertility is available. But it can be expensive and can also take a long time. The treatment depends on the age and the kind of problem the couple has. It is recommended that the couple seek treatment if the woman does not get pregnant after trying for one year, without using any contraception.

SUGGESTIONS FOR DEALING WITH INFERTILITY

- To increase the chances of pregnancy, the couple should have sex between the 7th and 18th day after the menstrual period (that is around the time of egg release).

- Both the man and the woman must undergo tests to understand the exact cause of infertility because the treatment will be based on test results. Men may feel hesitant or unconvinced, but it is important for the couple to undergo the tests together.

- Untreated STIs can cause infertility. It is therefore essential that the infected individual/s take the full course of treatment even after the symptoms have gone. They can prevent future infections by using condoms while having sex.

- Leading a healthy lifestyle increases the chance of conception. A healthy lifestyle means avoiding alcohol or tobacco, eating balanced meals, resting sufficiently and exercising regularly. It is also most important to be cheerful and not feel anxious because unhappiness can make the body tense. This can prevent conception.

While treatment for infertility is available, it is not always a practical option for everyone because it is expensive and such specialised facilities are few in number. However, there is no need to lose hope. There have been cases of couples who have had difficulties conceiving in the past, but have managed to have a child without any treatment. Even if a couple is unable to conceive despite all their efforts, it is possible to adopt a child.

Remember!

- Infertility is when a woman is unable to conceive even after the couple have had sex regularly for over a year without using any contraception.
- Young women and men (below the age of 30) tend to have higher rates of fertility because they have more eggs and sperm when compared to older women and men (above the age of 30).
- Both men and women can have problems, resulting in infertility.
- The only symptom of infertility is the inability to conceive.
- Causes of infertility in women include: underlying conditions like diabetes or undernourishment, obesity; difficulties in the release of the egg; infections that prevent the egg from reaching the womb; problems in the womb, cervix and/or ovaries.
- Causes of infertility in men include: problems in sperm production and sperm release; defective sperm; STIs. *cont. >>*

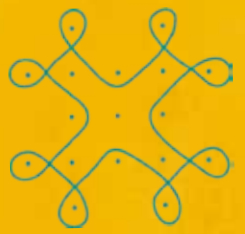
- Generally, the woman is held responsible if the couple cannot conceive because she bears the child, but this is incorrect. There is immense shame associated with being infertile and often the woman is disrespected and humiliated.

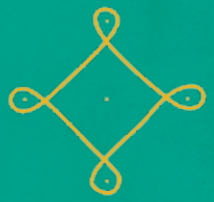
- It is not just the woman who suffers. Men also find themselves in an equally difficult situation. A man's social identity is tied to his ability to father children and if he is unable to do so, then he is considered a 'failure'.

- Treatment for infertility is available, but it can be very expensive and time-consuming.

- It is important that both the man and the woman undergo tests to understand the exact nature of the problem because treatment will be based on test results.

- Leading a healthy lifestyle and avoiding STIs by not having multiple sexual partners, increases the chance of conception for the couple.





PART 3

PREGNANCY

PREGNANCY

3.1 STAGES OF PREGNANCY

Pregnancy is divided into three trimesters[17]: the first, from one to three months; the second, from four to six months; and the third, from seven to nine months. The first trimester is most crucial for foetal development (reasons given below). Some medications taken during this period can affect the development of the foetus. Therefore, when a woman goes to a healthcare provider for any illness, and she thinks she may be pregnant, she should inform her/him about this possibility. This is to ensure that appropriate medications are prescribed.

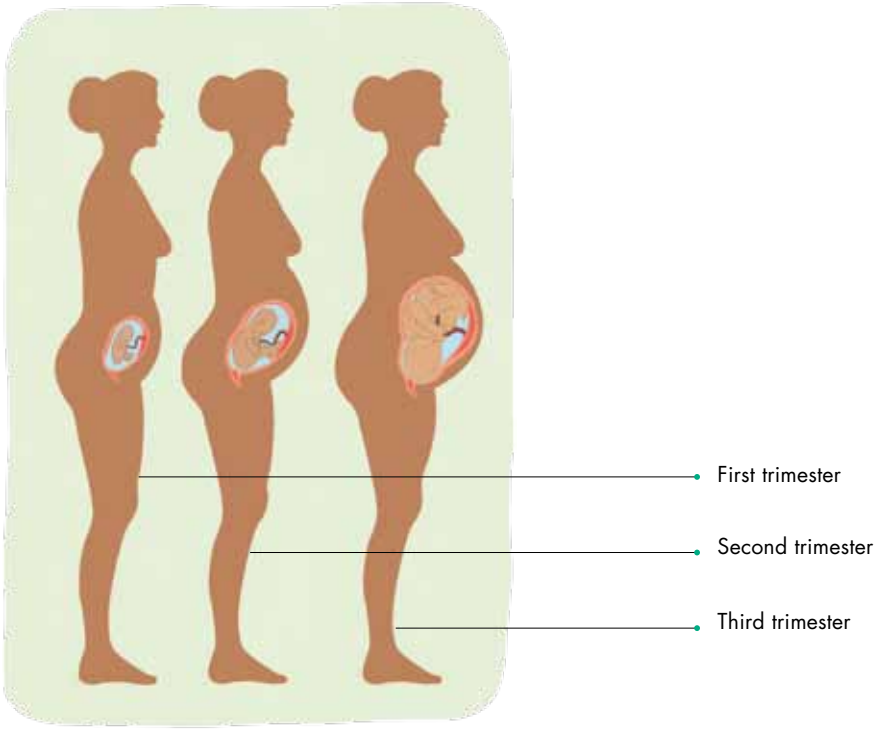


Fig 3. Stages of pregnancy

[17] Trimester is a period of three months.

WHAT HAPPENS IN THE FIRST TRIMESTER?

Immediately after fertilisation, the egg is as small as a poppy seed. During the initial days, the fertilised egg develops into a group of cells. Cells are building blocks of life. These are similar to bricks in a building. These cells attach themselves to a part of the womb (implantation). The attached area develops as the placenta. The remaining cells go on to become the embryo and amniotic sac/membranes (the bag of fluid around the embryo). The embryo is referred to as the foetus after it is eight weeks old. The placenta supplies oxygen and nutrients from the mother to the embryo through the umbilical cord. Similarly, unwanted substances from the embryo get transported through the umbilical cord to the placenta and from there to the mother.

At this stage, the foetus begins to resemble a human body. It is two inches long. The development of the foetal organs is now complete and until the ninth month there is only an increase in weight and length.

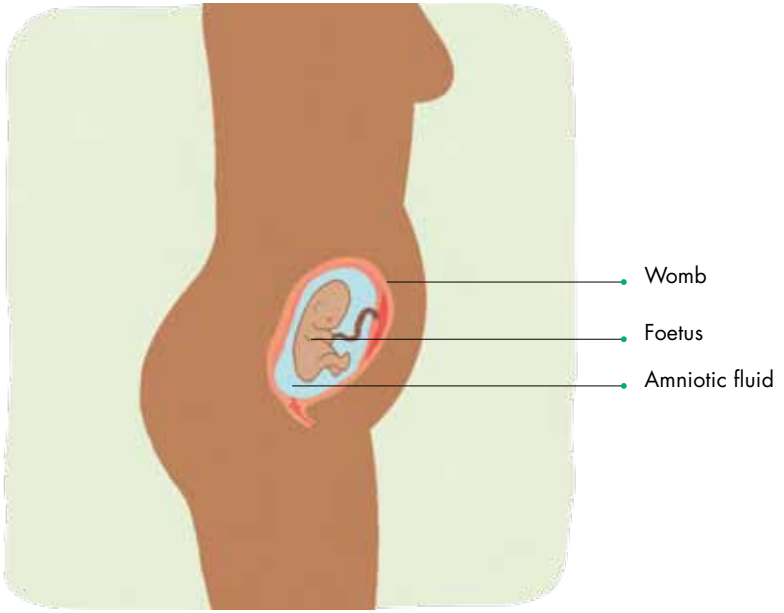


Fig 4. First trimester

WHAT HAPPENS IN THE SECOND TRIMESTER?

The length of the foetus increases from 2 to 12 inches. The foetus begins to drink the amniotic fluid and absorbs it through the skin as well. Unwanted waste is then sent to the large intestine. A thick sticky layer of fat begins to form on the body of the foetus. As the foetus remains in water throughout the pregnancy, this layer protects its skin and helps in a smooth delivery.

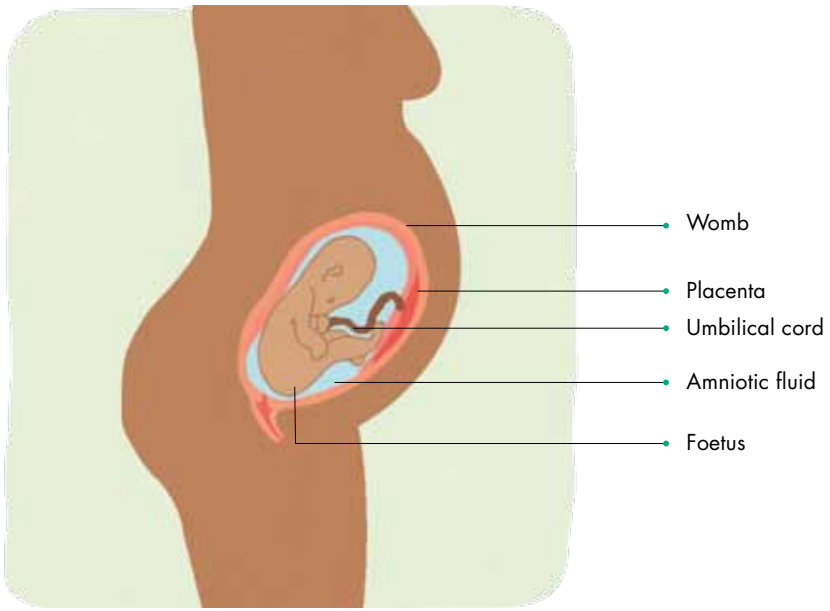


Fig 5. Second trimester

WHAT HAPPENS IN THE THIRD TRIMESTER?

By now the eyes, eyelids, lungs, stomach, small and large intestines are fully developed. While the rate of increase in the length of the foetus slows down, there is rapid weight gain. The foetus can sense light and darkness. If light falls on the mother's stomach, the foetus may turn towards it and try to touch it.

A few weeks before delivery, the sticky layer on the skin begins to come off, resulting in the amniotic fluid turning yellow. Then, the foetus starts to grow a new layer of skin. In this last stage of pregnancy, the foetus should ideally weigh between 2.5 to 3.4 kilograms (kg.). Around the end of the ninth month, the foetus is finally ready to come out and delivery can occur at any time. The expected date of delivery (EDD) is calculated based on the first day of the last menstrual period. It is important to know that EDD need not be the exact date when a woman will deliver. Delivery two weeks before or after the date is normal.

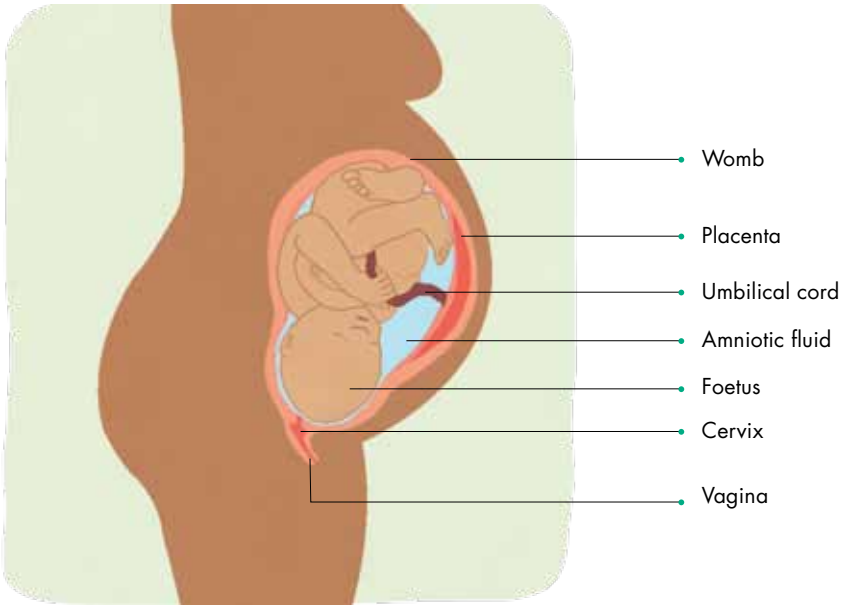


Fig 6. Third trimester

FACTORS AFFECTING FOETAL DEVELOPMENT

- **Maternal nutrition:** Undernutrition during pregnancy, physical stunting and wasting due to poor food intake, and insufficient protein and calories in her diet over many years, can seriously affect the health of the pregnant woman and the foetus. (Stunting refers to undernutrition leading to insufficient gain in height. Wasting refers to insufficient gain of muscle mass and therefore, height.) For more information on nutrition refer to Part 3, section 3.4.

- **Maternal infections:** Maternal infections such as syphilis and rubella can cause foetal abnormalities. (For more information on syphilis refer to Part 3, section 3.13)

- **Lifestyle factors:** A healthy lifestyle refers to having balanced meals, adequate rest and exercise as well as avoiding the consumption of tobacco (in any form) and alcohol. If the foetus is exposed to tobacco because of the mother, it can cause lowered lung function, increased asthma risk, cancer, obesity, diabetes, low birth weight and heart disease later in life. Alcohol can pass from the mother's blood into the blood of the foetus. It can lead to physical or mental problems that can last lifelong. It can damage and affect the growth of the cells of the foetus, especially brain and spinal cord cells. Foetuses exposed to alcohol may be born smaller than other babies. They may have distinctive facial features: flat face and narrow eye openings. The head size can be small. They may not bond or feed properly as a newborn. They may have learning and behaviour problems. Heavy alcohol use can also lead to miscarriage, stillbirth or preterm birth.

- **Age-related factors:** When older women get pregnant for the first time, there is a higher risk of babies being born with birth defects.

- **Marriage among close relatives:** This may cause birth defects such as hole in the heart.

- **Environmental factors:** Exposure to radiation during pregnancy can harm the foetus. Radiation refers to the release of energy or particles (from X-rays, nuclear power production, metal and coal mining, etc.). The severity of the effects of radiation depends on the stage of pregnancy and the amount of radiation to which the woman is exposed. During early development (one to five months), the foetus is highly sensitive to radiation. The consequences of exposure to radiation include stunted growth, deformities, abnormal brain functions or cancer that may develop later in the child's life. Other air pollutants, such as smoke from burning fuel, working or living in/or near waste sites affect foetal growth and can cause developmental delays, reduced Intelligence Quotient (IQ)[18] and behavioural disorders.

[18] Intelligence Quotient is an assessment of a person's ability to think and reason.

HOW IS THE SEX OF THE FOETUS DETERMINED?

Chromosomes are thread-like structures located inside all animal and plant cells. Each cell in the human body contains 23 pairs of chromosomes. Each of these chromosomes contains genes through which we inherit many of our physical, mental, behavioural features and some illnesses from our parents and ancestors.

Of the total of 23 pairs of chromosomes, all except one pair look the same in both males and females. The 23rd pair of chromosomes is called the sex chromosome. Only these differ between males and females. Females have two of what is called the X chromosome, while males have one X and one Y sex chromosome. When a foetus is conceived, it gets one sex chromosome from each parent, one from the father and the other from the mother. But since the woman always carries XX chromosome, she will always contribute X chromosome to her foetus. Since the man carries X and Y chromosomes, he may either contribute X or Y chromosome to the foetus.

During fertilisation, if the X chromosome of the father unites with the X chromosome of the mother, a female child is born. If the Y chromosome of the father unites with the X chromosome of the mother, then a male child is born. So the sex of the child is always determined by the father, not by the mother.

Remember!

- Pregnancy is divided into three stages: the first, one to three months; the second, four to six months; and the third, seven to nine months.
- During the first trimester, the fertilised egg develops into a group of cells, which get attached to a part of the womb. Then, these get divided into the embryo (which is referred to as foetus after it is eight weeks old), amniotic sac/membranes and placenta.
- At this stage, the embryo begins to resemble a human body and it is two inches long.
- Foetal development is complete in the third month itself. From the third to the ninth month, there is only an increase in the size and weight of the foetus.
- During the second trimester, the foetus begins to drink the amniotic fluid and absorb it through the skin as well. Unwanted waste is then sent to the large intestine of the foetus. A thick sticky layer of fat begins to form on the body and the foetus is 6.5 inches long.
- During the third trimester, the eyes, eyelids, lungs, stomach, small and large intestines develop fully. While the growth rate of the length of the foetus slows down, the weight increases. The foetus should ideally weigh anywhere between 2.5 to 3.4 kg.
- Factors that adversely affect foetal development include: maternal nutrition, infections, lifestyle and age-related factors and environmental actors such as radiation.
- The sex of the child always depends on the father, not the mother.

3.2 BIRTH PREPAREDNESS

WHAT IS BIRTH PREPAREDNESS?

Birth preparedness means preparing and planning for delivery in advance.

WHY SHOULD A WOMAN PREPARE FOR THE BIRTH OF HER CHILD?

Four out of ten women may experience problems during pregnancy or delivery. Thus, prior planning for the birth of the baby can prevent unnecessary confusion during that crucial time. This confusion can have dangerous consequences since families may not be in a position to raise financial and other resources (transportation, blood, etc.) at short notice.

Planning in advance also increases the woman's confidence in coping with the challenges of delivery. Thus, both the woman and the family are more in control. This will also enable them to deal with the healthcare system/caregivers with greater confidence.

It needs mention that in some communities and cultural contexts, families are not willing to prepare for the birth of the child, especially for emergencies. They feel this is inauspicious and believe that preparing for adverse situations will actually make these occur. These are superstitious beliefs and must be questioned to put both the woman and her family in a strong position to deal with any situation that may arise.

WHAT IS ESSENTIAL FOR BIRTH PREPAREDNESS?

The woman and her family must think about the following thoroughly:

- Where is the woman planning to deliver?
- Which healthcare provider will conduct the delivery?

- When must the woman go to the healthcare facility?
  Ideally, the woman must go to the healthcare facility as soon as she starts experiencing labour pains. The symptoms of labour are painful contractions every 20 minutes or less, the water breaking and sticky blood-stained discharge from the vagina. Sometimes the woman may display danger signs. These are: vaginal bleeding, fits, severe headaches with blurred vision, fever, weakness, severe stomach pain, fast or difficult breathing and swelling of the legs, hands, body and face. The woman must go to the facility immediately if these signs are seen.

- How will the woman get to the facility? What are the transport arrangements?

- What will be the cost of delivery? (It is important to take into account the money needed for transportation as well.) What will it cost if complications develop during the course of the delivery? What will be the cost, in case a Caesarean is required? Access to financial resources becomes crucial, in case of an emergency. Therefore, the family must start saving sufficient money for this event.

- Who will go with the woman to the facility to support her through the delivery? Who will stay at home to take care of the children and the household in her absence?

- The woman must carry food, clothes for herself and the baby, and cloths/pads for post delivery bleeding.

- In case a Caesarean birth has been planned, the woman and her family must discuss the procedure and what to expect of it, with the doctor. They must ensure that the needed items, (especially those that are unavailable in the hospital) are obtained before the operation.

- The family must identify blood donor/s, especially in case the woman is undergoing an operation or if there is risk, like anaemia.

- The family has to plan for providing care in the postpartum period. Soon after the birth of the baby, it is important for someone from the family to stay with the woman for at least a day in the healthcare facility. The mother must be given plenty of clean water and normal food.

- For at least 42 days (postpartum period), the woman must rest for eight hours at night and at least another two hours during the day. She should not do heavy work, such as lifting weights. The other family members must cooperate and help the woman carry out household tasks. If the woman is anaemic and/or has high blood pressure and/or has undergone a Caesarean, she should consult the doctor before she resumes her normal activities.

- While bleeding after delivery is normal, severe bleeding can lead to life-threatening complications for the woman. She must be told that if she is changing pads every five minutes, medical help must be sought immediately.

- The woman must maintain personal hygiene. For instance, she should bathe regularly, use soap to wash her hands after going to the toilet, etc. If there are cuts/wounds or injuries near the vagina, keeping it clean and dry will help in faster healing. In case the woman has undergone an operation, she should clean herself by wiping with a wet cloth, rather than taking a bath until the wounds heal.

- It is advisable for the couple to talk to the doctor after delivery, about using contraception to prevent a pregnancy in the near future.

Remember!

- Birth preparedness means preparing and planning for delivery in advance.
- Prior planning for the birth of the baby can prevent unnecessary confusion during that crucial time of delivery.
- Some of the important pointers in preparing for the birth of the baby include: which centre and provider will the woman go to; when to go to the healthcare centre; what are the danger signs; planning for sufficient funds in case of an emergency; planning for transport; identification of blood donor/s in case the need arises, etc.

3.3 ECTOPIC PREGNANCY

WHAT IS ECTOPIC PREGNANCY?

As mentioned earlier, the foetus usually develops inside the womb. However, **sometimes, the pregnancy occurs outside the womb and this is referred to as ectopic pregnancy.** It could, for instance, occur in the fallopian tubes or the ovaries. Unlike the womb, which can expand to hold the foetus for nine months, the fallopian tubes and/or ovaries cannot. As a result, after two or three months of pregnancy, the fallopian tubes or ovaries break, causing bleeding inside the abdomen. This can be life-threatening for the woman and needs immediate attention.

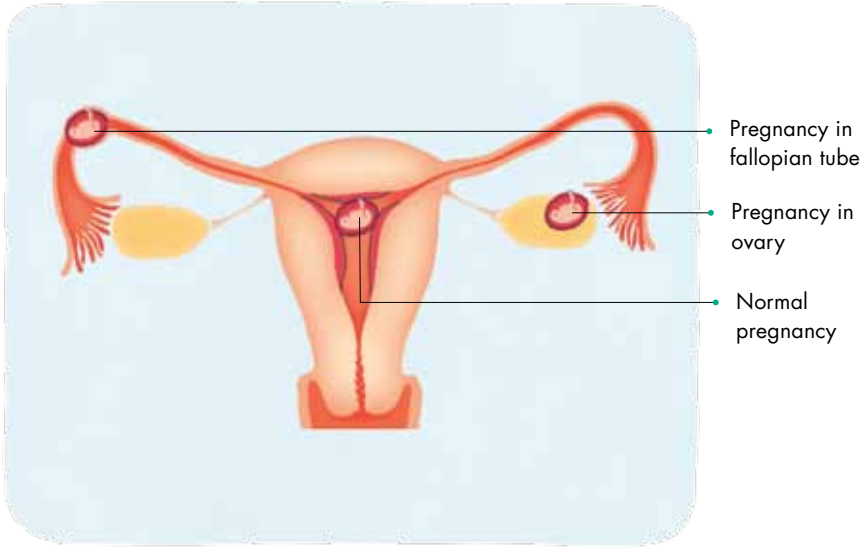


Fig 7. Ectopic pregnancy

WHAT ARE THE CAUSES OF ECTOPIC PREGNANCY?

- Infections (gonorrhoea and chlamydia) spread by sex with an infected person without the use of condoms. These infections damage the fallopian tubes, which increase the likelihood of having an ectopic pregnancy. (For more information on these infections, refer to Part 3, section 3.13.)

- Infections or surgeries conducted on the appendix result in scarring around the fallopian tube, making it stiff. This does not allow for the transportation of the egg.

- Birth defects of the fallopian tubes. For example, a long tube means the egg has to travel a long distance to reach the womb. In such situations, the likelihood of an implantation of a fertilised egg outside the womb is very high.

WHO IS AT RISK FOR ECTOPIC PREGNANCY?

All the women mentioned below will not necessarily have an ectopic pregnancy. But they have a greater risk. Hence, precautions should be taken.

- Women who are over the age of 35.

- Women who have a previous history of an ectopic pregnancy.

- Women with multiple sex partners, who have sex without condoms.

WHAT ARE THE SYMPTOMS OF A RUPTURED (BROKEN) ECTOPIC PREGNANCY?

The fallopian tubes and/or ovaries cannot expand the way the womb does, to hold the foetus. Therefore, after two or three months of pregnancy, the fallopian tubes or ovaries break, causing bleeding inside the abdomen. **This is a life-threatening emergency and can be identified through the following symptoms:**

- A missed menstrual cycle.

- Spotting or bleeding from the vagina.

- Severe abdominal or shoulder pain.

- Fainting.

- Vomiting.

HOW CAN AN ECTOPIC PREGNANCY BE DETECTED?

If the woman displays the above symptoms, she must see a healthcare provider immediately. The healthcare provider is supposed to conduct pregnancy tests, scans and physical examinations to determine whether the woman has an ectopic pregnancy.

WHAT IS THE TREATMENT FOR ECTOPIC PREGNANCY?

Treatment for ectopic pregnancy depends on whether the fallopian tube is intact or ruptured. If it is intact, then healthcare providers prescribe medicines that will abort the pregnancy by preventing the growth of the foetus. However, if the fallopian tube is ruptured, there will be severe bleeding inside the woman's abdomen. Since this is life-threatening, healthcare providers have to operate on the woman to remove the ruptured tubes, foetus and placenta immediately. Usually, the woman needs a blood transfusion because of significant blood loss.

WHAT IS THE IMPACT OF AN ECTOPIC PREGNANCY ON FUTURE PREGNANCIES?

Around nine out of ten women can have a normal pregnancy, even if they have previously had an ectopic pregnancy. The extent to which the fallopian tubes were affected during the ectopic pregnancy determines whether or not a woman can have a normal pregnancy subsequently.

Remember!

- ☐ Ectopic pregnancy occurs outside the womb. The fertilised egg could grow in the fallopian tubes, ovaries or in rare cases, even the abdomen.
- ☐ Ectopic pregnancy cause bleeding, which is life-threatening. It requires immediate attention.
- ☐ Causes of ectopic pregnancy include: gonorrhoeal and chlamydial infections; surgeries conducted on the appendix; birth defects of the fallopian tubes in the woman.
- ☐ Women who are over the age of 35; had a previous history of an ectopic pregnancy; have multiple sex partners who do not use condoms, are at a higher risk for ectopic pregnancy.
- ☐ Symptoms of ectopic pregnancy include a missed menstrual cycle; spotting or bleeding in the vagina; shoulder or abdomen pain; vomiting and fainting.
- ☐ If the woman displays the above symptoms she must see a healthcare provider immediately.
- ☐ Treatment for ectopic pregnancy includes removing the foetus, fallopian tubes and placenta.
- ☐ Most women, who have previously had an ectopic pregnancy, can have a normal pregnancy.

3.4 NUTRITION AND PREGNANCY

Adequate nutrition is necessary during pregnancy for the health of the mother and the foetus. Inadequate food intake leads to maternal anaemia and low birth weight babies. Severe anaemia in the mother can cause life-threatening complications. (For more information regarding the problems and implications of anaemia, refer to Part 3, section 3.5.)

WHY IS NUTRITIOUS FOOD NECESSARY?

It is necessary for:

- Physical development
- Strengthening bodily functions (for example, blood circulation, muscle movement and development and protection against illnesses)
- Cognitive and psychological development (decision making, problem solving, interpreting what is seen, reading, etc.)
- Social development (learning social norms, communicating with people and the ability to deal with challenging situations)

HOW DOES NUTRITIOUS FOOD GIVE US ENERGY?

Our body cannot get energy directly from the food we eat because of the form in which it is consumed. Our food contains hidden energy. The food is digested in the stomach and intestines and gets converted into simple sugar. This is easily absorbed by the blood and is carried to all the cells in the body. The pancreas produce insulin (a hormone). Insulin enables the simple sugar in the blood to enter the cells. Inside the cells, simple sugar gets converted into energy, which helps the cells perform their tasks efficiently and effectively.

SOURCES AND FUNCTIONS OF FOOD

There are different components of food, which are required to perform various functions in the body. Therefore, it is very important to have a balanced diet. It is necessary to consume food that has all the components mentioned below, in adequate quantities.

CARBOHYDRATES

Sources: Rice, wheat, jowar, ragi, bajra [millets], bread, sugar, potato, etc.
Benefits: Provide energy to perform daily activities.
Deficiency: Leads to tiredness, weakness and weight loss.

PROTEINS

Sources: Milk, curd, egg white, toor dal, channa dal, urad dal [lentils], green gram, etc.
Benefits: Provide nutrients for growth and increases strength and stamina. Proteins are required in large quantities during childhood, adolescence, pregnancy and the postpartum period after the baby is born.
Deficiency: Weakens muscles and prevents wounds from healing.

VITAMINS

Sources: Fruits and vegetables
Benefits: Equip the body to fight illness and strengthen the nerves[19]. There are different types of vitamins, such as A, B, C, D, E and K. Vitamins A, D, E and K, need fat for absorption, while Vitamins B and C require water.
Deficiency: Leads to frequent infections and illnesses as well as weight loss.

[19] Nerves are pipe-like structures that help in sending signals from the brain and spinal cord to other parts of the body and vice-versa.

FATS

Sources: Oil, ghee (clarified butter) and butter. There are two types of fats: healthy and unhealthy. Healthy fats reduce cholesterol, and are found in sunflower oil, walnuts, almonds, and salmon fish oil. Unhealthy fats increase cholesterol and are found in fried items (e.g. chips), ice creams, biscuits, cakes, etc.
Benefits: Maintain body temperature, healthy skin, hair as well as the brain and its functions.
Deficiency: Lead to poor brain function, skin problems and worsens vitamin deficiency problems.

FIBRE

Sources: Green leafy vegetables, beans, banana, orange, sweet lime, etc.
Benefits: Improves bowel movements and prevents constipation.
Deficiency: Increases the risk of diabetes, heart diseases and colon cancer.

WATER

Sources: Water content is high in fruits such as watermelon and musk melon.
Benefits: Helps to absorb, transport and excrete materials. Our body is made up of 60 to 70 percent water. We require at least two litres of water daily.
Deficiency: Loss of water from the body is called dehydration. It is caused by excessive vomiting, diarrhoea and water loss due to high climatic temperatures. Insufficient quantity of water increases the risk of heat stroke, swelling of the brain, fits and kidney failure.

MINERALS

Benefits and Sources: Needed for body movements, carrying oxygen to all parts of the body, normal functioning of muscles and nerves and to fight infections. There are several minerals and the most important ones are:

- **Iron** carries oxygen. It is available in dried dates, pomegranate, spinach, beans and nuts.
- **Potassium** maintains blood pressure. It is available in banana, tomato, potato, and raisins.
- **Calcium** helps in the growth of bones and maintains blood pressure. This is available in milk, curd, spinach, beans, ragi and custard apple.
- **Magnesium** is required for insulin to work efficiently. This is available in husk, red rice, and almonds.
- **Zinc** strengthens the body's disease fighting capacity (immune system), helps in healing wounds and forming a healthy foetus. This is available in nuts, pulses, crab meat, etc.

WHAT IS A BALANCED DIET?

Eating appropriate proportions of all the different types of food is called a balanced diet. It is important to have balanced meals every day. This means the following:

- 6 to 11 servings of rice, wheat, ragi, jowar, bajra.
- 2 to 3 servings of dals, sprouts, milk, curd, eggs, meat or fish.
- 2 to 5 servings of fruits and vegetables.
- Fats, oils and sweets must be eaten sparingly.

As stated in the beginning, a balanced diet is important for pregnant women. They have increased nutritional needs, as they need to support both themselves and the foetus. Undernutrition leads on to anaemia which in turn can cause complications during pregnancy. The social context in which undernutrition and anaemia arise and the impact on pregnancy is discussed in Part 3, Section 3.5.

Remember!

- ☐ Eating well in pregnancy is crucial for the health of the mother and the foetus. Inadequate food intake leads to maternal anaemia and low birth weight babies.
- ☐ Nutritious food is necessary for physical, cognitive, psychological and social development. It also strengthens bodily functions such as blood circulation, etc.
- ☐ Nutritious food gives us energy by converting the digested food into simple sugar. The simple sugar gets absorbed in the blood and is carried to all the cells in the body. With the help of insulin, the simple sugar enters the cells. Inside the cell, the simple sugar gets converted to energy and helps the cells perform their respective tasks efficiently and effectively.
- ☐ There are different sources and functions of food: carbohydrates, proteins, vitamins, fats, fibre, water and minerals.

3.5 ANAEMIA IN PREGNANCY

Anaemia means reduced oxygen carrying capacity of blood. This occurs when there is a deficiency of haemoglobin (Hb) in red blood cells. If Hb is less than 11 gram percent (g%), it is considered as anaemia. Haemoglobin carries oxygen from the lungs to all parts of the body and primarily consists of iron. There are several reasons for anaemia, of which iron deficiency is the most common. A major cause for iron deficiency is undernutrition. Anaemia causes weakness in a pregnant woman, making even routine work hard. It is a preventable condition, which must be identified and treated early. Otherwise, it can lead to life-threatening complications for pregnant women.

According to WHO, anaemia is estimated to affect two-thirds of pregnant women in developing countries, including India. The National Family Health Survey-3 (NFHS-3) 2005-2006 reveals that the prevalence of anaemia is 70 to 80 percent in children, 70 percent in pregnant women and 24 percent in men. Iron deficiency anaemia is responsible for 95 percent of anaemia in pregnancy.

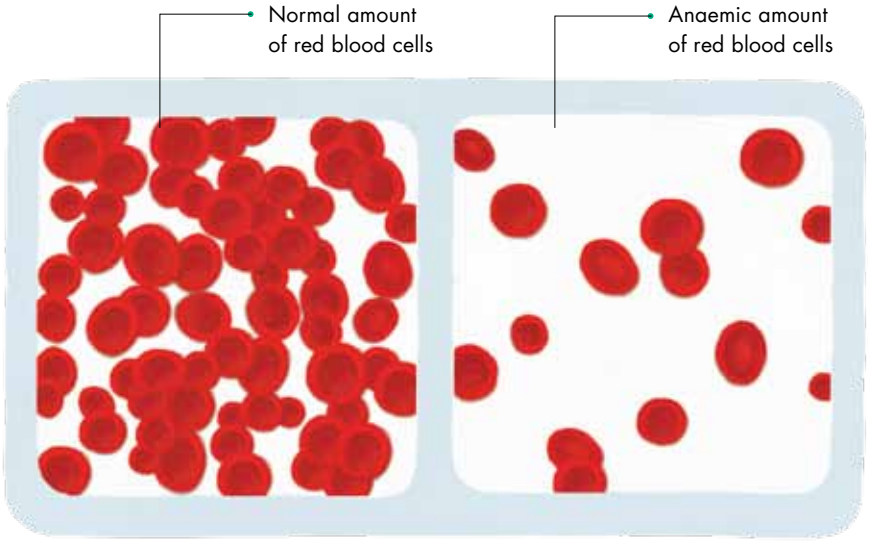


Fig 8. Anaemia

THE SOCIAL CONTEXT OF UNDERNUTRITION AND ANAEMIA: HOW DOES IT AFFECT PREGNANCY?

Undernutrition and anaemia are closely related and tend to occur for similar underlying reasons. The social context (discussed in Part 1) is the base for understanding both these conditions. We see how young Gayatri does not get enough food, is married young and goes through frequent and multiple pregnancies. Even women who get married as adults may have to go through some of these experiences. Undernutrition leading to anaemia is so common among women that it is regarded as normal. Girls and women who are anaemic tend to pick up infections more easily.

The root cause of undernutrition and anaemia is **poor dietary intake**. This occurs due to **poverty, unequal gender relations and a lack of awareness about balanced meals.** From childhood, girls are fed smaller and less nutritious portions (as seen in Gayathri's story). This undernutrition leads to anaemia at an early age. Girls and women are expected to work hard and long hours daily, with little rest or leisure, and poor nutrition. The impact of poverty is worse for women, because even after a long, intense day at work, they are expected to complete household tasks. As a result, the risk of anaemia is greater among women than men from similar households.

Women's low level of physical growth and development (including stunting) puts them at a greater risk of being undernourished when subject to frequent and/or multiple pregnancies. For example, if a woman is breastfeeding and gets pregnant, there is an increased nutritional demand on her.

Anaemia is so common that it is regarded as normal. A common symptom of anaemia such as tiredness is considered to be 'normal' due to the heavy work women do. Thus, when a woman complains of tiredness, it is ignored and no action is taken. As a result, both the severity of anaemia and the risk for related life-threatening complications increase significantly for the woman. Even primary healthcare providers often fail to acknowledge the signs and symptoms of anaemia due to its high prevalence.

There is a cyclical relationship between infections (such as malaria, hook worm, tuberculosis and pneumonia), undernourishment and anaemia. Undernourishment and anaemia make the woman vulnerable to infections; infections in turn cause undernourishment and anaemia. This occurs more among pregnant women because during pregnancy, women's capacity to fight illness and infections is less.

WHAT ARE THE GRADES OF ANAEMIA?

Anaemia is graded based on its severity. WHO grades anaemia in the following manner:

SEVERE	MODERATE	MILD
4 - 6.9 g%	7 - 9.9 g%	10 - 10.9 g%

WHAT ARE THE CAUSES OF ANAEMIA?

- Deficiency in iron and Vitamin B complex, due to a lack of iron and/or Vitamin B complex in the food consumed.
- Even if food intake is adequate and balanced, some diseases of the intestine prevent absorption of iron and Vitamin B complex.
- Prevention of red blood cell production due to bone and kidney related diseases.
- Destruction of red blood cells due to diseases like malaria.
- Excessive blood loss due to heavy periods, delivery, accidents, bleeding fissures, piles or hook worm infection[20].

[20] Treatment for hook worm infection should be given only after the first trimester.

WHY IS ANAEMIA A RISK DURING PREGNANCY?

During pregnancy, there is a natural increase in the water content of the blood. While this dilution helps in minimising the effect of blood loss after delivery, it lowers the haemoglobin levels. Women who have low Hb levels are more likely to be naturally anaemic during pregnancy. The risk of anaemia further increases if women do not consume iron-rich food.

WHAT ARE THE SYMPTOMS OF ANAEMIA?

While mild anaemia may not have any symptoms, moderate and severe anaemia may have the following symptoms:

- Tiredness.
- Difficulty in doing day-to-day work.
- Swelling in hands and feet.
- Cough and difficulty in breathing.

WHAT ARE THE CONSEQUENCES OF ANAEMIA FOR PREGNANT WOMEN?

- An anaemic pregnant woman is less capable of fighting infections which makes her vulnerable.
- As mentioned earlier, the amount of oxygen carried through the blood of an anaemic person is lower than normal. Hence, the body cells get less oxygen. As a natural response, the heart works harder to fulfil the oxygen needs of the body. Since the blood supplied to the heart muscles also lacks sufficient quantities of oxygen, the heart itself does not get the required amount of oxygen. Therefore, it gets tired and fails to work. This is very similar to a tired ox being forced to work so hard that it may collapse. This is called heart failure. Heart failure is identified by symptoms such as cough and breathlessness.

- The womb may not contract after delivery causing excessive bleeding, which can result in maternal death. Even a normal amount of bleeding after delivery can increase anaemia, the risk of heart failure and death.

- The woman may go into preterm labour.

- A pregnant woman who has anaemia may also be undernourished and is therefore unable to provide enough nourishment or oxygen for the foetus. Undernutrition and insufficient oxygen can cause low birth weight babies.

- A woman with severe anaemia may have reduced milk production and may find it difficult to feed the baby sufficient quantities of milk. This also can lead to undernourishment in the baby.

HOW CAN THE RISK OF ANAEMIA BE REDUCED?

The risk of anaemia during pregnancy can be reduced in the following ways:

FOOD

The pregnant woman must take iron-rich food such as green leafy vegetables, drumstick, tomatoes and apples. It is also important to have lime, sweet lime, orange or gooseberry, as these increase iron absorption. It is better to avoid excessive consumption of coffee and tea because these reduce iron absorption.

TESTS

The pregnant woman must undergo Hb tests at least four times (14th week, between 20th to 24th week, between 26th to 30th week and 30th to 34th week) during pregnancy so that anaemia can be identified and treated early.

IRON AND FOLIC ACID (IFA) TABLETS

These tablets contain iron and folic acid and prevent anaemia. While iron improves Hb levels, folic acid is essential for the development of new cells. Therefore, it is recommended that all pregnant women take these tablets.

WHAT IS THE TREATMENT FOR ANAEMIA?

Treatment for anaemia includes tablets and injections. The kind of treatment is dependent on the severity of anaemia and the duration of pregnancy.

IFA tablets

- If a woman is suffering from mild anaemia, she is given these tablets once a day for six months.

- If a woman is suffering from moderate anaemia, she is given IFA tablets twice a day for six months. Once the treatment has started, healthcare providers generally recommend another Hb test around four to six weeks later. This is to monitor the body's response to the treatment. If there is a rise in Hb levels, then the same treatment is continued. However, if there is little or no response to the treatment, then the woman is referred to a higher facility. In the facility, she will be put through more specialised tests to determine the exact cause of anaemia and the treatment will be changed accordingly.

- In addition to increasing Hb levels and preventing anaemia in the mother, IFA tablets are also given to minimise the risk of having low birth weight babies. Many women, especially those who are small built, hesitate in taking tablets because they believe that IFA tablets make the foetus grow 'bigger'. It is a common belief that chances of having a normal delivery significantly decreases if it is a 'big baby' and is thereby assumed to be more risky. This is not always true. If the woman gets proper care during delivery by a competent or skilled person, then the risks associated with a big baby can be easily managed. However, it is much more difficult to manage the life-threatening complications that can arise due to anaemia. Thus, it is safer for the mother and the foetus if

the woman takes IFA tablets, rather than having to deal with complications of anaemia.

- The IFA tablets may make the woman feel nauseous and cause heart burn. However, these side effects can be avoided if the woman eats food along with the tablet.

- IFA tablets also cause constipation in some women because of the high iron content. Constipation can be reduced by eating more green leafy vegetables, banana, ladies fingers and beans. However, if the woman does not feel better, then she must meet the healthcare provider to explore options to change the medication.

Iron injections

There are many types of iron injections available: some of these are given in the muscle (on the buttock); while one of these (iron sucrose) is given in the vein.[21] The doctors decide which type of injection to prescribe based on the severity of anaemia and the stage of pregnancy.

- All injections reduce the need for blood transfusion and the risk of getting infections such as HIV, hepatitis B and C. In addition, one unit of blood that is transfused increases Hb only by one gram, while iron (sucrose) injections can increase Hb by 2.5 to 4 g%.

- Generally, these injections are given to women who have an Hb count that is between 7-9 g% between the third and seventh month of pregnancy. The number of injections that need to be given to a woman is calculated based on how many grams her Hb must rise. It normally takes 10 to 13 days (after taking the injection) to see any improvement in the symptoms experienced by the woman and in red cell production.

- It is not necessary for the woman to take iron tablets if she is taking injections.

[21] Veins are blood vessels that bring blood from all parts of the body to the heart.

- These injections enter the body and increase Hb levels in a short time. In addition, the iron gets stored in the woman's liver and bones; it acts as a reserve, in the long term. Thus, these injections delay anaemia in the future.

- Injections given in the buttock are usually given every alternate day and can be painful. This injection may cause headache, dizziness, nausea, feeling of increased warmth, rashes, fever, chills, muscle and joint pain, pain and swelling (at the site of the injection).

- Iron sucrose injections are given in the vein by mixing it with a watery medium (saline).This process must be completed within 20 minutes. If the injection is given slowly, it produces free iron particles which cannot get absorbed by the blood. This can lead to severe reactions such as low blood pressure and in extreme cases, even death.

Blood transfusion

Depending on the severity of anaemia and how close the expected date of delivery is, blood transfusion is considered to be another treatment option.

Remember!

- Anaemia is a condition in which there is a deficiency of haemoglobin in red blood cells. If Hb is less than 11 g%, it is considered as anaemia.
- Haemoglobin carries oxygen from the lungs to all parts of the body and is primarily made up of iron.
- Anaemia is graded on the basis of its severity.
- The causes of anaemia include: deficiency in iron and B complex, prevention of absorption of iron and B complex due to diseases, excessive blood loss, heart problems, inadequate production or destruction of red blood cells due to diseases.
- The symptoms of anaemia include the following: tiredness, difficulty in doing daily work, swelling in hands and feet, cough and difficulty in breathing.
- The consequences of anaemia include the following: lowered ability to fight infections; womb failing to contract after delivery; excessive bleeding; heart problems; preterm labour and delivery; low birth weight babies; and undernutrition for the baby.
- The risk of anaemia can be reduced by eating iron-rich food and undergoing tests for Hb at least four times during pregnancy.
- The treatment for anaemia includes taking IFA tablets; iron injections; and blood transfusion.

3.6 HIGH BLOOD PRESSURE IN PREGNANCY

When the heart beats, it pumps blood through a system of blood vessels[22], which carry pure blood to every part of the body. Blood pressure is the force the pumped blood exerts on the walls of the blood vessels. If, over a number of weeks, the blood pressure reading is consistently 140/90 mm Hg or higher, it is referred to, as high blood pressure or hypertension.

WHAT CAUSES HIGH BLOOD PRESSURE DURING PREGNANCY?

There is no established reason why blood pressure increases for some women during pregnancy. For a few women, the blood vessels become narrower causing high blood pressure. It is unclear why the vessels become narrower. When there is high blood pressure, the heart has to work harder to pump blood into these narrow blood vessels.

WHO IS AT RISK FOR HIGH BLOOD PRESSURE?

- A woman who has a family history of high blood pressure during pregnancy.
- A woman who is suffering from high blood pressure even before pregnancy.
- A woman in her first pregnancy.
- A young girl who gets pregnant before the age of 18.
- A woman who is over 40 years of age.
- A woman with severe anaemia.
- A woman who is carrying twins.

[22] For more information on heart and blood vessels, refer to Part 3, section 3.11 on Heart Diseases in Pregnancy.

CAN HIGH BLOOD PRESSURE RECUR IN SUBSEQUENT PREGNANCIES?

The risk of high blood pressure in subsequent pregnancies is approximately 20 percent. The recurrence of high blood pressure is dependent on when the woman had it in her previous pregnancy and how severe it was. It is possible that some women continue to suffer from high blood pressure even after their first pregnancy. In such cases, the risk of getting high blood pressure is very high in subsequent pregnancies.

WHAT ARE THE SYMPTOMS OF HIGH BLOOD PRESSURE?

The symptoms of high blood pressure can come on quite suddenly. At times, the symptoms show up in a few hours. Blood pressure tends to increase after the fifth month of pregnancy or just after delivery. Usually it settles down 48 hours after delivery. However, in some cases, this increased pressure may last up to one and a half months after delivery, for no particular reason. It is important to look out for the symptoms so that precautionary care can be taken.

MODERATE
140/90 -160/110 mm Hg

- Swelling of feet, hands and body that does not decrease even after eight to ten hours of rest. (A tightening of finger/toe rings or slippers is a clear indication that medical help is required.)
- Protein in the urine.

SEVERE
> 160/110 mm Hg

- Headache
- Blurred vision
- Tiredness
- Vomiting/nausea
- Reduced urine output
- Upper abdominal pain
- Breathing difficulties
- Fits

Even in cases where symptoms are less severe, these should not be treated as normal. As soon as any symptom is observed, the woman must see a healthcare provider and get appropriate treatment to prevent complications in the pregnancy.

WHAT ARE THE CONSEQUENCES OF HIGH BLOOD PRESSURE?

- The pregnant woman's kidneys get damaged and become like a torn sieve because of high blood pressure. As a result, large amounts of protein pass through the urine.
- High blood pressure causes salt and water to remain in the body. This leads to swelling in the feet, hands and body.
- High blood pressure increases risk of bleeding under the placenta, which makes it separate from the womb. This sudden bleeding reduces oxygen and nutrition supply to the foetus causing foetal death. Bleeding under the placenta also results in haemorrhaging (bleeding) from all the openings in the body, such as (ears, mouth, nose, vagina and urinary passage) because the body loses it clotting ability.
- The woman can develop fits.
- The woman may suffer from a paralytic stroke.
- The woman may become unconscious, develop breathing difficulties and die.
- The woman may go into preterm labour.
- The woman may have a stillbirth or a low birth weight baby.

PREVENTION OF FURTHER INCREASE IN HIGH BLOOD PRESSURE

Though there are no methods to completely prevent high blood pressure from occurring during pregnancy, there are ways of controlling a further increase.

- Swelling of feet, hands and body that does not go away even after eight to ten hours of rest should not be treated as normal. The woman must see a healthcare provider.
- Since blood pressure can increase without indication at anytime after the fifth month of pregnancy until delivery, a woman must get her blood pressure

checked regularly. Thus, if there is a problem, it can be identified and treated early.

- Blood pressure, once checked, must be reconfirmed after six hours. If it is still high, then healthcare providers may suggest other tests to determine what treatment needs to be given.
- Treatment for high blood pressure depends on how severe it is, how close the woman is to her expected date of delivery and the nature of problems she has.
- Generally, treatment is given for prevention of fits rather than lowering blood pressure itself.
- The overall salt intake in the woman's diet needs to be reduced. Consuming salt in regular quantities in cooked food is not a problem, but adding extra salt to the cooked food can increase blood pressure. In addition, food items that have a high salt content, such as pickle and fried food should be avoided.
- The woman must drink at least eight glasses of water a day.
- The woman must rest for an hour or two during the day. Preferably, she should lie on her left side. Not only does this position improve blood circulation to the womb, it also minimises high blood pressure.
- While lying down, the woman can keep her feet raised, as this helps reduce swelling.

Remember!

- ☐ Blood pressure is the force that the pumped blood exerts on the walls of the blood vessels.
- ☐ If the blood pressure reading is consistently 140/90 mm Hg or higher, over a number of weeks, it is referred to, as high blood pressure or hypertension.
- ☐ There is no established reason why blood pressure increases for some women during pregnancy. It has been observed that narrowing blood vessels causes high blood pressure. It is unclear why the blood vessels become narrow.
- ☐ Women who have a family history of high blood pressure, women who are suffering from the disease before pregnancy, women in their first pregnancy, etc., are at an increased risk for high blood pressure.
- ☐ High blood pressure can recur in subsequent pregnancies, but it depends on when the woman had it in her previous pregnancy and how severe it was. *cont. >>*

- Blood pressure tends to increase after the fifth month of pregnancy or delivery and may last up to one and a half months after delivery, for no particular reason.
- The symptoms of moderate blood pressure include: protein in the urine and swelling of hands, body and feet, even after eight hours of rest.
- The symptoms of severe blood pressure include: headache, blurred vision, tiredness, vomiting, reduced urine output, upper abdominal pain, breathing difficulties and fits.
- The consequences of high blood pressure include: preterm labour; bleeding under the placenta causing foetal death and excessive bleeding from all openings of the body; paralytic stroke; fits; low birth weight babies; stillbirth and maternal death.
- Though there are no methods to completely prevent high blood pressure during pregnancy, there are ways of preventing a further increase.
- Treatment for high blood pressure depends on how severe it is, how close the woman is to her expected date of delivery and the nature of problems she has.

3.7 VAGINAL BLEEDING IN PREGNANCY

Vaginal bleeding can either occur in the early months of pregnancy or later, i.e., before delivery.

WHAT ARE THE CAUSES OF VAGINAL BLEEDING IN EARLY PREGNANCY?

Some women experience vaginal bleeding after fertilisation, when the placenta is getting attached to the womb. Bleeding for this reason usually stops in two days. Miscarriage, abortions and ectopic pregnancy are the other causes of bleeding in early pregnancy. These can lead to life-threatening complications for the woman. For more details on these conditions, refer to Part 3, section 3.3 on Ectopic Pregnancy and Part 6, section 6.3 on Miscarriage.

WHAT ARE THE CAUSES OF VAGINAL BLEEDING LATER IN PREGNANCY?

Vaginal bleeding after five and a half months of pregnancy but before delivery may occur because of problems with the placenta.

WHAT IS THE ROLE OF THE PLACENTA?

As explained in Part 3, section 3.1, on Stages of Pregnancy, the placenta is the link between the foetus and the mother. The fertilised egg develops into a group of cells, which attach themselves to any one portion of the womb. Then this group of cells get divided into the embryo (which is referred to as a foetus after it is eight weeks old), amniotic sac/membranes and placenta. Usually the placenta is located in the upper portion of the womb, away from the cervix. The placenta supplies oxygen and nutrients from the mother to the embryo through the umbilical cord. Similarly, unwanted substances from the embryo get transported to the placenta and therefore to the mother. The placenta produces hormones that help the foetus grow during pregnancy.

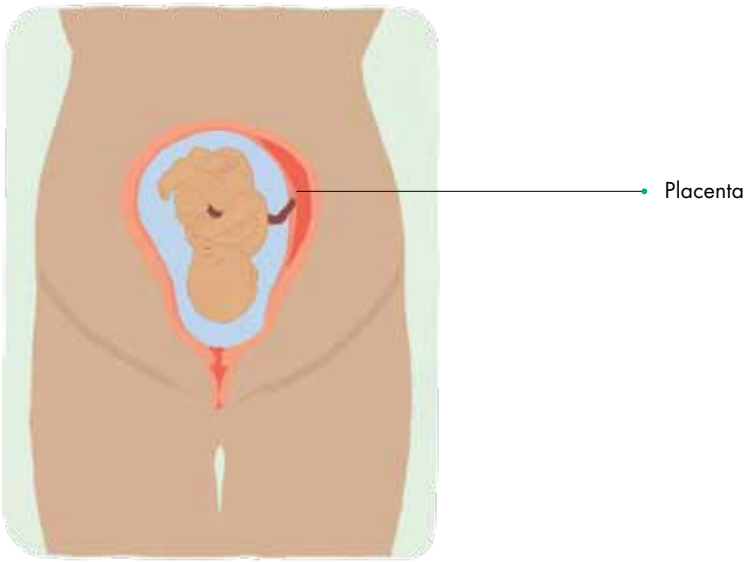


Fig 9. Normal placenta implantation

WHAT ARE THE TYPES OF PLACENTAL PROBLEMS?

There are two types of placental problems: low lying placenta and an early separation of a normally located placenta. These conditions occur when there is poor blood flow to the womb.

LOW LYING PLACENTA

Low lying placenta refers to the attachment of the placenta to the lower portion of the womb, close to the cervix. In such a situation, the placenta can either cover the cervix partially or completely. During the first or second trimester, when the placenta covers the cervix partially, the placenta can move up along with the growing womb as pregnancy advances. It is likely that a partially covering placenta will naturally move away from the cervix during labour and not cause any problems. However, if the placenta covers the cervix completely, close to the time of delivery, it is unlikely to move away from the cervix. This separates the placenta from the womb during labour causing bleeding before delivery.

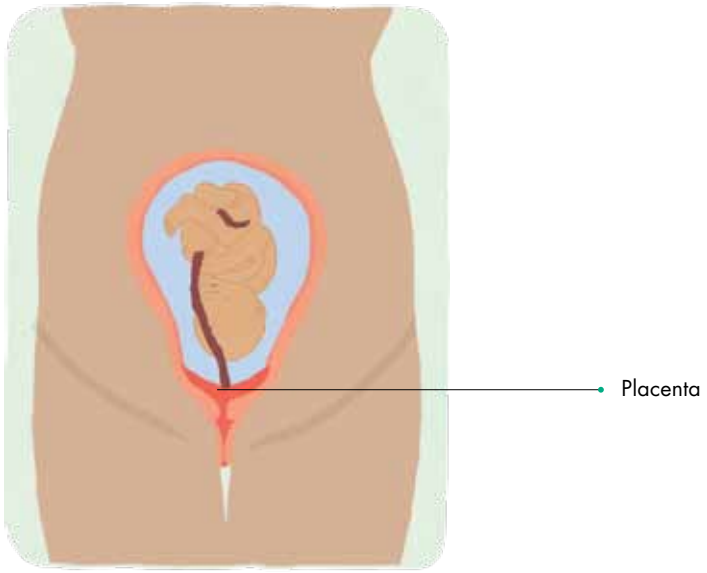


Fig 10. Low lying placenta

What are the risk factors for a low lying placenta?

There are no clear reasons why a low lying placenta occurs. But some factors may put the woman at risk for having this condition:

- If there is a gap of more than four years between two children, blood flow to the womb may be affected. This and the increasing age of the mother, result in a higher risk for a low lying placenta.
- If the woman has had a Caesarean, she will have a scar on the womb. This may adversely affect blood supply to the womb, which increases the risk for a low lying placenta.
- If the woman has five or more children or gets pregnant at an older age, there may be poor blood supply to the womb. This may make the placenta grow bigger and the likelihood of the placenta covering the cervix is very high.
- If a woman has had a low lying placenta in her previous delivery, then she is at a greater risk during subsequent pregnancies.

What are the symptoms of a low lying placenta?

There are no symptoms when the woman has a low lying placenta, which is not close to the cervix.

The symptoms of a low lying placenta covering the cervix, is painless vaginal bleeding. The blood is bright red in colour and the bleeding may be light or heavy. The important thing to remember is that bleeding is not accompanied by labour pains. There are also instances when a low lying placenta covering the cervix, has not yet presented itself through bleeding. However, even in the absence of bleeding, this problem can be detected through a regular ultrasound scan. In such cases, the woman is advised not to lift heavy objects or have sex.

What are the consequences of a low lying placenta?

- Preterm labour.
- An emergency Caesarean birth.
- Excessive bleeding, which can cause maternal death
- Low birth weight babies.

How can a low lying placenta be identified?

A low lying placenta can be identified only by scanning.

How can a low lying placenta be treated?

Treatment for a low lying placenta depends on how much the woman is bleeding, condition of the foetus and duration of the pregnancy. For example, if the woman is bleeding, and is close to the expected date of delivery, healthcare providers may suggest blood transfusion and assist in delivering the baby.

AN EARLY SEPARATION OF A NORMALLY LOCATED PLACENTA

The early separation of a normally located placenta before delivery occurs because of bleeding under the placenta. The greater the bleeding, the bigger the separation. This is a serious condition, which requires immediate care because it affects both the mother and the foetus.

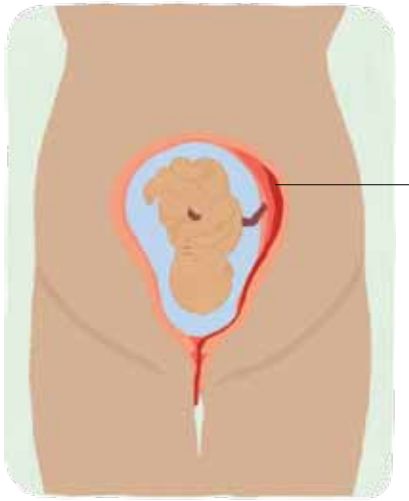


Fig 11. Early separation of a normally located placenta

What are the risk factors for this condition?

There is no clear reason why early separation of a normally located placenta occurs. But there are some risk factors, which include the following:

- If the woman is above 35 years.
- If the woman is suffering from diseases that prevent blood from clotting.
- If a woman has high blood pressure, one of the ways by which the body brings down the blood pressure, is by bleeding in any part the body. This part can also be the placenta.

- In conditions such as twin pregnancy or hydramnios, a sudden loss of amniotic fluid increases the risk of placental separation because the womb has reduced in size.

- If the woman has injured her abdomen because of being hit, a fall or an accident, etc.

What are the symptoms for this condition?

- Hardened abdomen
- Abdominal pain
- Vaginal bleeding (may or may not be visible)
- Swollen hands, body and feet because of high blood pressure
- Little or no foetal movements

What are the consequences of this condition?

- Excessive blood loss
- Blood fails to clot
- Death of the mother and the foetus

How can this condition be identified?

The early separation of a normally located placenta can be identified only by scanning.

How can this condition be treated?

Treatment for this condition is based on how much bleeding there is due to placental separation, condition of the foetus and duration of the pregnancy.

Remember!

- ☐ Vaginal bleeding can either occur in the early months of pregnancy or later on, before delivery.
- ☐ The causes of vaginal bleeding in early pregnancy include: the process of a group of cells attaching themselves to the womb after fertilisation (may cause bleeding); if the woman has a miscarriage, abortion, or an ectopic pregnancy.
- ☐ The causes of vaginal bleeding later in pregnancy are usually because of problems with the placenta.
- ☐ There are two types of placental problems: a low lying placenta and an early separation of a normally located placenta.
- ☐ Both these problems can be identified only by scanning.
- ☐ These problems can have severe consequences: excessive blood loss, preterm labour, maternal and foetal death.
- ☐ Treatment for both placental problems depends on how much bleeding there is, the condition of the foetus and duration of the pregnancy.

3.8 HYDRAMNIOS IN PREGNANCY

Excess collection of amniotic fluid around the foetus in the womb during pregnancy is called hydramnios.

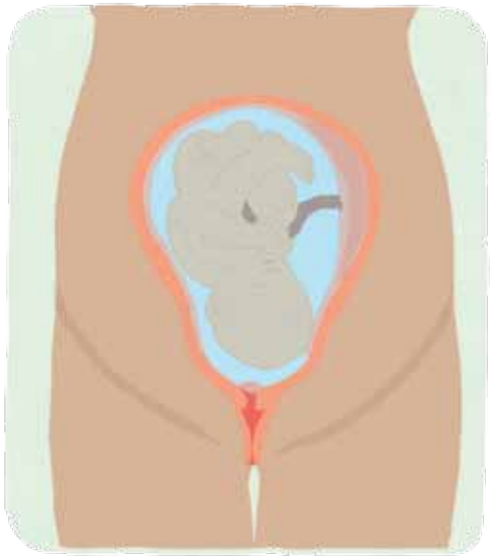


Fig 12. Hydramnios

WHAT IS AMNIOTIC FLUID?

Amniotic fluid is a liquid that surrounds and cushions the foetus inside the womb. It is produced continuously by the amniotic sac covering the foetus. The foetus drinks the amniotic fluid and also absorbs it through the skin.

HOW MUCH AMNIOTIC FLUID DO PREGNANT WOMEN HAVE?

The amount of amniotic fluid in every woman is determined by the balance between production and absorption of amniotic fluid. Hence, every pregnant woman need not have the same quantity of amniotic fluid in her womb. However, on an average, it is about half a litre.

HOW IS THE AMNIOTIC FLUID USEFUL?

The amniotic fluid is like a protective bed around the foetus. This fluid also helps in the growth of the lungs, stomach and kidneys of the foetus.

CAN AMNIOTIC FLUID CAUSE PROBLEMS?

Yes, some pregnant women may have problems because of excessive amniotic fluid in the womb.

WHAT ARE THE CAUSES OF HYDRAMNIOS?

Excessive collection of the amniotic fluid is either because too much amniotic fluid is being produced or too little is being absorbed.

Causes of increased amniotic fluid production are:

- Gestational diabetes (For more information on how diabetes affects amniotic fluid production, refer to Part 3, section 3.9.)
- Twin pregnancy
- Foetal heart problems
- Poor development of the brain and the skull of the foetus result in the fluid around the brain mixing with the amniotic fluid.
- Sometimes the foetus may have a lump in the lower back. This maybe because of a disease in the spine. Hence, the fluid around the spine mixes with the amniotic fluid.

Causes of decreased absorption by the foetus:

- The foetus has problems in the stomach or intestines, due to which it is unable to take in any fluid.
- The foetus has difficulties in swallowing because of problems in the food pipe.

WHAT ARE THE SYMPTOMS OF HYDRAMNIOS?

- A big abdomen
- Discomfort because of the heavy abdomen
- Breathing difficulties because of the heavy abdomen
- Early onset of labour

WHAT ARE THE CONSEQUENCES OF HYDRAMNIOS?

- The woman's big abdomen can cause early onset of labour.
- The woman is at a high risk of premature rupture of membranes (PROM). For more information on PROM, refer to Part 4, section 4.3.
- PROM, in the context of hydramnios, can cause further complications because it is likely that the excess amniotic fluid comes out forcefully. Thus, the risk of the womb becoming small suddenly is very high. When the womb suddenly becomes small, there is risk of early separation of the placenta from the wall of the womb. This will result in bleeding inside the womb and a lack of supply of oxygen and nutrients to the foetus. This in turn, leads to stillbirth, depending on the severity of placental separation.
- Sometimes, as the amniotic fluid is released under pressure, the umbilical cord of the foetus may come out from the cervix. This twists the cord and blood vessels in it, preventing blood flow to the foetus from the placenta and can result in foetal death.

HOW IS HYDRAMNIOS DETECTED?

Healthcare providers are supposed to record the medical history of the woman and conduct all the routine examinations and tests. In this process, if they suspect a case of hydramnios, they should ask the woman to get a scan done. The scan will measure the quantity of amniotic fluid in the womb.

HOW CAN HYDRAMNIOS BE TREATED?

Treatment of hydramnios is based on what is causing it. There is no treatment if hydramnios has occurred due to problems in the foetus. However, if the problem is with the mother, then healthcare providers can give appropriate treatment based on the nature of the problem.

Remember!

- Hydramnios is excess collection of amniotic fluid around the foetus in the womb during pregnancy.
- Amniotic fluid is a liquid that surrounds and cushions the foetus inside the womb. It is produced by the amniotic sac covering the foetus.
- Every pregnant woman has a different quantity of amniotic fluid in her womb. However, on an average, it is about half a litre.
- Hydramnios is either because too much amniotic fluid is produced or too little is being removed from the womb.
- The symptoms of hydramnios are: a big abdomen, discomfort due to the size of the abdomen, breathing difficulties and early onset of labour.
- The consequences of hydramnios are: preterm labour, PROM, stillbirth and foetal death.
- Hydramnios can be detected by getting a scan done.
- There is no treatment if hydramnios has occurred because of problems with the foetus. However, if the problem is related to the mother, then healthcare providers can give appropriate treatment based on the nature of the problem.

3.9 GESTATIONAL DIABETES

Diabetes in pregnancy can affect the mother and the foetus. It is therefore important that it is identified and treated early. A woman who is diabetic may become pregnant and continue to be diabetic. Alternatively, **diabetes may develop for the first time in pregnancy.** The latter is called gestational diabetes. It occurs around the sixth month of pregnancy or later.

WHAT IS DIABETES?

Diabetes refers to a group of disorders that occur because of excessive sugar in the blood. It affects multiple functions in the body and causes long term damage and dysfunction of the body cells and organs.

WHAT CAUSES DIABETES?

Our body requires energy to perform daily activities, which is obtained from the food we eat. After food is consumed, it gets digested and becomes simple sugar. This simple sugar then gets absorbed in the blood and travels to all the cells of the body, giving us energy to perform daily activities. Insulin (a hormone produced by the pancreas - an organ in the abdomen) enables the simple sugar from the blood to enter the cells. When there is a decreased production of insulin or if the produced insulin is less effective, the simple sugar in the blood does not enter the cells. As a result, the level of sugar in the blood increases. Since the simple sugar in the blood fails to enter the cells, these cannot work efficiently, tiring the body quickly.

WHAT CAUSES GESTATIONAL DIABETES?

During pregnancy, the placenta produces several hormones that assist foetal development. All these hormones tend to increase blood sugar. Therefore, there is an additional demand on the insulin to manage the increased quantity of blood sugar caused by hormones. Even though there is no problem either with the quantity of insulin produced or with its quality, insulin may be unable to meet the new demands made. This results in increased sugar levels in the blood.

Not all pregnant women have gestational diabetes. It occurs when there is an imbalance between hormones produced during pregnancy and the amount of available insulin.

WHO IS AT RISK FOR GESTATIONAL DIABETES?

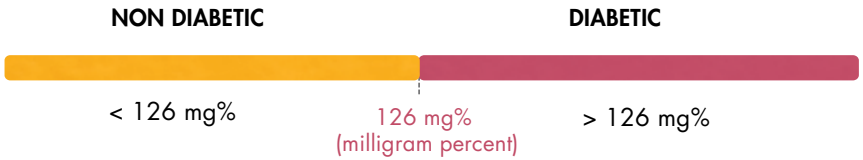
- A woman who has a family history of diabetes.
- A woman who is obese.
- A woman who had gestational diabetes in her previous pregnancy.
- A woman who has had a baby weighing more than four kg. in her previous pregnancy.
- A woman who was not detected with gestational diabetes in her previous pregnancy, but had a baby with abnormalities.

WHAT ARE THE SYMPTOMS OF GESTATIONAL DIABETES?

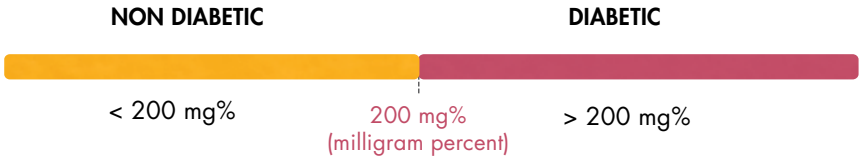
Usually there are no symptoms of diabetes. However, if a woman is at risk, then the healthcare provider should ask the woman to undergo blood sugar tests, especially between the fifth and seventh month of pregnancy. A blood sugar test involves getting a blood test done before food and two hours after food. Sometimes, the blood test after food can be conducted even after drinking water mixed with glucose.

According to WHO, Indian Diabetic Association and Indian Medical Council, the below mentioned readings determine wether a person is diabetic or not.

Blood sugar level on an empty stomach:



Blood sugar level two hours or more after food:



It is generally advisable for all pregnant women to undergo tests for diabetes to ensure that sugar levels are normal.

WHAT ARE THE CONSEQUENCES OF GESTATIONAL DIABETES?

Gestational diabetes has consequences for both the mother and the foetus.

Consequences for the mother are:

- The foetus becomes very big because of the high sugar content in the blood. This enlarged size can make it difficult for the mother to have a normal delivery. This increases the risk of a Caesarean delivery. For more information on this, refer to Part 4, section 4.1 on Labour and Childbirth.
- High blood sugar irritates the amniotic sac, which in turn, produces more fluid in the womb. As a result, the woman may develop hydramnios. This can lead to complications for both the mother and the foetus. For more information on hydramnios, refer to Part 3, section 3.8.
- A woman with gestational diabetes has a higher risk of developing diabetes later in her life.

Consequences for the foetus are:

- The foetus may die inside the womb, causing a stillbirth.

- The baby has an increased risk for birth defects of the brain, spinal cord and heart if the woman had diabetes before pregnancy. However, if the woman has developed diabetes only during pregnancy, then babies tend to have birth defects only if the mother is obese.
- The baby has a higher risk for breathing difficulties soon after birth.
- The baby may develop very low sugar levels soon after birth.
- The baby has a high risk for diabetes in the future.

PREVENTING COMPLICATIONS ASSOCIATED WITH GESTATIONAL DIABETES

- If a woman already has diabetes before pregnancy, then she must bring her blood sugar level under control before becoming pregnant.
- If a pregnant woman is diagnosed with diabetes, she should visit a healthcare provider to manage complications that can arise because of this condition.
- A woman suffering from gestational diabetes should avoid food that has high sugar content, (sweets, watermelon, pineapple, grapes) and milk products (ghee, butter, cream). Instead, she should consume foods made from whole grains (broken wheat, red rice), beans, green leafy vegetables, ladies fingers, ridge gourd, drumstick, etc.
- A woman must take a brisk walk every day as this reduces blood sugar and keeps the blood pressure in check. Balanced meals and adequate rest are also essential in maintaining ideal body weight, which in turn will help regulate sugar levels.

Remember!

- ☐ Diabetes in pregnancy is called gestational diabetes.
- ☐ Diabetes refers to a group of diseases that occur because of excess sugar in the blood that affects multiple functions in the body.
- ☐ Diabetes is caused either due to a decrease in insulin production or if the quality of insulin is poor.
- ☐ Gestational diabetes can be caused by hormones released by the placenta. This release increases the content of sugar in the blood, while the amount of insulin produced remains the same.
- ☐ It is possible for the woman to have diabetes, either because she is suffering from the disease before pregnancy or if she develops it during pregnancy (gestational diabetes).
- ☐ Women who are at risk for gestational diabetes are: a woman who has a family history of diabetes, an obese woman, a woman who had gestational diabetes in her previous pregnancy and a woman who had given birth to a baby, which weighed more than four kg.

cont. >>

- There are no symptoms of gestational diabetes. But it is important for the woman at risk for diabetes to undergo relevant tests regularly.
- A blood sugar reading of more than 125 mg% on an empty stomach and a reading of more than 200 mg% two hours or more after food means the woman has diabetes.
- Diabetes can be managed by making modifications in one's diet or by taking insulin injections if the disease is severe.
- The consequences of gestational diabetes for the mother are: increased chances of having a Caesarean delivery; hydramnios and suffering from diabetes later in life.
- The consequences of gestational diabetes for the foetus are: stillbirth; increased risk for birth defects of the brain, spinal cord and heart; breathing difficulties soon after birth; low sugar levels soon after birth; and a high risk of suffering from diabetes later in life.
- Leading a healthy lifestyle, visiting the healthcare provider regularly during the antenatal period, etc. help in preventing complications that may arise due to gestational diabetes.

3.10 VAGINAL DISCHARGE IN PREGNANCY

Vaginal discharge is secretion from the vagina. All women have small and insignificant quantities of vaginal discharge, starting at puberty (a couple of years before the menstrual cycle begins) which continues till menopause (the period in a woman's life between the ages of 45 to 50, when menstruation stops). This is normal. The amount of discharge varies from woman to woman and is influenced by hormonal changes in the woman's body. Different women have different opinions of what is normal. If the woman has to use napkins or needs to change her underwear many times in a day, then it is regarded as abnormal.

WHAT IS NORMAL DISCHARGE?

Discharge contains old cells of the womb, the cervix and the vagina, which comes out as a fluid. Normal discharge does not smell or itch. It appears whitish in colour when wet and straw coloured when dried on the underwear.

WHAT IS THE USE OF NORMAL VAGINAL DISCHARGE?

- It keeps the vagina clean.
- It keeps the vagina wet during sex.
- It flushes out bacteria that cause infection.

WHAT ARE THE CAUSES OF NORMAL DISCHARGE?

- Stress may increase blood circulation to all parts of the body including the womb, which may increase the amount of vaginal discharge.
- Hormones, which are responsible for the menstrual cycle, cause vaginal discharge. Immediately after a period, discharge is watery and 15 days after the period, it becomes thick and sticky.

- Sexual excitement increases blood flow to the womb and vagina causing an increase in the amount of vaginal discharge.
- Pregnancy increases blood supply to the womb and vagina, which causes discharge.
- If a woman is breastfeeding, then hormones are released to produce milk and to make the womb contract. This can increase vaginal discharge.
- The use of oral contraceptive pills alters hormones to prevent pregnancy, which causes vaginal discharge.

WHAT ARE THE CAUSES OF ABNORMAL VAGINAL DISCHARGE?

Abnormal vaginal discharge tends to be excessive, foul smelling and results in itching in the genital area. The causes are:

- The genital area becomes unclean if the woman does not use soap while having a bath, or after going to the toilet. Dettol should not be used to wash the underwear or the genital area, because it has substances that irritate the skin and can cause infection.
- During a menstrual period, pads must be changed frequently. Keeping the same pad for a long time can cause yeast or fungal infection in the genital area.
- Infections can also occur when one washes the anal area, after passing a stool, from back to front. Bacteria present in the stool can enter the clean vaginal passage, causing genital infections. These result in vaginal discharge.
- If a healthy person has sex without a condom with an infected person or if a person has multiple sex partners, then the healthy person becomes vulnerable to STIs. These infections may cause discharge which is yellow or green in colour and is itchy. For more information on STIs, refer to Part 3, section 3.13.
- Cervical cancer causes bleeding after sex as well as discharge that is watery, foul smelling and/or blood-stained.

WHAT ELSE CAN ABNORMAL VAGINAL DISCHARGE INDICATE?

Yeast infections are common among women with uncontrolled diabetes. Therefore, repeated curd-like vaginal discharge, a key symptom of yeast infection, may indicate high blood sugar. In such cases, it is essential for the pregnant woman to meet a healthcare provider immediately. For additional information on yeast infections refer to Part 3, section 3.13.

PREVENTION OF ABNORMAL VAGINAL DISCHARGE

- Keeping the genital area clean on a daily basis by having a bath.
- Keeping the genital area clean during periods and by changing pads regularly.
- Wearing cotton underclothes is recommended because it absorbs sweat and prevents yeast/fungal infections.
- In case the woman is diagnosed with an STI, both partners must go through a complete course of medication, even after the symptoms have disappeared. Other STIs must be prevented by using a condom while having sexual intercourse.
- Since yeast infections are common in women who have gestational diabetes, the blood sugar levels must be kept under control. As obesity is associated with diabetes, the woman must watch her weight by leading a healthy lifestyle (balanced meals, adequate exercise and rest).
- Women who are over 40 years must undergo gynaecological examinations to ensure that the womb is healthy and get a screening test done for cervical cancer.

Remember!

- Vaginal discharge means secretions from the vagina.
- All women have vaginal discharge and the amount varies from person to person.
- Discharge contains old cells of the womb, the cervix and parts of the vagina, which comes out as a fluid.
- Vaginal discharge can be categorised into normal and abnormal discharge.
- Normal discharge does not smell or itch. It appears whitish in colour when wet and straw coloured when dried on underwear.
- Normal discharge is useful in keeping the vagina clean, wetting the vagina during sex and flushing out bacteria that cause infection.
- Causes of normal discharge include stress, hormonal changes, sexual excitement, use of contraceptive pills, pregnancy and breastfeeding.
- Abnormal discharge is excessive, continuous, itchy and may be foul smelling.
- Causes of abnormal discharge are largely different kinds of infections.
- Abnormal discharge may indicate high blood sugar or/and presence of RTIs/STIs in the pregnant woman.
- Steps that can prevent abnormal vaginal discharge include: keeping the genital area clean, especially during periods; wearing cotton underclothes; both partners seeking treatment for STIs and going through a complete course of medication; controlling blood sugar levels; undergoing the relevant tests to ensure the womb is healthy and to rule out cervical cancer (for women above the age of 40).

3.11 HEART DISEASES IN PREGNANCY

The heart is a muscular pump located in the middle of the chest (slightly to the left), in between the two lungs. Both the heart and the lungs are well protected within the rib cage. There are many tubes attached to the heart that run all along the body. These tubes are called blood vessels. Blood vessels carry blood all through the body. Some of these blood vessels take blood away from the heart. These are called arteries. Other blood vessels bring blood back to the heart. These are called veins. **The heart, arteries and veins together are known as the cardiovascular system.** The heart beats 60 to 100 times a minute and around 100,000 times a day.

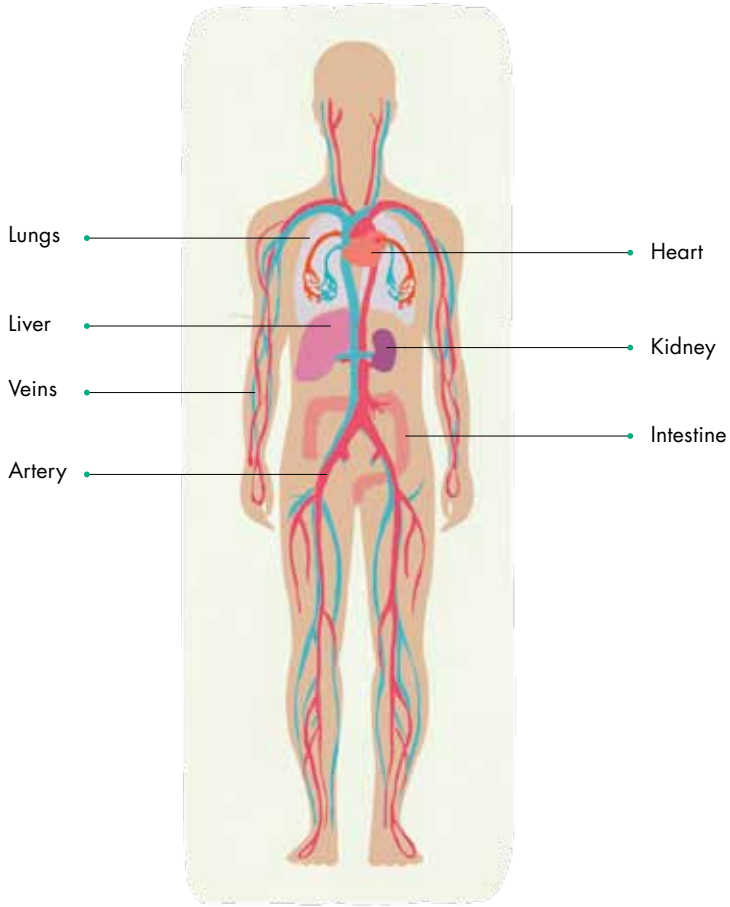


Fig 13. Cardiovascular system

WHAT IS INSIDE THE HEART?

The heart is divided internally by a wall into right and left sides. Both sides of the heart are further divided into upper and lower portions by flaps. Both the flaps (right and left) prevent a back-flow of blood from the lower part to the upper part of the heart.

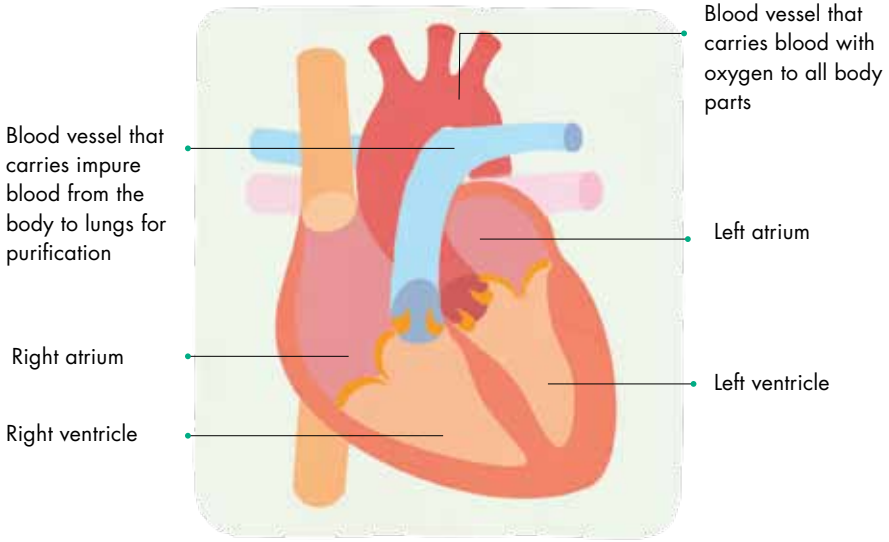


Fig 14. Heart

HOW DOES THE HEART WORK?

The right upper side of the heart (right atrium) receives impure blood, which has carbon dioxide. This is pumped to the right lower portion of the heart (right ventricle). This impure blood is then pumped into the lungs. During inhalation, we inhale oxygen into the lungs. The lungs purify the blood by removing carbon dioxide and replacing it with oxygen. After going through the lungs, the pure blood flows back to the left upper portion of the heart (left atrium). It then passes into the left lower portion (left ventricle). From here, it gets pumped into the aorta (the main blood vessel), which supplies pure blood to the entire body through other arteries. Oxygen and other nutrients pass into all the cells where they are used to perform their essential functions. At the same time, impure blood is carried back by the veins to the right atrium of the heart. This cycle continues every time the heart beats. When the flaps on the right as well as the left open and close they make the 'lub and dub' sound.

WHAT IS THE IMPACT OF PREGNANCY ON THE HEART?

During pregnancy, there is a natural increase in the watery content (plasma) of the blood (around 30 to 50%). The blood becomes thinner to protect the woman from excessive blood loss during delivery. With the increase in watery content of the blood, the heart has to work harder to perform its regular tasks. Thus, pregnancy increases the demands on the heart.

When the woman has labour pains, the womb contracts to push the foetus out. After delivery, the womb contracts yet again, to prevent excessive bleeding. Both these processes put a lot of pressure on the heart and blood vessels.

WHAT ARE THE SYMPTOMS OF HEART DISEASE IN PREGNANCY?

- Inability to perform daily activities due to weakness or fatigue
- Breathing difficulties, (even when there is no exertion or especially at night)
- Light headedness or fainting
- A bluish tinge to the skin

HEART DISEASE AND PREGNANCY

Symptoms of heart disease may appear for the first time during pregnancy because of increased demands made on the heart. These are some of the conditions that can cause complications during pregnancy:

- **Marriage between close relatives may cause a hole in the heart.** This is sometimes diagnosed for the first time during pregnancy. In this condition, there is a hole in the internal wall (of the heart) that separates the heart into right and left upper portions. Due to this defect, pure and impure blood get mixed resulting in body cells receiving less oxygen. These women may be at risk of blood clot formation because of poor blood flow and increased pressure in the lungs. In addition, the right side of the heart has to work harder and this may result in heart failure. Depending on the severity of the condition, doctors may suggest an operation to close the hole. These women may not gain weight during pregnancy. There is a risk of growth restriction of the foetus resulting in a low birth weight baby.

- **Some pregnant women may have heart disease caused by an infection. This infection is called rheumatic fever.** This is caused by bacteria. Women may have picked up this infection during their childhood. This first affects the throat causing a sore throat and fever. In its next stage, it affects the joints, causing swelling and pain. The most severe form of rheumatic fever is when it affects the flaps of the heart. This is called rheumatic heart disease. Due to this, less blood is pumped out. This reduces the amount of pure blood reaching the cells of the body. The disease may be diagnosed for the first time during pregnancy because of the demands made by pregnancy. Women whose heart flaps are severely affected may be at risk for heart failure, clot formation and may give birth to a growth restricted baby with low birth weight.

- **An anaemic pregnant woman has lowered oxygen carrying capacity because of low haemoglobin in her blood**. As a natural response, the heart works harder to meet the oxygen demands of the body cells. Moreover, since the heart itself is not getting sufficient oxygen, it is unable to work efficiently. Therefore, an already tired heart is unable to work anymore to meet the new demands made by the body. This inability of the heart function efficiently is referred to, as heart failure. This is not a heart attack [23].

- **Obese pregnant women may have high levels of fat in their blood and blood vessels.** This increases the risk for high blood pressure and diabetes (also known as lifestyle diseases). Due to these two conditions, the heart receives less blood, making it work less efficiently. This increases the risk of a heart attack (death of, or damage to, any part of the heart muscle).

[23] Sometimes the flow of pure blood, which nourishes the heart muscles, suddenly stops either partially or completely. This prevents a portion or the entire heart from working, and is called a heart attack. This occurs because of high fat content in the blood, which gets stored in blood vessels making them narrow. Uncontrolled diabetes can also cause thickening of blood vessels. Both can block the blood flow to the heart.

WHAT ARE THE CONSEQUENCES OF HEART DISEASE IN PREGNANCY?

- Increased risk for heart failure.
- Increased risk of foetal heart defects, if the mother had the heart disease at birth.
- Increased risk for preterm labour.

TYPES OF HEART CONDITIONS WHERE PREGNANCY SHOULD BE AVOIDED

Pregnancy is not recommended if the woman has any of the following severe heart conditions. These can be very dangerous for both the mother and her foetus.

- ***Severe heart disease since birth:***

  This is a rare heart condition present at birth, which affects the right side of the heart. More specifically, it affects the blood vessel that carries impure blood from the heart to the lungs. This increases blood pressure in the lungs.

  Symptoms: A blue tinge to the skin resulting from a lack of oxygen, fainting, breathlessness due to little exertion (and sometimes, even while resting) as well as coughing up blood.

  Treatment: There is no cure, but treatment is available to reduce the blood pressure in the lungs and medication may have to be taken lifelong.

- ***Severe rheumatic heart disease:***

  This condition affects the heart flaps due to infection. It affects the left side of the heart. Women suffering from this disease cannot tolerate the demands made by pregnancy on the heart. Their health tends to deteriorate, depending on the severity of the infection as time goes by.

  Symptoms: Shortness of breath on exertion and sometimes, even while resting, fainting, tiredness, chest pain and coughing up blood-stained sputum.

Treatment: To prevent a simple sore throat from becoming a severe heart disease, healthcare providers recommend a penicillin injection. The injection must be taken once a month for five years. Depending on the severity of the disease, the healthcare providers may also suggest a surgery to replace the flaps. When the flaps are replaced, women may have to take blood thinners for life. This may put them at risk for bleeding. There is also the additional risk of infection.

STEPS TO PREVENT HEART DISEASES FROM WORSENING

- The treatment for heart diseases depends on the extent of damage and in very serious cases, a surgery may be necessary.
- A woman with heart disease should meet both an obstetrician and a heart specialist if she wants to become pregnant. This is because some medicines given to treat heart conditions cannot be given to pregnant women. Depending on the severity of the heart disease, healthcare providers can take an informed decision about the dosage and type of medication.
- If a pregnant woman has lifestyle diseases, such as diabetes and high blood pressure, then she must consult a doctor for appropriate diet and exercise.
- In the case of some heart diseases the woman should maintain a gap of two years between her current and subsequent pregnancy. It is recommended that such women and their partners discuss and choose a method of contraception with the help of healthcare providers.

Remember!

- The heart is a muscular pump located in the middle of the chest (slightly to the left), in between the two lungs. Both the heart and the lungs are well protected within the rib cage.
- The heart, arteries and veins together are known as the cardiovascular system.
- The heart has to work harder to complete its normal tasks during pregnancy. In addition, labour and contractions of the womb also put pressure on the heart.
- Sometimes, heart problems present since birth are acknowledged only during pregnancy. Some of the heart conditions that cause complications during pregnancy are: hole in the heart; rheumatic heart disease; anaemia; and obesity.
- Women with heart diseases may have the following symptoms: inability to perform daily activities due to weakness or fatigue; breathing difficulties, (even when there is no exertion or especially at night); light headedness or fainting; and a bluish tinge to the skin.
- The consequences of heart disease in pregnancy are: increased risk of heart failure; increased risk of a heart defect for the foetus/baby, if the mother had the heart disease by birth; and increased risk for preterm labour.
- Pregnancy should be avoided if the woman has either severe heart disease present since birth or severe rheumatic heart disease.

3.12 MALARIA IN PREGNANCY

Malaria is a parasitic[24] infection spread by a particular kind of female mosquito. When a female mosquito bites an infected person, it sucks blood which contains malaria causing parasites. These parasites then get mixed with the mosquito's saliva. When this mosquito bites an uninfected person, the parasites in the mosquito's saliva are injected into her/his blood. Malaria spreading mosquitoes bite only from dusk to dawn (from 9 pm. to 5 am.).

HOW DOES MALARIA SPREAD?

Malaria causing parasites affect red blood cells that carry oxygen to all parts of the body. Since this parasite is found in the red blood cells of an infected person, malaria can spread through blood transfusion, organ transplantation (kidney, heart, etc.) or shared needles/syringes contaminated with blood. Malaria can also spread from a mother to her unborn foetus before or during delivery. Malaria does not spread through sexual contact or through close casual contact (touching, sneezing, etc.).

WHY ARE PREGNANT WOMEN MORE VULNERABLE TO MALARIA?

Since a pregnant woman's capacity to fight illness is low, she is more likely to pick up any infection including malaria. In addition if she is undernourished, she is likely to be anaemic which makes her vulnerable to all infections (including malaria).

WHAT ARE THE SYMPTOMS OF MALARIA?

An infected person gets the disease within 10 to 14 days after being bitten. Symptoms of malaria include the following: flu-like symptoms, fever with chills, sweating, headache, muscle pain, tiredness, nausea, vomiting and diarrhoea.

[24] A parasite refers to an organism which lives in or on another organism and benefits by using nutrients at the other's expense.

WHAT ARE THE CONSEQUENCES OF MALARIA?

When the parasite enters the placenta, the woman may not have symptoms of malaria. But, as the parasite affects the red blood cells in the placenta and damages them, it has an adverse impact on the supply of oxygen and food to the foetus. Thereby, malaria increases the risk of spontaneous miscarriages, preterm labour, stillbirth and low birth weight babies.

Malaria may also result in anaemia and yellow colouring of the skin and eyes because of the damaged red blood cells. If untreated, the infection can become severe and may cause kidney failure, seizures, mental confusion, coma, and death.

HOW IS MALARIA DETECTED?

Malaria is identified by its symptoms and a blood test.

CAN MALARIA BE TREATED?

Treatment for malaria is available. There are medicines which are safe for both pregnant women and nursing mothers. However, it is important to remember that some medicines cause a fall in blood sugar levels. To avoid this, the woman must eat something before or soon after taking the tablet.

CAN MALARIA BE PREVENTED?

Mosquito nets may be an effective way of preventing malaria because these mosquitoes bite only from dusk to dawn. It is also advisable to keep water storage utensils closed and clean out standing water sites, such as rainwater collected in coconut shells, tyres, etc.

Remember!

- ☐ Malaria is a parasitic infection spread by mosquitoes.
- ☐ When pregnant women who are already anaemic due to undernutrition, get malaria, anaemia may become severe.
- ☐ The symptoms of malaria are: fever with chills, sweating, flu-like symptoms, headache, muscle pain, tiredness, nausea, vomiting, and diarrhoea.
- ☐ The consequences of malaria are: spontaneous miscarriage, preterm labour, stillbirth, low birth weight babies, kidney failure, seizures, mental confusion, coma, and death.
- ☐ Malaria is identified by its symptoms and a blood test.
- ☐ Safe treatment for malaria is available for both pregnant women and nursing mothers.
- ☐ Malaria can be prevented.

3.13 SEXUALLY TRANSMITTED INFECTIONS AND REPRODUCTIVE TRACT INFECTIONS IN PREGNANCY

STIs are infections that spread from an infected person to a healthy person through sexual intercourse without the use of a condom. These infections can affect both men and women. However, a woman is more vulnerable to these infections. This is because the semen released into the vagina remains there for some time, increasing the risk of exposure to infected semen. In addition, the infected person's semen carries more bacteria or viruses than vaginal fluid. Thus, it is easier for the infected man to spread the infection to the woman rather than the other way round. Finally, women are at risk of receiving blood transfusion, (a rare cause of spread of infection) due to excessive blood loss either from menstruation or during delivery.

WHAT ARE THE SYMPTOMS OF STIs?

Women, who have STIs can have discharge from the vagina, ulcers in the genital areas and/or lower abdominal pain. On the other hand, men have discharge from the penis and ulcers in the genital areas. Infections that cause discharge increase the risk of HIV by 15 percent, while STIs that cause ulcers increase the risk of HIV by 50 percent. Since there are no other visible symptoms, it is impossible to tell whether a person has an STI. However, these infections can be diagnosed by clinical examination and various blood tests. It is very important to seek treatment for STIs because if they remain untreated, it can lead to life-threatening complications.

STIs THAT CAUSE DISCHARGE

The following STIs cause vaginal discharge, genital itching, irritation and burning during urination. STIs that cause vaginal discharge are described below.

- ***Trichomoniasis***

  This infection is caused by a parasite. It spreads from an infected person to a healthy person through sexual intercourse without the use of a condom. It affects the vagina in women.

Symptoms

Itching, burning, redness or soreness of the genitals, discomfort during urination, or a thin discharge that can be clear, white, yellowish, or greenish and has an unusual smell.

Consequences

Pregnancy does not have any effect on the progress of the infection. But pregnant women with trichomoniasis are more likely to have pre-term deliveries and low birth weight babies.

- ***Chlamydia and gonorrhoea***

  These are two infections that usually occur together. These are caused by bacteria. These spread from an infected person to a healthy person through sexual intercourse without the use of a condom. These infections affect the cervix. Gonorrhoea can also spread from an infected mother to her child.

Symptoms

Vaginal discharge and painful urination.

Consequences

Pregnancy does not affect the progression of the infections. Chlamydia and gonorrhoea spread to the womb, fallopian tubes and ovaries and can damage them. Thus, the infected woman finds it difficult to conceive, is at a higher risk of preterm labour and an ectopic pregnancy. For more details about ectopic pregnancy, refer to Part 3, section 3.3 on Ectopic Pregnancy. When the infections spread from the mother to her child, the newborn may have eye infections, blindness later in life and/or pneumonia.

There are two other infections that cause vaginal discharge but are not spread through sex. These are not STIs but reproductive tract infections: bacterial vaginosis and yeast infection.

- ***Bacterial vaginosis***

  This is caused by an imbalance of 'good' and 'harmful' bacteria that are normally found in a woman's vagina. This occurs when the genital area is not kept clean on a daily basis or during menstruation. It does not spread by using the same toilet seats, bedding, or swimming pools. Usually, bacterial vaginosis gets cured without treatment.

Symptoms

Vaginal discharge with a fishy smell.

Consequences

There are no direct consequences of the disease on pregnancy. However, a woman with this disease is at a higher risk of acquiring other diseases spread by sex.

- ***Yeast infection***

  This is caused by overgrowth of yeast (a type of fungus) anywhere in the body. This infection commonly occurs in warm moist body areas, such as underarms, groin or the genital area. Usually our skin effectively blocks yeast, but any wounds or scratches in the skin may allow this to grow. It does not spread through the sexual route or by using the same toilets. This infection is seen in people with uncontrolled diabetes because high sugar in the blood facilitates the growth of yeast. Keeping blood sugar in control will reduce infection in diabetics. People with HIV have yeast infections frequently because of their lowered ability to fight diseases. It is also seen in pregnant women because during this time, the woman's body is less capable of fighting diseases.

Symptoms

Curd-like discharge, sometimes vaginal spotting, extensive itching in the affected area.

Consequences

There are no direct consequences of the disease on pregnancy.

ULCERATIVE STIs

Ulcers refer to a sore anywhere on the outside or inside of the body. Ulcerative STIs are infections that cause ulcers in the genital area. Some of these infections cause pain and/or itching in the genital areas, while some others do not. Ulcers may be single or multiple.

- ***Syphilis***

  Syphilis is caused by bacteria. It spreads by having sex without the use of condoms from an infected person to a healthy person. Since the symptoms are painless, it can go unnoticed and therefore no treatment is sought. But during antenatal check-ups, healthcare providers generally recommend a screening test called Venereal Disease Research Laboratory (VDRL) test to check for syphilis.

Symptoms

Painless ulcers in the genital area, swelling in the groin.

Consequences

Pregnancy does not affect the progress of syphilis. However, it does have negative effects for both the mother and her foetus/baby. The untreated infection spreads to the blood and affects skin, bones, joints, brain, nerves and heart. It also results in miscarriages in the first few pregnancies, followed by a stillbirth and finally, the baby may be born with the infection.

- ***Genital herpes***

  This infection is caused by a virus. It spreads from an infected person to a healthy person during sex without the use of a condom. The first infection that a person gets is through the sexual route. Subsequently, the woman can have a

relapse at any time, as the virus remains alive in the body. During the first year of infection, it is common to have repeated attacks. These attacks are usually shorter and less severe as compared to the first attack. While there is no cure for herpes, medicines to prevent or shorten attacks are available. The virus can spread from an infected mother to her baby during delivery.

Symptoms
Multiple, small and painful water filled blisters and itching in the genital area and shallow ulcers.

Consequences
If the woman touches the sore or fluids from the sores, she may transfer herpes to another part of her body, such as the eyes. Therefore, to prevent the spread of the infection, sores should not be touched. This infection can cause preterm labour and miscarriage.

OTHER TYPES OF STIs

- ***HIV***

HIV infection is caused by a virus. This virus attacks and kills cells that fight illnesses in the body. Without these cells, the body is more vulnerable to many other bacteria and viruses, which can cause other diseases. A person infected with the HIV virus is called HIV positive. HIV is not Acquired Immunodeficiency Syndrome (AIDS). AIDS occurs when cells that fight diseases die and the body becomes vulnerable to acquiring many other diseases, including cancer. It can take several years for an HIV infected person to develop AIDS. HIV virus cannot live or reproduce outside the body. HIV can be diagnosed with the help of blood tests.

Symptoms
There are no symptoms, except that a person may fall sick very often.

How does it spread? There are three ways in which HIV can spread from an infected person to an uninfected person:

- When an infected person has sex with an uninfected person without the use of a condom. This is the most common way of spreading HIV.
- When an infected mother transfers the infection to her child during pregnancy, delivery or breastfeeding. However, chances of HIV spreading from mother to child are not common anymore because preventive treatment is available.
- When infected blood is used for transfusion, or when needles and syringes that are unclean and unsterilised are reused. Again, this is not common.
- HIV does not spread by sharing utensils, hugging, kissing, holding hands, coughing, sneezing or mosquito bites.

Consequences
Pregnancy does not affect the progression of this infection. However, pregnancy increases risk due to lowered ability to fight illnesses. The presence of HIV infection in pregnancy puts women at additional risk of getting other infections. As a result of this, they are also at a higher risk for ectopic pregnancy, miscarriage during the early stages of pregnancy, urinary tract infections, and recurrent vaginal infections. Further, if the woman is anaemic, and conditions such as malaria are present, it can lead to life-threatening complications. If the woman is pregnant or breastfeeding her child, then there is also a risk of transmitting HIV to the child.

Treatment
While there is lifelong treatment for HIV, no cure is available. The treatment depends on the number of cells that have been destroyed and the number of viruses present in the body. The Government of India provides medicines free of cost.

- ***Hepatitis B***

  This is caused by a virus. This spreads by: a) having sex without the use of a condom from an infected person to a healthy person; b) from an infected mother to her child; c) from an infected person to a healthy person by sharing needles, syringes, razors, toothbrushes etc, and d) through direct contact with the blood or open sores of an infected person. It does not spread by sharing utensils, hugging, kissing, holding hands, coughing or sneezing. Since an infected person does not look or feel sick, it is hard to identify who may have the infection. The Hepatitis B virus can survive outside the body for at least seven days. It is therefore easier to pick up Hepatitis B than other diseases where the virus has a short life span.

Symptoms

Fever, fatigue, loss of appetite, vomiting, pain in the abdomen and joints, dark coloured urine, clay coloured motion (stools) and jaundice (yellow colour in the skin or the eyes).

Consequences

Pregnancy does not affect the progression of the Hepatitis B infection. However, the infection can cause liver damage or failure, liver cancer, or even death.

What should an infected pregnant woman do if she has Hepatitis B?

- The infected woman must take the appropriate vaccine to reduce the severity of the infection. Vaccines can be safely taken during pregnancy without the side effects to the foetus.
- The infected woman has to cover any open wound she may have, using a bandage.
- The infected woman should ensure that bandages or sanitary napkins used by her are either burnt or buried.
- The infected woman should not share toothbrushes, blades or needles with others.
- The infected woman should not donate blood.

- The infected woman must get herself checked every six months by a liver expert.
- According to WHO, a woman can breastfeed her child, if she is suffering from hepatitis B.
- The infected woman must ensure that her newborn gets two injections: a vaccine for hepatitis B and a dose of immunoglobulin. This must be given 12 hours after delivery. To protect the baby completely, the vaccine should also be given in the first and sixth month.
- If anyone in the family has the infection, then it is essential that all the other members of the family are also given the vaccine.

- ***Genital warts***

  This is caused by a virus. It spreads by having sex with an infected person. A condom does not provide protection because genital warts also spread through skin to skin contact during sex.

Symptoms

Multiple, painless bumps on the skin, which do not go away.

Consequences

Genital warts increase the risk of cervical cancer. There will be bleeding after sex and discharge that is watery, foul smelling and/or blood-stained if the woman has cervical cancer.

Treatment

Doctors treat genital warts depending in how big they are. They test the woman for cervical cancer. If detected early, it can be cured. Late detection of cancer can be fatal for the woman. Therefore, women who are over 40 years of age must undergo gynaecological examinations to ensure that the womb is healthy and to get a screening test done for cervical cancer. Tests such as the Pap Smear test, help detect the extent of the cancer.

STIGMA AND CHALLENGES FOR PEOPLE WITH STIs

STIs can be very challenging for various reasons. Firstly, because these infections are lesser known, there is very little awareness about these. Hence, even if a person does have some symptoms s/he may not realise the cause of these symptoms until it is too late for treatment, if any. Secondly, since STIs like HIV are largely spread through sex with multiple partners, there is stigma attached to being an infected person. Families, communities and sometimes even healthcare providers discriminate against infected people because STIs are considered to be proof of having a 'loose character' with little or no moral values. Thirdly, given the fact that women have limited sexual rights, they may not be in a position to: a) refuse sex even if they know that their partners are infected; b) ensure that their partners wear a condom; c) prevent their partners from having sex with other women who may be infected.

People suffering from these infections hesitate in seeking medical help and are very secretive about the fact that they have STIs. Sometimes, they do not share these details even with their partners and that can spread the infection further.

Remember!

- STIs are largely spread from an infected person to an uninfected person through sexual intercourse without the use of a condom.
- There are different kinds of STIs and they include: STIs that cause discharge, ulcerative STIs, and other STIs caused by viruses and bacteria.
- Some STIs like syphilis can be treated and cured. However, for other STIs like HIV, there is treatment, but no cure.
- Treatment for STIs must be taken until the prescribed course is completed, even if symptoms have disappeared.
- The consequences of STIs are very grave and range from preterm labour and liver failure to cervical cancer and even death.
- STIs do not spread by using the same utensils, toilets, hugging, kissing or mosquito bites.

3.14 URINARY TRACT INFECTIONS IN PREGNANCY

Urinary tract infections (UTIs) are infections caused by bacteria in the urinary passage.

WHAT IS THE URINARY SYSTEM?

The urinary system removes liquid waste from the body. It consists of: a) two kidneys located on both sides of the middle of the back; b) two tubes from the kidneys (ureters) that come down from the back to the front of the lower abdomen; c) the urinary bladder, situated in the lower abdomen; and d) a single small tube from the urinary bladder, which carries urine out of the body (urethra).

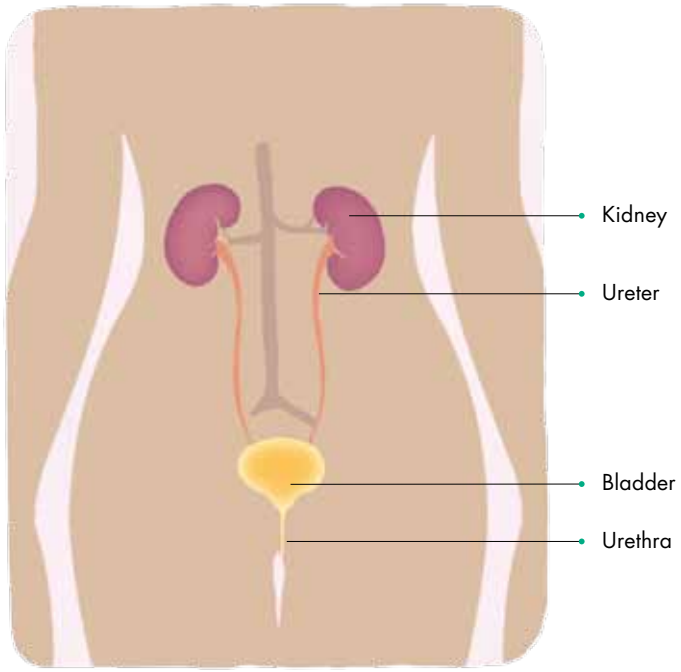


Fig 15. Urinary system

WHAT CAUSES URINARY INFECTIONS IN PREGNANCY?

- A pregnant woman's body undergoes many changes. Hormonal changes affect the urethra, which increase the woman's vulnerability to urinary infections.

- As pregnancy advances, the growing womb presses the bladder, which does not allow it to empty the urine completely. Retained urine can cause infections. The bladder stretches as it fills with urine. It then contracts, when it empties to push out all the urine. Women in general, including pregnant women tend to hold urine because of poor access to toilets. Retaining urine for a long time stretches the bladder, making the muscles weak. This affects pregnant women more because of hormonal changes and the pressure caused by the growing womb. When these muscles weaken, the bladder is unable to contract fully and therefore does not push out all the urine. As mentioned earlier, retained urine in the bladder can cause infections.

- Urinary infection is usually caused by bacteria present in the intestines. It spreads when women clean the anal area from back to front, after passing stools. As a result, bacteria from the stools go into the woman's urinary (urethral) opening, causing infection. There is a stronger chance of pregnant women picking up these infections because they are more vulnerable to infections than other women.

- Sexual activity can also push bacteria into the urethra. Bladder infections are more common in women who have sex without the use of condoms with multiple partners. Since the pregnant woman's capacity to fight infections is low, she is more at risk than other women.

- Diabetes is especially known to increase the risk of urinary infections. Gestational diabetes may occur for some pregnant women. Thereby, putting them at greater risk.

- Kidney stones can result in low urine flow and retention. This increases the risk of urinary infections. Pregnant women are more vulnerable, given all the other changes (hormonal and physical) taking place in their bodies.

- In case the pregnant woman has to undergo a surgery, such as C-section, a pipe is inserted into the bladder to release urine. This may result in UTIs, given her vulnerability.

WHAT ARE THE SYMPTOMS OF URINARY INFECTIONS?

The symptoms of urinary infections are the urge to urinate frequently, a burning sensation and/or pain while urinating, sometimes blood in the urine, pressure in the lower abdomen, pain in the lower back, fever and chills.

HOW IS UTI DETECTED? CAN IT BE TREATED?

The presence of UTI can be confirmed only by a urine test. Safe treatment is easily available for pregnant women. If medicines are prescribed for UTI, the entire course must be taken even after the symptoms disappear.

CAN UTIs BE PREVENTED?

The following can help in preventing UTIs:

- Drinking 8 to 10 glasses of water can play a role in preventing UTIs. Large quantities of water help in flushing out bacteria from the urinary passage.
- Women should pass urine as soon as there is an urge. Urine retention can cause UTIs.
- Passing urine after sex flushes out the bacteria.
- After urination, the area must be wiped off with a clean dry cloth or tissue from front to back.
- While washing the anal area, the motion must be front to back and not back to front.
- Bacteria tend to grow in moisture. Wearing a cotton underwear absorbs moisture and keeps the genital area dry.
- Bar soaps may hold bacteria. Therefore, it is advisable to use liquid soap.

Remember!

- ☐ Urinary infection is caused by bacteria in the urinary passage.
- ☐ Urinary infections in pregnancy occur for a variety of reasons: hormonal changes, pressure on the bladder by the growing womb, kidney stones or diabetes, surgeries, etc.
- ☐ The symptoms of urinary infections are the urge to urinate frequently, a burning sensation and/or pain while urinating, sometimes blood in the urine, pressure in the lower abdomen, pain in the lower back and fever and chills.
- ☐ UTIs can be prevented by drinking 8 to 10 glasses of water; passing urine when there is an urge; passing urine after sex; keeping genitals dry and clean; wearing a cotton underwear and using liquid soap.

PART 4

DELIVERY

DELIVERY

4.1 LABOUR AND CHILDBIRTH

Labour is a biological process that includes delivery and childbirth. During labour, a woman may experience pain in the back, abdomen, groin and/or inner thighs. These are called contractions or labour pains. At the end of labour, the amniotic sac (bag of membranes), foetal umbilical cord and placenta come out of the womb.

WHEN SHOULD THE FAMILY AND PREGNANT WOMAN SEEK HELP FOR DELIVERY?

- When the woman notices a bright red vaginal discharge and/or has a continuous leakage of fluid or wetness. This is the amniotic fluid leaking out, which is different from the usual vaginal discharge. This watery discharge smells like egg white and a large quantity can either gush or drip out.
- When there are strong contractions/pains in the abdomen, back or inner thighs every five minutes continuously for more than one hour and the woman is unable to walk.
- When foetal movements become less than ten movements an hour.

Labour pains can be false or true.

WHAT ARE FALSE LABOUR PAINS?

Before the actual labour pains begin, the woman may have a tightening of the abdomen that is irregular and does not become stronger over time. These pains do not open (dilate) the mouth of the womb (cervix) or cause blood stained vaginal discharge. It is perfectly normal to experience this sort of tightening because it is the body's way of preparing for true labour. The tightening may begin as early as the fourth month of pregnancy and is a source of anxiety for some women. However, this should not be a cause for concern, as it tends to get better with rest.

WHAT ARE TRUE LABOUR PAINS?

True labour pains usually begin closer to the expected date of delivery. True pains cause discomfort, a dull ache in the back, lower abdomen, inner thighs and/or groin and pressure near the genital area. Labour pains are accompanied by slow dilation of the cervix[25] and/or blood-stained vaginal discharge. This pain does not get better with rest.

HOW DOES TRUE LABOUR START?

For delivery to take place, two crucial processes must occur: contraction of the womb; and dilation of the cervix. The contraction pushes the foetus down into the vaginal passage and the dilation allows the baby to pass out of the cervix and vagina. **These processes occur for the following reasons:**

- As pregnancy progresses closer to the date of delivery, there is a gradual reduction in the hormones released by the placenta and in the amount of amniotic fluid. This makes it difficult for the baby to continue to remain in the womb.
- The brain of the foetus produces hormones that reach the mother through the placenta. This makes the mother's brain produce hormones, which makes the womb contract.
- At the same time, the cervix also produces hormones that help in dilation.

WHAT IS THE POSITION OF THE BABY DURING LABOUR?

Around the time of delivery, the baby's head is usually at the birth canal[26]. For some women, this may not be so and the baby may present the face, shoulder, arm, buttocks or feet at the birth canal. (This is known as malpresentation. Details are presented under Complications in Labour.)

[25] The mouth of the womb (cervix) gradually opens or expands as labour advances. This is called dilation and is necessary, as the baby (which is bigger than the cervix) has to pass through the cervix and vagina for delivery.

[26] The foetus passes through the birth canal during delivery. This passage is formed by the pelvic bone, dilated cervix and vagina.

WHAT HAPPENS DURING LABOUR?

When a woman goes through true labour pains, the contractions become continuous and regular. With this, the womb contracts, which makes the cervix dilate. Once the cervix has dilated to ten centimetre (cm.), the contracting womb pushes the baby down towards the vagina and the baby is born.

Labour takes place in three stages:

STAGE 1:

This stage, which usually begins with breaking of the water (release of amniotic fluid) and regular contractions of the womb, is divided into two phases.

Phase 1:

As labour progresses, pains are more regular and intense. In the first phase, the cervix opens up to three cm. and this may take anywhere between 6 to 18 hours.

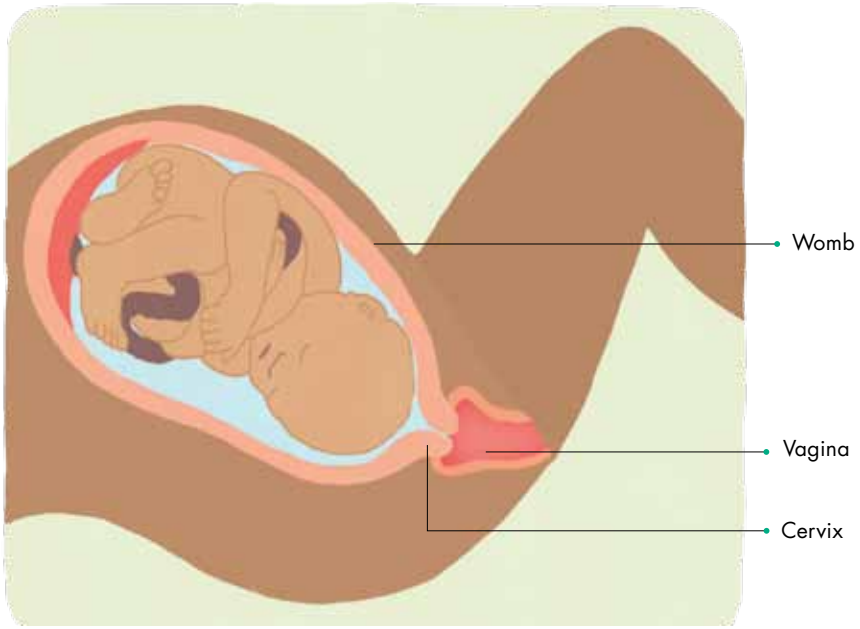


Fig 16. Stage 1 (phase 1) - Labour

Phase 2:

In the second phase, the cervix dilates up to ten cm. at the rate of 1 cm. per hour for a woman who is bearing a child for the first time. However, the cervix dilates at 1.5 cm. per hour for a woman who has previously had one or more pregnancies. After the cervix has dilated to 3 cm., it may take four to six hours for full cervical opening.

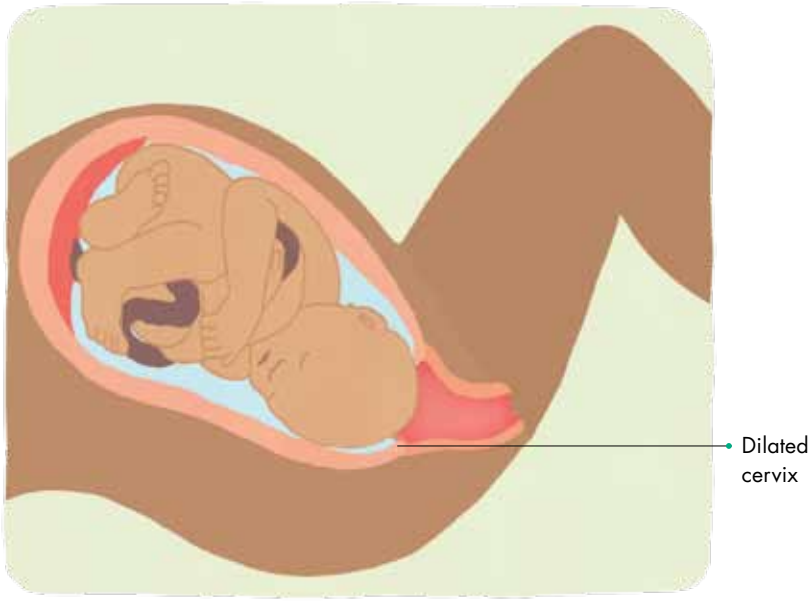


Fig 17. Stage 1 (phase 2) - Labour

STAGE 2:

With continued contractions and the full dilation of the cervix to 10 cm., the baby comes down from the womb into the vagina and gets delivered. Generally, the head comes out first and is followed by the neck, shoulders, chest, abdomen, hip, buttock, thighs and finally legs. The second stage may last between 20 minutes to 2 hours.

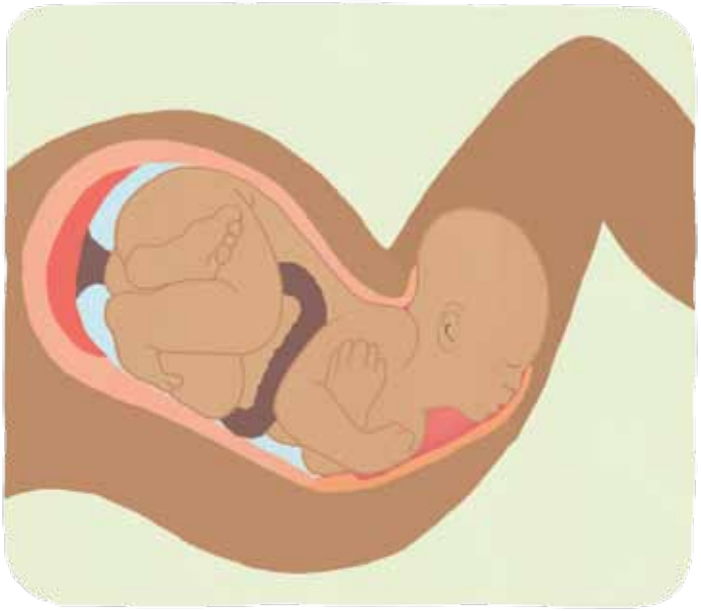


Fig 18. Stage 2 - Delivery of head

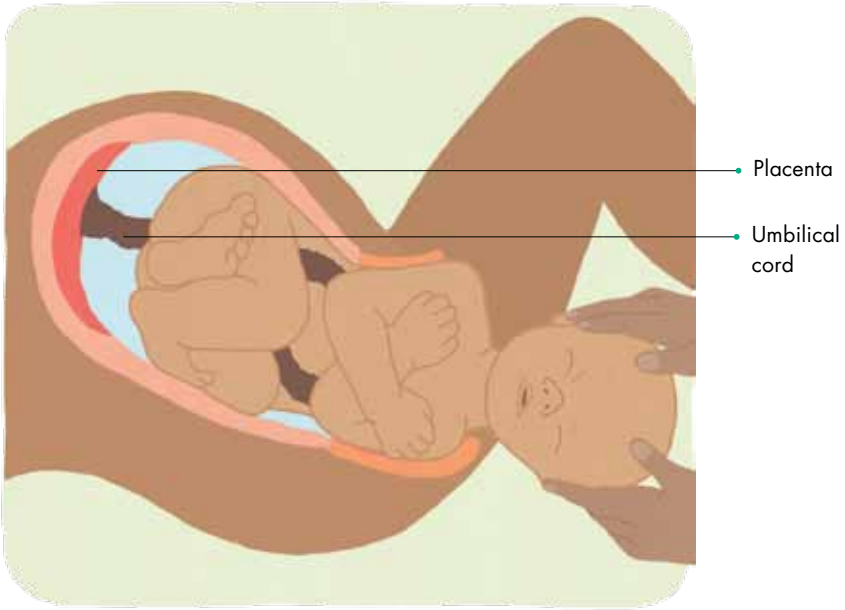


Fig 19. Stage 2 - Delivery of neck and shoulders

STAGE 3:

The placenta comes out after the baby is delivered. It may last between 5 to 30 minutes.

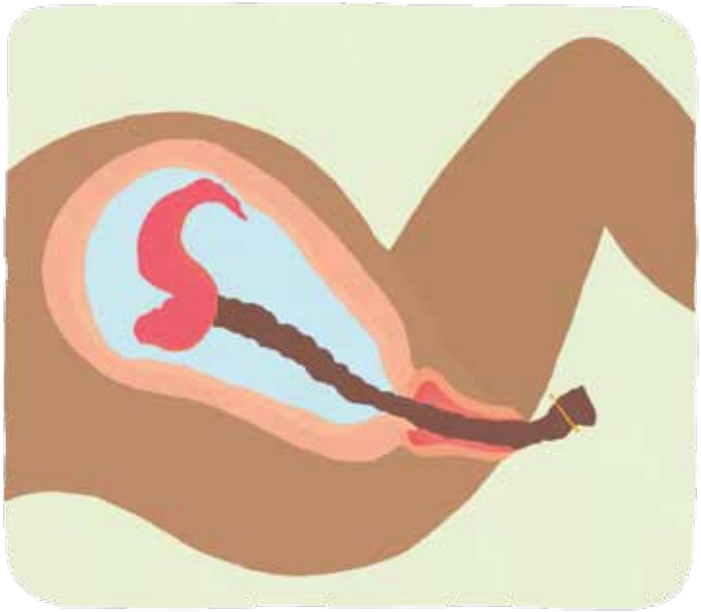


Fig 20. Stage 3 - Placental delivery

WHAT SHOULD HEALTHCARE PROVIDERS DO DURING LABOUR?

The healthcare provider is primarily there to assist the process of delivery. Therefore, s/he has little to do during the first stage of labour. In the second stage, healthcare providers should let nature take its course unless complications arise (e.g., the woman or the baby being too tired, etc.). In such cases, the providers should help the woman deliver quickly by deliberately increasing the frequency and severity of contractions. However, in the third stage of labour, healthcare providers need to take preventive steps to ensure that there isn't excessive bleeding after delivery. They need to give injections and massage the womb to enable the placenta to come out fully (intact) with minimal bleeding.

WHAT IS INDUCTION OF LABOUR?

The healthcare providers deliberately bring on (induce) labour pains by using injections under the following circumstances:

- When labour pains do not begin even one or two weeks after the expected date of delivery.
- When the water breaks, but is not followed by labour even one or two days later.
- When the mother has other complications.
- When the foetus has difficulties breathing in the womb.

WHAT ARE THE POSSIBLE COMPLICATIONS IN LABOUR?

- **Obstructed labour:** Labour gets obstructed either when the baby is too big to come out of the mother's birth canal, or the birth canal is too small. In such cases, delivery will not take place even though the mother may have normal contractions. This condition calls for immediate care.
- **Malpresentation:** Normally, a baby is born with its head at the birth canal. However, sometimes the baby may first present its face, shoulder, hand, buttocks or legs. This is not normal and is known as malpresentation. It causes difficulty for the mother during delivery and she will need immediate care.

Fig 21. Normal presentation

There are different kinds of malpresentations:

Face at the birth canal: When the baby's face is at the cervix. This condition cannot be detected until the time of delivery. Women can have a normal delivery, but will need the assistance of an experienced and competent healthcare provider.

Shoulder and hand at the birth canal: Since the baby's shoulder is at the cervix, the water may break before the beginning of labour pains and the hand comes out first. In such cases, vaginal delivery is not possible and delivery has to be completed only by a C-section or Caesarean birth. (Details of a Caesarean birth have been given below.)

Fig 22. Face at the birth canal

Fig 23. Shoulder and hand at the birth canal

Buttocks and leg at the birth canal: This means that the buttocks (with or without legs) of the baby are at the birth canal and its head is in the upper part of the womb. In this type of delivery, the head comes out last. Sometimes, the baby may start breathing inside the womb and inhale the amniotic fluid since the head gets delivered right at the end. This may cause breathing problems soon after delivery.

Since the buttocks are larger than the head (and these do not fit in well into the cervix the way the head does), there is a risk of the water breaking before the beginning of labour. This can result in the umbilical cord coming out, thereby preventing oxygen supply and nourishment to the baby. **This can cause a stillbirth.**

Fig 24. Buttocks and leg at the birth canal

WHAT IS AN EPISIOTOMY?

An episiotomy is a surgical cut made in the area between the vagina and the anus[27]. This enlarges the vaginal opening and enables the baby to pass through easily. An episiotomy is conducted when there are problems during delivery and the woman is unable to push the baby out. For example, when there is a delay in the delivery or when the foetus is presenting its buttocks at the birth canal. This is not recommended as a routine procedure. The woman has a right to refuse an episiotomy.

[27] Anus is the end portion of the large intestine from where stool is passed.

WHAT IS A C-SECTION OR CAESAREAN BIRTH?

Delivering a baby by operating on the womb is called C-section or Caesarean. It is conducted for a variety of reasons to avoid life-threatening complications. Caesareans can be conducted only in healthcare facilities. **Some of the conditions under which a Caesarean has to be conducted urgently are as follows:**

- Obstructed labour occurs when the womb contracts hard to push the baby out but delivery does not take place. **This is due to two reasons:** the baby is too big (which could be natural or due to gestational diabetes) or the mother's passage is too small for the baby to pass through. (Some women have a naturally small passage and are short in height. However, in the case of teenage pregnancies, the passage may be small due to underdevelopment of the body.)

- The mother may have problems like high blood pressure. A quick delivery may be necessary to prevent fits in the mother.

- Prolonged labour where both the mother and baby get too tired for delivery to take place normally.

- The baby may have difficulties breathing in the womb for different reasons.

Just before the operation, the woman gets an injection in her lower back that numbs her feet and lower abdomen. Urine from the urinary bladder is removed by passing a tube into the urethra. Then the doctors cut the skin and muscles of the lower abdomen till they reach the womb, they cut the womb and take the baby out. Once the baby is removed, the placenta is taken out and the womb is stitched up. A woman loses almost a litre of blood during the operation and it takes around five to seven days for her to recover from the surgery. Her stay in the hospital depends on how quickly she is able to recover. Since a Caesarean makes the woman and her baby more vulnerable to infections, doctors give medicines to avoid such complications.

It is a common belief that once a woman has had a Caesarean, the following deliveries will also have to be Caesareans. However, this is not always true. The only condition, under which repeat Caesareans are conducted, is when the mother's passage is too small for the baby to come out. Since a small passage is an inbuilt part of the woman's body structure, it cannot be changed. Therefore, every time, a woman with a small passage gets pregnant, the only way she can deliver is by a Caesarean.

IMPORTANCE OF CARE AND RESPECT DURING LABOUR AND CHILDBIRTH

Labour and childbirth can be a mixed experience for a woman. While she goes through immense pain, most often there is also the joy of welcoming a baby into her life. It is also an extremely sensitive period because she has little or no control over what is happening to her. When the woman is in such a vulnerable situation, one would expect healthcare providers to treat her with care and respect. Unfortunately, studies in different countries point to a disturbing trend: many women experience disrespect and abusive treatment during labour and childbirth in healthcare facilities. It is therefore very important that doctors/ other healthcare providers and the woman's family become aware of their responsibilities, while the woman learns about her rights.

WHAT ARE THE RESPONSIBILITIES OF THE FAMILY?

The family has a crucial role to play as the pregnant woman is most vulnerable at this point of time. It is extremely difficult for her to assert herself and demand any of her rights. Therefore, it is the responsibility of the family to ensure that these rights are not violated. If the marital family is not willing to take on this responsibility then the natal family must step in. In an ideal situation, both families should be involved.

There is an unequal relationship between the pregnant woman's family and the healthcare providers. This makes them approach the latter with considerable hesitation, as they feel they do not have the knowledge base to question them in anyway. It is hoped that information in this book will empower the community and families to approach the healthcare providers with greater confidence.

WHAT ARE THE RESPONSIBILITIES OF THE HEALTHCARE PROVIDER?

- Healthcare providers should be available as and when required. Labour and delivery can happen at any point of time during the day or night.

- S/he must make the pregnant woman feel as comfortable as possible by reassuring her; not abusing or disrespecting her in anyway; and ensuring that her privacy and dignity are maintained.

- S/he must practice safe delivery procedures. For example, no unnecessary (more than once in four hours) vaginal examinations; not stretching the cervix; not pressing the stomach during labour; ensuring that the delivery takes place in a clean environment with sterile equipment; and not conducting routine episiotomies unless genuinely indicated, or medicating to hasten delivery.

- The healthcare provider must not force the woman to take an enema; shave the hair near the vulva; or push during the second stage of labour.

- The healthcare provider must inform the woman and her family about the progress of labour; provide complete details including the risks involved in case any procedure needs to be performed; and obtain the consent of the woman or her family to conduct the procedure.

- In case a blood transfusion is needed, the healthcare provider should refer the family well in time to storage centres or blood banks, as they may not know where to go.

- If a referral is required, efforts must be made to stabilise the woman before referring her out.

- Proper referral must be provided where the referred institution should be aware of the details of the case before the pregnant woman reaches the facility.

WHAT ARE THE RIGHTS OF A PREGNANT WOMAN?

- She has the right to respect and privacy while seeking care in the healthcare facility.
- She must be made to feel as comfortable as possible so that her energies can be focussed on giving birth and recovering fully, rather than dealing with disrespectful comments and harsh behaviour.
- She should be allowed to have a person of her choice with her through the process of labour and childbirth. The companion can support her in any way that makes her feel better. For example, rubbing her back, wiping her brow with a wet cloth, holding her hand or assisting her in moving around.
- She should be allowed to walk around and choose the position in which she wishes to deliver.
- She should be able to eat, drink and pass urine if she chooses.
- She should be allowed to wash herself or bathe if she wishes, at the beginning of labour.
- Vaginal examinations are very uncomfortable for the woman. However, doctors need to do this: to assess the baby's position, to understand how much the cervix has opened, to ascertain how much the baby has come down, *cont. >>*

and to assess whether the mother's passage is wide enough for the baby to come out. Healthcare providers are supposed to carry out vaginal examinations at least once every four hours during the first stage of labour and after rupture of the membranes. The woman has the right to question any additional vaginal examinations.

- The woman must push only if she wants to do so.
- She and her family should have access to information about her health. If any procedure is to be performed, then the woman and her family must be informed in advance about what will be done and the associated risks if any.
- She should be able to discuss any of her concerns with the healthcare provider and the latter must respond in a satisfactory manner.
- It is her right to express her views about the services she receives, if she so chooses.
- If any form of postpartum contraception (such as a copper T) or sterilisation is to be done, it should be discussed thoroughly with her, and her consent should be obtained well before the onset of labour, and without any conditionalities.

Remember!

- Labour is a biological process that includes delivery and childbirth. During labour, a woman may experience pain in the back, abdomen, groin and/or inner thighs. At the end of labour, the foetus, amniotic sac (bag of membranes), umbilical cord and placenta come out of the womb.
- The family should seek help for delivery when there is a bright red vaginal discharge, a continuous fluid leakage or wetness; when the woman experiences strong contractions; and when foetal movements become less than ten movements an hour.
- During false labour pains, the woman experiences a tightening of the abdomen, which is irregular and does not become stronger over time.
- During true labour pains, the woman experiences contractions which become stronger over time.
- For delivery to take place, two crucial processes must occur: contraction of the womb and dilation of the cervix.
- There are three stages of labour. The first stage is when the mouth of the womb opens up to 10 cm. This may take anywhere between 10 to 24 hours. The second stage is when the baby gets delivered. This may take between 20 minutes to 2 hours. The third stage is when the placenta comes out after the baby is delivered. This may last between 5 to 30 minutes.
- The healthcare provider should just assist the process of delivery and let nature take its course as much as possible.
- Some of the complications during labour are obstructed labour and different kinds of malpresentations.
- An episiotomy is a surgical cut made in the area between the vagina and the anus. This enlarges the vaginal opening and enables the baby to pass through easily. It is conducted when there are problems during delivery and the woman is unable to push the baby out.
- Delivering a baby by operating on the womb is called C-section or a Caesarean. It is conducted for a variety of reasons to avoid life-threatening complications.
- Women are very vulnerable during labour and childbirth. At such a time, healthcare providers should treat them with care. However, studies across the world show that many women experience disrespect and abusive treatment during labour and childbirth in healthcare facilities. It is, therefore, important for all stakeholders to be aware of their rights and responsibilities.

4.2 UNSAFE DELIVERY

Infections after childbirth or abortion are leading causes for maternal death. Unsafe practices during delivery put the woman at high risk for infections. It is therefore important to understand what an unsafe delivery is and how it impacts the woman's health.

WHAT MAKES A DELIVERY UNSAFE?

The delivery is unsafe when:

- It is conducted by an unskilled or incompetent person.
- The person conducting the delivery does not maintain personal hygiene. For example, the caregiver/healthcare provider does not wash her/his hands or use gloves while conducting the delivery.
- It is conducted in an unclean surrounding.
- Unclean and unsterilised equipment is used. For example, using a rusted or dirty blade to cut the umbilical cord.
- The caregiver/healthcare provider engages in unsafe delivery practices, such as:
    - Conducting frequent vaginal examinations (more than once in four hours). This may increase the risk of infections for the woman.
    - Pressing the stomach during labour to hasten delivery. If the pressure is applied during the first or second stage of labour, it is very likely to injure the genital area. This can lead to acute bleeding, which can cause maternal death.
    - Stretching the cervix during labour to hasten dilation can also have the same effect.

WHAT ARE THE CONSEQUENCES OF UNSAFE DELIVERY?

There are short and long term effects of unsafe delivery.

Short term consequences include bleeding and infections. Symptoms of infections are: fever, lower abdominal pain, foul smelling vaginal discharge, pain while passing urine. In extreme cases, there may be altered behaviour, such as not recognising people, not talking, and not feeding the baby. Generally, a woman develops these symptoms two to ten days after the unsafe delivery has taken place. The bacteria tend to grow unobserved during this period, preventing timely treatment.

Long term consequences of unsafe delivery are infections that may affect the womb, fallopian tubes or ovaries and make it difficult to bear a child in the future. Long standing infections can increase risk of cancer of the cervix. Both the short and long term consequences can be life-threatening for the woman.

PROBABLE CAUSES OF UNSAFE DELIVERIES

There are a number of factors that force women into unsafe deliveries:

Low priority to maternal health and childbirth

Since pregnancy and childbirth are common biological events, there is a tendency to underestimate the importance of providing adequate attention and care to the woman during this period. This becomes more obvious in societies where women's lives are undervalued because of gender inequality. In real terms, pregnancy and childbirth make the woman vulnerable to life-threatening complications. Hence, maternal health and childbirth should be given high priority. Failure to do so can result in unsafe deliveries.

Poverty

Many poor families may not have the financial resources required to travel to the healthcare facility. Sometimes, even if they arrange for the transport, they may not have enough money to pay for the delivery within a healthcare facility. This results in the woman going to an incompetent provider either because s/he is closer in terms of distance or the services are cheaper.

Role of traditional birth attendants (TBAs)

Women may opt for home deliveries conducted by traditional birth attendants for reasons mentioned above. In addition, women prefer TBAs because of the absence of unequal power relations with the caregiver. While all home deliveries may not be unsafe and all institutional deliveries are not necessarily safe, there may be some cases where the TBAs lack the required skills, are not hygienic and adopt unsafe delivery practices (mentioned above). They are usually not in a position to deal with unexpected complications and do not have a referral system in place.

Lack of infrastructure

There may not be a functioning healthcare facility in some remote villages. Under such circumstances, people may be forced to go to other villages. This may be difficult because of poor transport facilities. There could also be situations where the woman may be in a serious condition and travelling to a distant facility may only worsen her health. Therefore, making safe delivery difficult.

There may be a fully functional healthcare facility in the village, with all the necessary equipment. But doctors may not be available, or even if they are, they may not be competent enough or may engage in unsafe delivery practices.

Social exclusion

If the woman is from a lower caste, the healthcare provider may discriminate against her and not provide the required services. She may be forced to go to an untrained incompetent provider.

If the woman is an unwed mother, she is likely to have an unsafe delivery. This is largely because of the stigma attached to this status. Since sexual contact before marriage is looked down upon, unwed mothers generally have little or no support. Therefore, they tend to become isolated and may be forced to deliver without letting anyone know. Due to this, they cannot go to a regular facility for delivery. This means that they are likely to approach untrained, incompetent providers.

Remember!

- Unsafe delivery refers to a delivery conducted in an unclean surrounding and/or by a less skilled person.
- It is unsafe for the woman when the healthcare provider performs unnecessary vaginal examinations, as this may increase risk of infections.
- Applying pressure over the abdomen of the pregnant woman is unsafe. This may push the baby through a partially opened cervix. This can result in a tear and life-threatening bleeding.
- It is unsafe to stretch the cervix during delivery to hasten dilation for delivery. This could have the same results as mentioned above.
- Symptoms may include bleeding, foul-smelling vaginal discharge, abdominal pain and fever. The symptoms may appear two to ten days after delivery.

4.3 PREMATURE RUPTURE OF MEMBRANES

PROM means the premature (spontaneous) breaking of the bag of amniotic fluid, surrounding the foetus in the womb, after the 28th week of pregnancy and before the beginning of labour. This can result in dry labour which makes delivery difficult.

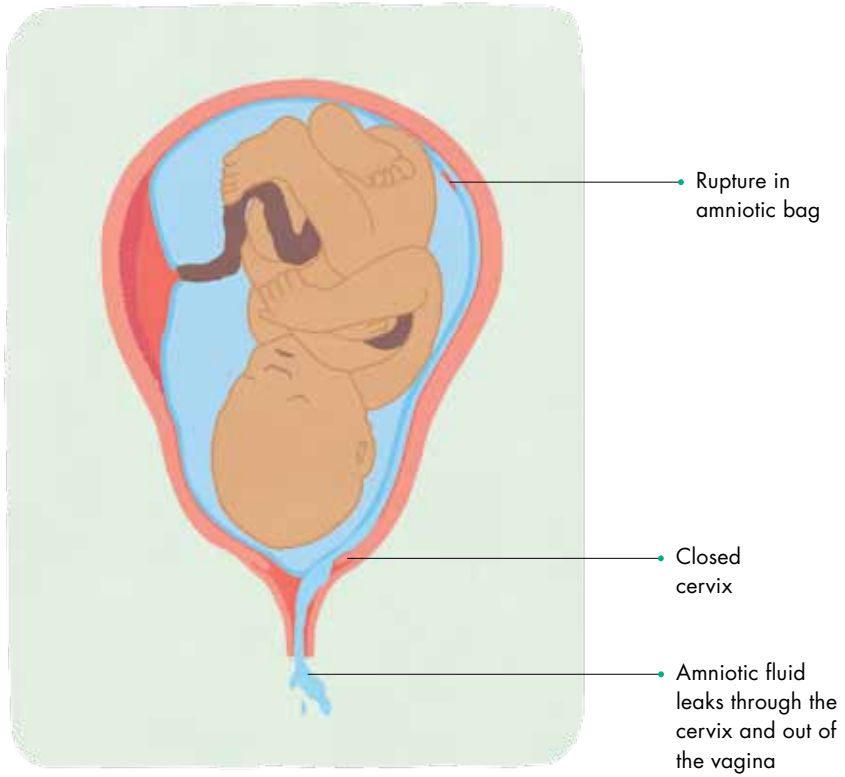


Fig 25. PROM

WHO IS AT RISK FOR PROM?

- Women who have had PROM in a previous pregnancy.
- Women who have infections such as urinary infections or sexually transmitted infections. (For more information on the effects of infections in pregnancy, refer to Part 3, sections 3.13 and 3.14 on STIs and RTIs in Pregnancy and UTIs in Pregnancy respectively.)
- Women who consume tobacco and alcohol during pregnancy.
- Women who have hydramnios. (For details on hydramnios, refer to Part 3, section 3.8.)
- Women carrying twins.
- Older women, especially those carrying twins.
- Women whose cervix is unable to hold the foetus in its place.
- Women who have malpresentations.
- Women who experience bleeding before delivery.

WHAT ARE THE SYMPTOMS OF PROM?

The woman may experience a sudden and continuous gushing of water from the vagina. Some women may feel a small trickle over a period of time. In both situations, the water breaks before the woman experiences labour pains.

WHAT ARE THE CONSEQUENCES OF PROM FOR THE MOTHER?

Usually, the mother develops labour pains within 24 hours after the water breaks. However, if labour does not start within this period, then there are chances of bacteria infecting the womb. Women with these infections may have fever and foul smelling vaginal discharge. This can result in life-threatening complications. The mother may also have a difficult or a preterm delivery.

WHAT ARE THE CONSEQUENCES OF PROM FOR THE FOETUS?

- Stillbirth. (For more information on stillbirth, refer to Part 6, section 6.5.)
- Preterm babies. (For more information on preterm babies, refer to Part 6, section 6.6.)
- Respiratory problems.
- Lowered ability to fight infections.
- Infant death.

Remember!

- ☐ PROM is the breaking of water after 28 weeks of pregnancy and before the beginning of labour.
- ☐ Women at risk for PROM are those who could be suffering from hydramnios, have infections, unhealthy lifestyles, etc.
- ☐ The symptoms of PROM are a sudden and continuous gushing of water from the vagina or a small trickle over a period of time.
- ☐ The consequences of PROM for the mother are a difficult delivery or a preterm delivery.
- ☐ The consequences of PROM for the baby are preterm birth, respiratory problems, lowered ability to fight infections, infant death or stillbirth.

4.4 PRETERM LABOUR

When labour pains start three weeks (or more) before the expected delivery date, preterm labour occurs.

WHO IS AT RISK FOR PRETERM LABOUR?

- Women who have a family history of preterm labour.
- Women who have had a premature rupture of membranes in the current pregnancy.
- Women who do not have a gap of two years between the current and previous pregnancy.
- Teenage women due to poor development of the reproductive organs.
- Women who have undergone surgeries (e.g. removal of the appendix or gall bladder) in the current pregnancy.
- Women who have infections such as urinary infections or sexually transmitted infections. (For more information on the effects of these infections in pregnancy, refer to Part 3, section 3.13.)
- Women who experience domestic violence.
- Women who suffer from high blood pressure or gestational diabetes.
- Women who consume tobacco and alcohol during pregnancy.
- Women who have hydramnios.
- Women carrying twins.
- Older women, especially those carrying twins.
- Women whose cervix is unable to hold the foetus in its place.
- Women who have malpresentations.
- Women who experience bleeding before delivery.

WHAT ARE THE SYMPTOMS OF PRETERM LABOUR?

The symptoms of preterm labour are similar to those experienced during normal, full term labour: pain in the back and/or the abdomen, tightening of the abdomen once in ten minutes or more, pressure in the genital area, vaginal discharge or bleeding. The critical difference is the time at which preterm labour starts – three weeks before the expected date of delivery.

WHAT SHOULD A WOMAN DO WHEN SHE HAS PRETERM LABOUR?

The woman must go to a healthcare facility if she experiences labour pain before the expected date.

A woman who is at high risk for preterm labour (conditions given above) and her family should be prepared beforehand for delivery and any emergency that may arise during that period. (For more details on birth preparedness, refer to Part 3, section 3.2.)

HOW IS PRETERM LABOUR MANAGED?

The healthcare providers give medicines to try to stop the progression of preterm labour, thereby increasing the chance of giving birth to a full term baby. Sometimes the medicines do not work and the woman still delivers a preterm baby. Such babies need special care in a healthcare facility. (For more details on preterm babies, refer to Part 6, section 6.6.)

Remember!

- Preterm labour means labour starts three weeks (or more) prior to the expected date of delivery.
- Women who are at risk for preterm labour may suffer from hydramnios; have infections; or lead unhealthy lifestyles, etc.
- The symptoms of preterm labour are pain in the back and/or the abdomen, tightening of the abdomen once in ten minutes or more, pressure in the genital area, vaginal discharge or bleeding.
- Medication to prevent preterm labour does not always work; hence preterm births may still occur.

PART 5

POSTPARTUM PERIOD

POSTPARTUM PERIOD

5.1 EXCESSIVE VAGINAL BLEEDING AFTER DELIVERY

Excessive vaginal bleeding after delivery refers to the loss of more than half a litre of blood after a normal delivery, and one litre (or more) after a Caesarean, within 24 hours of delivery. This excessive bleeding can be gradual over a period of time, or it can occur intensely within a short period. Both these forms of blood loss are equally dangerous and can have life-threatening complications. As it is difficult to measure the amount of blood lost, it is ideal to seek care immediately after the bleeding starts. This kind of vaginal bleeding is a major cause of maternal death in India.

WHAT ARE THE CAUSES OF EXCESSIVE VAGINAL BLEEDING AFTER DELIVERY?

- ***Inability of the womb to contract:*** Normally, the womb contracts soon after delivery, preventing excessive bleeding. **However, at times, the womb fails to contract for the following reasons:**
  - Prolonged labour (when the woman does not deliver despite having true labour pains for more than 24 hours).
  - An overworked womb. When the womb is worn out due to excessive work, it loses its strength and is unable to contract soon after delivery.
  - Enlargement of the womb. This can occur either due to the mother carrying twins, or if the mother is suffering from hydramnios. In both instances, the womb does not contract soon after delivery.

- ***Tears/injuries in the cervix and/or vagina or the genital area:*** Sometimes, there may be tears in the cervix and/or the vagina or genital area during delivery, which cause excessive bleeding. **Tears may occur for the following reasons:**
  - **First delivery:** Since the opening of the vagina is generally more rigid, it may tear when the baby's head passes through.
  - **Big baby:** Women suffering from gestational diabetes tend to have large babies. As a result, both the vagina and cervix have to stretch much more during delivery, causing tears.
  - **Malpresentation** (refer to Part 4, section 4.1 on Labour and Childbirth for more information): If the foetus presents either its face or buttock first at the cervix, then both the vagina and cervix have to stretch much more to allow the baby to come out, causing tears.
  - **Hastening delivery:** Sometimes doctors use instruments to assist the woman deliver. This may cause injury to the genital area. While assisting the woman during delivery, healthcare providers may conduct some procedures (pressing the abdomen, stretching the cervix) to speed up the process of delivery. This can result in tears in the cervix and/or vagina or genital area.

- ***Retained placenta/bits of placenta:*** In the third stage of labour, the placenta comes out of the womb. (For more information on stages of labour, refer to Part 4, section 4.1.) Sometimes the entire placenta/bits of placenta may not get delivered. This prevents the womb from contracting after delivery, causing bleeding.

- ***Womb inside out:*** This is a very rare condition and it occurs during placental delivery. As the placenta is being removed from the womb, the inside of the womb comes out of the vagina along with the placenta attached to it. This means the womb has turned inside out, causing life-threatening complications or death for the woman.

- ***Anaemia:*** If the woman is already suffering from anaemia, even small or normal quantities of blood loss may worsen her condition. Anaemia may prevent the womb from contracting which can lead to further blood loss, causing life-threatening complications.

HOW IS EXCESSIVE VAGINAL BLEEDING TREATED AFTER DELIVERY?

Vaginal bleeding after delivery is a medical emergency and therefore, has to be treated immediately. Treatment for this condition depends on the cause of bleeding. If the woman cannot be treated at a primary level healthcare facility, she must be referred to a higher facility. However, the healthcare provider must first ensure that the woman is given basic medical support before referral.

Remember!

- Excessive vaginal bleeding after delivery means, blood loss of more than half a litre after a normal delivery and one litre or more after a Caesarean, within 24 hours of delivery.
- Excessive bleeding may be caused due to the following reasons: inability of the womb to contract; tears in the cervix or vagina; retained placenta/bits of placenta; prolonged or difficult delivery; womb inside out; and anaemia.
- Vaginal bleeding is a medical emergency and must be treated immediately.

5.2 CORTICAL VENOUS THROMBOSIS

Cortical Venous Thrombosis (CVT) refers to blood clots in the veins of the brain. Pregnant and postpartum women have an increased clotting tendency, to prevent excessive bleeding soon after delivery. Therefore, they are more vulnerable to blood clots in any part of the body, including the brain.

The onset of blood clots in the brain is very sudden and comes without any warning. It is difficult to predict who will develop this problem because there are no established causes. However, there are factors, which put some women at an increased risk for developing clots in the brain.

WHO IS AT RISK FOR DEVELOPING CLOTS IN THE BRAIN?

- A woman who has had multiple pregnancies.
- An older woman who gets pregnant.
- A woman who is suffering from anaemia.
- A woman who has had a Caesarean.
- A woman who is not allowed to move around after delivery.
- A woman who is given very little water to drink, and made to sweat excessively due to certain postpartum practices, such as hot water baths, keeping hot coal under the bed, staying in a dark room without much light or air.

WHAT ARE THE SYMPTOMS OF HAVING CLOTS IN THE BRAIN?

- Sudden onset of headache. Sometimes only on one side, but it can also affect the entire head.
- Fits.
- Weakness on any one side of the body, either the right or the left.

- Fever.
- Altered behaviour.

When a pregnant or postpartum woman shows any of the above symptoms, it is important that she is taken to a healthcare facility immediately. A scan of the brain will identify and confirm the exact nature of the problem.

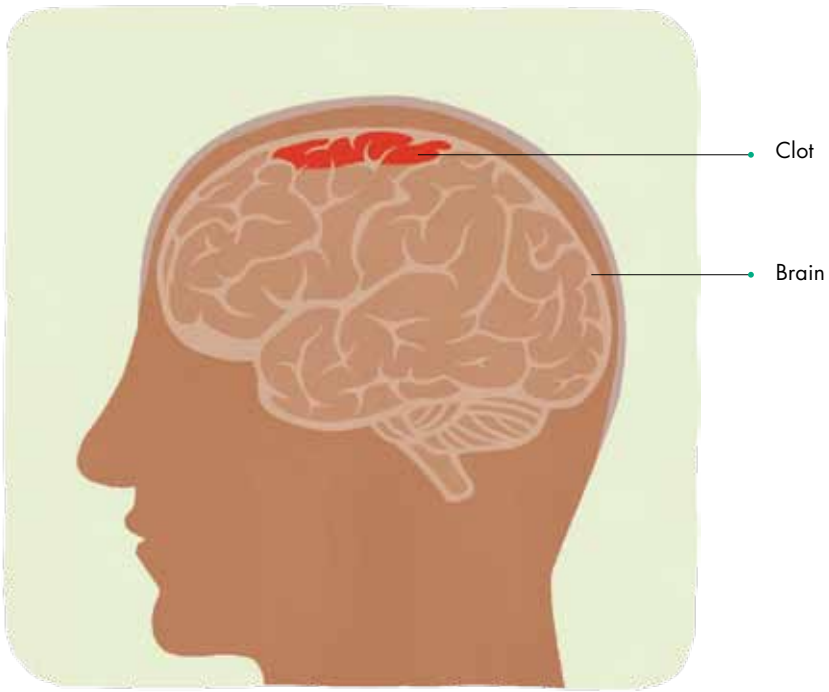


Fig 26. Brain clot

HOW CAN CLOTS IN THE BRAIN BE TREATED?

Treatment for this condition is based on the size of the clot and the stage at which (initial or advanced) the family approaches the healthcare provider. Primary level healthcare facilities may not be able to handle a woman with this condition. Therefore, the woman must be referred to a higher facility. With specialised equipment and doctors, this facility is in a better position to treat the woman successfully. However, in regions, where such specialised facilities and doctors are absent, chances that the woman will survive are very small, given the seriousness of this condition.

HOW CAN RISKS OF CLOTS IN THE BRAIN BE MINIMISED?

- ***Early identification and treatment of anaemia:*** The woman should get her Hb levels checked regularly during pregnancy to identify and treat anaemia early. **This is important because anaemia increases the risk for developing brain clots in the following way:**
    - If the woman is anaemic, this increases risk of clot in the brain because the iron deficiency may make the red blood cells thicker. This may also increase the number of cells that are responsible for blood clotting. Together this makes the blood thicker and flow slowly. This increases risk of clot formation.

- ***Modifications in practices observed during the postpartum period:*** Some practices can increase the risk of forming blood clots. For example, some communities restrict the quantity of water given to the postpartum mother. It is also believed that making the woman sweat will wash out the toxins generated in body. Both these practices may thicken the blood due to dehydration. This increases the risk of clot formation. Additionally, the custom of not allowing the woman to move around, making her lie down the entire day, keeping her in a dark room with no light and air may affect blood circulation. Slow and irregular blood flow also increases the risk of clot formation. Therefore, it is important to modify some of these practices, to reduce the risk of clots in the brain.

Remember!

- ☐ Cortical Venous Thrombosis is a life-threatening complication that refers to clots of blood in the veins of the brain.
- ☐ Pregnant and postpartum women have an increased blood clotting ability to prevent excessive bleeding after delivery. Therefore, they are more vulnerable to blood clots.
- ☐ The onset of blood clots in the brain is very sudden and comes without any warning. It is difficult to predict who will develop this problem.
- ☐ Risk factors for developing clots in the brain include the following: multiple pregnancies; an older pregnant woman; a woman who has undergone a Caesarean; anaemia; and some practices followed during the postpartum period.
- ☐ Symptoms of clots in the brain are: sudden onset of headache, fits, weakness, fever and altered behaviour.
- ☐ When a pregnant or postpartum woman shows any of the above symptoms, it is important that she is taken to a higher healthcare facility immediately.
- ☐ Treatment for this condition is based on the size of the clot and at the stage (initial or advanced) the family approaches the healthcare provider.
- ☐ Ways of minimising risks for developing clots in the brain are: early identification and treatment of anaemia; as well as modification in some of the practices followed during the postpartum period.

5.3 POSTPARTUM CARE FOR THE MOTHER AND THE NEWBORN

CARE FOR THE MOTHER

The postpartum period refers to the time from when the baby is born until six weeks after delivery. This is an important stage for the mother, as the woman undergoes several changes physically and psychologically, as she prepares to take care of the baby.

Care for the mother soon after delivery

Soon after placental delivery, the healthcare providers check if there is excessive bleeding because of injury to the genital area or tears in the cervix or vagina. If there is a tear, they give an injection to numb the area, which is torn and stitch it up to stop the bleeding. Then they check if the womb has contracted and become hard, to make sure there is no bleeding from the womb. In addition, healthcare providers must also check the woman's blood pressure and pulse. Once she has been examined thoroughly and risks have been ruled out, the woman is cleaned and changed. (She is given a clean pad to observe the amount of bleeding and is asked to report to the healthcare provider if there is anything abnormal.) Then the newborn is given to the woman for breastfeeding.

Care for the mother after she goes home

As recommended by the government, the ASHA or ANM should make the required number of home visits to provide information about the baby as well as to discuss the woman's health and general wellbeing. If either the ASHA or ANM identifies any risk symptoms, they should refer the woman to a healthcare facility immediately.

The postpartum period is a time when the woman recovers from the strain of pregnancy and delivery. Therefore, it is very important that the woman gets the following:

- **Rest:** Complete rest for the first six weeks after delivery, because child-bearing is a very stressful and tiring process. In addition, since the woman has lost a significant amount of blood during delivery, she needs at least six weeks to recover fully.

- **Diet:** A balanced and nutritious diet is essential because the woman has to regain the blood lost during delivery. In addition, she also has to exclusively breastfeed the baby, for which she needs to be well nourished.

- **Washing and bathing:** The woman must keep herself clean by washing/bathing daily with soap and water. If there are stitches in the genital area, washing it and keeping it dry, heals the wound faster. If the woman has had a Caesarean, she can wipe herself in hot towel until the wound heals.

- **Water:** A sufficient quantity of drinking water must be given to the woman to prevent urinary infections, dehydration, etc.

- **Movement:** The woman must not lie down in one place the entire day. Instead, she must move around, depending on how much energy she has. A lack of movement for a long period (six weeks) after delivery can be dangerous because this can affect blood circulation.

- **Ventilation:** Finally, the woman must be in a room that has plenty of light and air.

Dehydration with poor mobility and a lack of exposure to fresh air and light can increase the risk of developing blood clots that may affect the brain. This is a very severe health condition and can even cause death. (For more information, on blood clots in the brain refer to Part 5, section 5.2.)

Concerns during the postpartum period

- **Excessive bleeding:** If the woman is changing strips of cloth or pads more than six times a day, then she needs to consult a healthcare provider immediately. (For more information on excessive bleeding after delivery, refer to Part 5, section 5.1.)

- **Infection:** If the woman has foul smelling vaginal discharge, lower abdominal pain or fever, it indicates infection of the womb and requires immediate attention.

- **Fits:** If the woman had high blood pressure before delivery, it usually takes up to 48 hours for it to come down. During this period, she may experience symptoms of high blood pressure, including fits. An institutional delivery should ideally ensure close monitoring of the woman up to 48 hours, especially if she has had a history of high blood pressure. However, in case the woman displays symptoms after 48 hours, it is essential that medical help is sought immediately.

- **Anaemia:** A woman is likely to be anaemic, especially in the postpartum period because of blood loss during delivery. The risk of severe anaemia increases if the woman was already suffering from the problem before pregnancy. It is common among low income women. A woman who has anaemia may look pale, feel tired and is unable to feed the newborn. Anaemia can lead to life-threatening complications for the woman even in the long run. Therefore, it is crucial to look out for symptoms and consult a healthcare provider immediately if any symptoms are present. Anaemia in the postpartum period affects the woman's emotions. Low haemoglobin level has been associated with postpartum depression. Some ways in which anaemia affects the woman during the postpartum period are: low milk supply, delayed wound healing, and developing urinary tract infections and risk of other infections.

- **Improper breastfeeding:** This could result in pain and swelling in the breast. If the newborn is biting the nipple while feeding, it can cause sore and cracked nipples, which makes it difficult for the woman to feed the infant. Improper feeding can also result in milk collection in the breast causing swelling, pain and pus and fever. In order to avoid all these complications, it is important for a woman to learn the right technique for breastfeeding.

- **Stitches:** When a healthcare provider assists the woman during delivery, s/he may cut the vaginal area to help the woman deliver. After delivery, the cut is sutured. It is quite natural to have pain and swelling at the site of these stitches. The stitches must be kept clean and dry to help the cut heal completely. Hot water fomentation should be applied to reduce both swelling and pain.

- **Psychological changes:** Being pregnant and giving birth to a baby can be a very challenging experience. There are several changes the woman has to accept and become comfortable with during this phase of her life. This is especially so in the postpartum period because the woman not only has to look after herself, but also the newborn. Therefore, in the initial months after delivery, she tends to be sleep deprived, may have difficulty in breastfeeding, her stitches may hurt every time she sits down, etc. Given all this, it is natural for a woman to experience psychological changes during the postpartum period. For example, she may be irritable, cry unnecessarily, refuse to feed the newborn or eat herself, not talk, etc. (As mentioned earlier, anaemia may also lead on to postpartum depression.)

The stigma associated with this altered behaviour is discussed in Part 5, section 5.4 on Mental Health Problems in the Postpartum Period. It is important that the family and community support her during this difficult phase. While the woman tends to recover within a few weeks, it is also possible that these psychological changes persist. In such cases, the woman should be taken to the healthcare provider immediately.

CARE FOR THE NEWBORN

Like it is for the mother, the postpartum period is also crucial for the baby, as the newborn is coming to terms with her/his new surroundings. Since the baby is very sensitive to everything in its surroundings, the family members must take great care in looking after the baby.

Care for the newborn soon after birth

Soon after birth, the baby is cleaned thoroughly by wiping off blood and faecal matter if any. The sticky white layer, covering the baby should not be washed off, as it provides protection. Soon after delivery, doctors check the baby's breathing, colour of the skin and temperature at the first and fifth minute after birth. In addition, the umbilical cord (that is cut after delivery) is also checked for bleeding. The mother must breastfeed the baby as soon as possible after birth.

Care for the newborn at home

It is recommended that babies should not be given a bath in the first seven days because it makes the infant vulnerable to infections. Instead, the baby can be wiped clean with a towel soaked in warm water. Infections occur if the baby is not kept fully dry.

Adults or other children who have colds, cough, fever, diarrhoea or skin infections must stay away from the baby. It is also better to avoid taking the baby into crowded areas, as the likelihood of getting infections in such situations is much greater.

When should special attention be paid to the newborn?

The following conditions/symptoms indicate there is something wrong with the newborn:

- Preterm birth
- Low birth weight (less than 2.5 kg.)
- Inability to breathe or breathing problems
- Cold body
- Skin looks blue
- No movement of the limbs
- Not crying soon after birth
- Fits

Immunisation schedule

Giving the newborn the right vaccine at the right time is necessary. Immunisation protects the baby from several life-threatening diseases in the long run. Soon after birth, the baby is given a BCG injection (to reduce the risk of childhood tuberculosis), a hepatitis B vaccination and oral polio drops. Family members or the couple can take the child to the Primary Health Centre (PHC) where the child will be immunised based on the Government of India recommendations. (Details can be obtained from any PHC or public healthcare provider.) These vaccines are readily available in any healthcare facility and all children should have access to these.

Importance of breastfeeding

Breastfeeding should start as soon as the child is born. WHO recommends that the baby should be exclusively (means only breast milk and nothing else) breastfed for the first six months. After six months up to two years, other complementary food can be given with the breast milk. Breastfeeding has several benefits:

- Colostrum or the first secretion from the breast after delivery is essential for the baby because it provides protection from infections and diarrhoeal diseases.
- While breastfeeding, the baby is kept warm and comfortable because the skin of the infant and the mother are in contact.
- Breastfeeding tends to strengthen the bond between the mother and child.
- It helps the womb contract, which in turn, reduces vaginal bleeding in the mother.
- Breastfeeding helps the mother lose excess weight gained during pregnancy.

Conditions under which breastfeeding can be problematic

There is no reason why a baby should normally not be breastfed. However, there are some conditions, which make breastfeeding a little problematic.

- **Infections:** Infections such as HIV can spread from mother to child through breast milk. The spread can be minimised by exclusively breastfeeding the child for at least four months. The baby should not be given any other food during this period. Women are also given medicines to prevent infections from spreading to the baby.
- **Exhaustion (loss of energy):** Women with severe anaemia or heavy blood loss after delivery may not have sufficient milk production and are therefore unable to feed the baby.

Feeding the newborn

- The newborn should not be fed anything other than breast milk.
- The newborn must be fed on demand (whenever s/he feels hungry). Even 8 to 12 times a day is acceptable. The more frequently the mother feeds the infant, the greater the milk production.
- The correct position while breastfeeding is when the newborn's mouth completely covers the black area around the nipple and the lower lip is pushed backwards. The mother must hold the child properly: the head, shoulder, back and hips should be cradled.

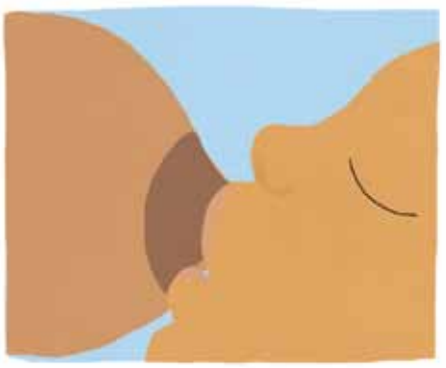


Fig 27. A poorly attached baby to the mother's breasts

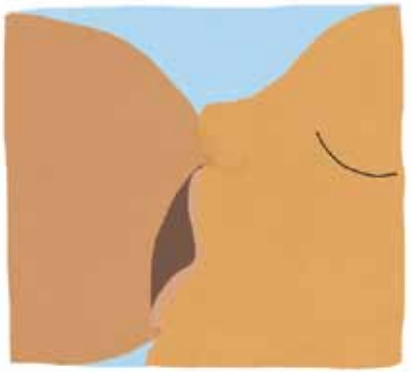


Fig 28. A well attached baby to the mother's breasts

- The mother should feed the baby confidently, by making constant eye contact with her child.
- The mother should look out for positive signs that the infant is well fed. These include the sound of the newborn swallowing milk and sensations in the mother's womb due to contractions.

Symptoms of difficulty in feeding

- Anxiety for the mother, who avoids eye contact with the child while feeding.
- Mother does not experience any sensations in her womb while feeding.
- Newborn bites the nipple instead of sucking on it.
- Newborn drinks the milk very quickly and the swallowing sound cannot be heard.
- Newborn cries while feeding.

Consequences of not breastfeeding the newborn

- Providing the baby with anything other than breast milk increases the risk of diarrhoea as other food may not be digested as easily as breast milk. These may also not be properly sterilised resulting in infections. Bottle-fed babies are at increased risk of diarrhoea.
- Breast milk has components that help fight against infections. Therefore, if the infant is not breastfed, s/he may fall sick very often.
- Any substance other than breast milk has a lower content of iron. This increases the possibility of anaemia in the newborn.
- Since the mother is not feeding the infant, collection of milk in the breasts may cause soreness.

Remember!

- ☐ The postpartum period refers to the time from when the baby is born until six weeks after delivery.
- ☐ This is a very crucial period for both the mother and the newborn.
- ☐ Care for the mother soon after delivery includes: checking for tears, blood pressure and pulse; cleaning and changing the woman; asking her to breastfeed the newborn as soon as possible.
- ☐ Care for the mother after she goes home includes: checking, identifying and treating risk symptoms; ensuring rest for six weeks; giving her balanced and nutritious food; and ensuring she consumes sufficient quantities of water, making her move around as much as possible, exposing her to fresh air and light.
- ☐ Some of the issues to look out for during the postpartum period include: excessive bleeding; infection; fits; anaemia; improper breastfeeding; sutures; and psychological changes. *cont. >>*

- ☐ Care for the newborn soon after birth includes: wiping off the blood and faecal matter if any; checking the newborn's breathing and temperature; and checking for bleeding near the umbilical cord.
- ☐ Care for the newborn after going home: avoid bathing the newborn for the first seven days (only sponging); prevent the newborn from interacting with adults or children with colds, cough, fever, etc; and avoid taking the baby to crowded places.
- ☐ Some of the conditions/symptoms to look out for in the newborn includes: preterm birth; low birth weight; inability to breathe or breathing problems; cold body; skin looks blue; no movement of the limbs; no crying soon after birth; and fits.
- ☐ Immunisation is important and the schedule recommended by the government should be followed.
- ☐ Breastfeeding is also crucial for the development of the newborn.

5.4 MENTAL HEALTH PROBLEMS IN THE POSTPARTUM PERIOD

Pregnancy and mothering are associated with immense joy. While these can be happy experiences, these may also bring about unpleasant changes. For example, dealing with vomiting, tiredness, mood swings, can be physically and emotionally challenging, given that the woman has household and familial chores as well. In addition, society also makes serious demands on the woman with regard to childcare because she bears the child.

In the postpartum period, the woman undergoes physiological changes[28] These changes in association with a range of socio-economic factors [29] get compounded by a lack of support systems. These can sometimes result in mental health problems like postpartum blues and depression. Other problems like postpartum psychosis can arise if the woman already has a history of mental health problems. These problems are generally ignored, taken lightly or treated harshly (exorcism[30]), which is dangerous for the woman.

POSTPARTUM BLUES

Postpartum blues usually last for the first few weeks after delivery. This is not a severe condition and therefore, it does not require treatment.

Symptoms of postpartum blues

- Feelings of anxiety, sadness and irritability.
- Crying very easily.
- Lack of interest in anything.
- Difficulty in sleeping.

28 An imbalance in thyroid functioning, anaemia, etc.
29 Lack of financial resources, pressure to bear a male child, domestic violence etc.
30 An attempt to remove a supposed evil spirit from a person.

POSTPARTUM DEPRESSION

Postpartum depression affects many women and is a relatively serious mental health problem. It occurs in the early postpartum weeks or months and may persist for a year or more.

Symptoms of postpartum depression

- Anger, irritability and crying for no real reason.
- Not feeling hungry or sleepy.
- Feeling guilty and blaming herself for everything that goes wrong.
- Inattention to things that used to previously interest her.
- Lack of interest in the baby.
- Thoughts of harming herself and the baby.

Possible causes of postpartum depression

- Women who have had a history of depression in their family.
- Women, who may have lost a job and/or are in financial difficulties.
- Women who have to deal with the death of a near and dear one.
- Women who have problems in their married life (exposed to domestic violence).
- Women, who may have had difficulties during pregnancy or delivery.
- Women who suffer from an imbalance in thyroid functioning after delivery.
- Women with gestational diabetes.
- Women who are under pressure for a son, but give birth to a daughter.

- Women who have no support in caring for the baby. This is especially true if the woman has given birth to twins.
- Women whose baby may be seriously ill.

Treatment for postpartum depression

All doctors in primary level healthcare facilities are not necessarily trained to address mental health problems. Therefore, the woman must be referred to a higher facility. However, it is possible that services are unavailable even in district level healthcare facilities because there is a severe shortage of mental health specialists. As a result, families have to travel to bigger towns or cities, and visit private, specialised centres for treatment. This process can be both expensive and time-consuming. Given that women's health, especially mental health is generally not considered worthy of so much time and effort, all the above factors prevent the woman from getting professional help.

POSTPARTUM PSYCHOSIS

In postpartum psychosis, women display sudden and severe psychological symptoms after childbirth. This is a rare, but severe mental health problem. The cause is unknown. Many women who experience psychosis also have a history of mental illness.

Symptoms of postpartum psychosis

- Confusion and a lack of clarity about what to do.
- Sees and hears imaginary people and voices (hallucinations).
- Imagines being someone else and loses her identity.
- Attempts to harm self and/or the baby.

Treatment for postpartum psychosis

Even though medical treatment for this condition is available, very few people opt for it. This is because of two reasons. One, people do not recognise it as a medical problem that requires treatment. Two, since it needs to be taken over a long period of time, even those who understand it to be a medical problem, do not seek treatment. Medications prescribed to treat postpartum psychosis, depend on the severity of the problem. All medicines given to the woman pass through breast milk. However, many studies show that infants do not suffer from any side effects because of medicines taken for the problem.

STIGMA ATTACHED TO MENTAL HEALTH PROBLEMS

Stigma is attached to mental health problems, especially altered behaviour. People tend to hush it up rather than seek expert help. In many communities, people believe that altered behaviour results from the woman being possessed by an evil spirit. In order to get rid of it, they often take the woman to a place of worship and exorcise her by giving her a bath in cold water, putting stones on her head, making her stay overnight in an open temple, thrashing her, etc. This can be very dangerous for a postpartum mother, given her already vulnerable condition. It can result in both illness and death.

PREVENTING MENTAL HEALTH PROBLEMS FROM WORSENING

- The woman must seek regular ante and postnatal care.
- If there is a history of mental health problems, the woman must consult the healthcare provider before giving birth to the baby.
- The woman must go for regular follow ups so that the problem does not worsen.
- The family and community should actively support the woman during pregnancy, delivery and the postpartum period, to reduce vulnerability to mental health problems.

Remember!

- While pregnancy and mothering can be joyous experiences, these may also bring unpleasant physical and psychological changes.
- In addition, society also makes major demands on the woman with regard to childcare because she bears the child.
- Poor support systems compounded by physiological changes and a range of socio-economic factors may lead to mental health problems like postpartum blues and depression. Postpartum psychosis can arise if the woman has a history of mental health problems.
- Postpartum blues usually last for the first few weeks after delivery. This is not a severe condition and therefore, it does not require treatment.
- Symptoms of this condition are: feelings of anxiety, sadness and irritability; crying easily; lack of interest in everything; and difficulty in sleeping.
- Postpartum depression is a relatively serious mental health problem. It occurs in the early postpartum weeks or months and may persist for a year or more.

- Symptoms of this condition are: getting angry, irritated and crying for no apparent reason; not being interested in the baby; not feeling hungry or sleepy; feeling guilty and blaming herself for everything that goes wrong; inattention to things that used to matter previously; thoughts of harming self and/or the baby.
- Treatment is available for postpartum depression, but few people opt for it due to a lack of recognition; a lack of infrastructure, etc.
- In postpartum psychosis women display sudden and severe psychological symptoms after childbirth.
- This is a rare, but severe mental health problem. The cause of postpartum psychosis is unknown.
- Symptoms of this condition are: confusion and a lack of clarity about what to do; seeing and hearing imaginary people and voices; imagining being someone else and identity loss; attempts to harm self and/or the baby.
- Treatment for this mental condition is available, but it has to be taken over a long period of time. Due to this, many families may choose not to get the woman treated or continue with the treatment.
- These conditions are stigmatised which prevents proper treatment. In some cases, it is believed that the woman is possessed so she is exorcised by cruel methods, which can put her in danger.

PART 6

OUTCOMES

OUTCOMES

6.1 PREGNANCY AND MORBIDITY

WHAT IS MORBIDITY?

Morbidity means any illness, which has an adverse impact either over a short or long period of time causing other health problems or affecting the person's daily life. This section focuses on long term morbidities that affect women's health.

Factors contributing to long term morbidities

There are several factors that affect women's health in the long term. They include:

- Pregnancy before 18 years of age.
- Pregnancy above the age of 36.
- Multiple pregnancy.
- Frequent pregnancy.
- Pregnancy in women who have a short stature.

These factors can increase the risk for the following conditions in the long term:

Anaemia: This condition increases the risk of infections, results in long standing abdominal pain and poor production of breast milk which creates problems in feeding the newborn.

Excessive bleeding: Excessive vaginal bleeding after delivery may affect breastfeeding and result in hair loss in the armpit and genital area. It may impair kidney functioning and lead to low blood pressure later in life. Women may develop blood borne infections due to blood transfusions they may have received during delivery. They may fail to menstruate regularly, leading to an inability to bear a child.

High blood pressure: This condition may continue even after delivery, becoming a chronic[31] problem. High blood pressure increases the risk of a paralytic stroke and a poor blood flow to the heart in the long run. These adverse effects may be aggravated by diabetes and high fat content in blood. Since the woman continues to be at risk for high blood pressure throughout her life, the chance of having a foetus with poor growth is high in subsequent pregnancies. Additionally, she is also at risk for all the other complications related to high blood pressure during pregnancy.

Diabetes: This condition may continue even after delivery, becoming a chronic problem. This can result in an increased risk for miscarriage, stillbirth and having a big baby in future pregnancies.

Baby with birth defects: The quality and quantity of eggs a woman produces tends to decrease with age. Hence, the risk of having a baby with birth defects may increase as the woman grows older. For example, when a woman is around 40 years old, the probability of having a baby with Down's Syndrome (a disorder that causes mental and physical abnormalities) is 1 in 106, while it becomes 1 in 38 for women who are above 44.

Postpartum depression: The woman may be at an increased risk for postpartum depression and she may also be highly anxious about how to manage so many children.

Fistula[32]: The woman may develop a fistula because of difficult labour (e.g., prolonged or obstructed labour).

[31] Chronic refers to a health condition that exists beyond six months.
[32] Fistula refers to the abnormal connection between vagina and urinary bladder or vagina and rectum (end portion of large intestine).

Remember!

- Morbidity means any illness, which has an adverse impact either over a short or long period of time causing other health problems or affecting the person's daily life.
- Factors that affect women's health in the long term may be: pregnancy before 18 years; pregnancy above the age of 36; multiple pregnancies; frequent pregnancies; and short stature and pregnancy.
- The long term morbidities include: anaemia; high blood pressure; diabetes; and effects of excessive bleeding after delivery; postpartum depression; fistula; and baby with birth defects.

6.2 MATERNAL DEATH

According to WHO, maternal death means the death of a woman while she is pregnant or within 42 days of the termination of pregnancy or after delivery. This includes all pregnancies, irrespective of the duration or site (ectopic pregnancy). The death can be due to any cause related to or aggravated by the pregnancy or its treatment. This includes complications of pregnancy, labour and the postpartum period, and the treatment provided for these complications, which may or may not be correct. All deaths during this time period are considered maternal deaths except if they are caused due to the following reasons: road traffic accident, accidental injury, assault, rape, etc.

Approximately 800 women around the world die every day from preventable causes related to pregnancy and childbirth. 99 percent of all maternal deaths occur in developing countries. Maternal death is higher among rural women from poor communities. However, most maternal deaths can be prevented by appropriate medical management.

WHAT ARE THE CAUSES OF MATERNAL DEATH?

Women die as a result of complications during pregnancy, delivery or in the postpartum period. While some complications may be present before pregnancy, these become worse during pregnancy.

The major causes of maternal deaths include the following:

- **Severe bleeding after childbirth** (for more information about this, refer to Part 5, section 5.1): Sudden loss of blood leads to heart failure and affects the functions of the entire body, and can result in maternal death.
- **Infections (usually after childbirth):** Bacteria may enter the mother's womb due to unsafe delivery practices, which can lead to infections. These infections may enter the woman's blood. This in turn, affects the entire body and can result in maternal death. For more information on such practices, refer to Part 4, section 4.2, on Unsafe Delivery.

- **High blood pressure:** High blood pressure and fits during pregnancy, delivery and 48 hours after delivery, can cause maternal death for the following reasons: clotting failure; bleeding in the brain; difficulties in breathing; kidney failure.

- **Complications during delivery:** Injuries to the genital tract; womb inside out; difficulties in placental delivery; and breaking (rupture) of the womb.

WHAT ARE THE CONSEQUENCES OF MATERNAL DEATH?

"What happens when a loved one dies?" The family and friends of the deceased person go through both emotional and psychological trauma. The death is viewed as a personal tragedy, which people come to terms with as time passes. However, when the loved one is a mother and a mother who is from a poor family living in a poor country, more is at stake. Studies conducted in Kenya, Ethiopia, Malawi and South Africa, indicate that consequences of maternal death lead to long term social and economic breakdown for both her family and the community.

The consequences of maternal death include the following:

- **Increased deaths of newborns/infants:** There is a strong correlation between maternal and newborn/infant death. Research establishes that newborns/infants, whose mothers die during childbirth, are far less likely to reach their first birthday as compared to newborns/infants, whose mothers have survived.

- **Breaking up of family structure:** Maternal death increases the work burden of the surviving members of the family and managing the household becomes difficult. In addition, the father is often unable to cope with the increased demand for parental care. As a result, children are sometimes sent away to live with other relatives and/or the father may remarry. This, changes the family composition and dynamics, and children may get neglected.

- **Financial instability:** Not only does a woman look after the children and the household, she also contributes to income generation. With the death of the woman, there is a loss of that income. This can severely affect the family's access to basic necessities, such as food, shelter and healthcare. Moreover, the family may have taken loans to pay for the woman's treatment, adding a further financial strain.

- **Loss of education and teenage marriages:** With little or no money to meet even basic necessities, education is given low priority. As a result, the older children (especially girls) may be pulled out of school to look after the house and younger siblings. If not, they may be married off very young, so that there are fewer mouths to feed with the limited income.

  A young girl from a poor family tends to be at risk of undernutrition due to gender unequal norms and poverty. The risk increases significantly, when she loses her mother because there may be no one in the family to provide care. Given these circumstances, when the undernourished girl goes to her marital home, she is also forced to deal with challenges like early pregnancy, which further increases her risk for non-survival. As a result, the young girl finds herself as vulnerable as her mother was.

WHAT CAN BE DONE TO REDUCE MATERNAL DEATHS?

Often, maternal health may not be given enough importance by society because it is regarded as an issue that concerns only women. In addition, pregnancy is considered 'normal' and is therefore not given the special care it actually needs. However, evidence suggests that maternal deaths can have adverse effects as mentioned above. Since consequences of maternal death are interlinked, intergenerational, and extensive, it is very important to address this issue. If the woman, her family, the community and the healthcare providers contribute in their own way, it would make a significant difference in reducing maternal death.

Responsibility of the pregnant woman

The pregnant woman may find it difficult to fulfil the following responsibilities due to a gender-adverse context. Yet, she must try to be more proactive. **She should take an interest in her health and insist on the following:**

- Get the pregnancy confirmed and register herself with the ANM.

- Make regular visits to the antenatal clinic.

- Seek care actively (if required).
- Keep her family members informed about her health problems.
- Take TT injections and IFA tablets as prescribed by the healthcare provider.
- Follow a balanced and nutritious diet, drink enough water and rest during the antenatal and postpartum period.
- Take care of the newborn and herself well.

Responsibility of the family

The family should understand that pregnancy may be a common biological event, but it does not mean that it can be treated casually. **It is very important for the family to realise that pregnancy requires medical monitoring and specialised care. Therefore, the family should provide support for the woman in the following ways:**

- Ensure that the woman recieves antenatal care.
- Get the prescribed medicines.
- Ensure she has a nutritious and balanced diet, sufficient quantities of water as well as enough rest during the antenatal and postpartum period.
- Put aside money for the delivery, transportation and for an emergency (if any).
- Make prior arrangements for blood, if necessary.
- Ensure that medical help is sought immediately, if the woman or the newborn present any unusual symptoms.

Responsibility of the family and community

The community and family should review and reassess some of the practices that put women in danger. **While change is difficult, maternal health is a serious enough issue, which needs to be addressed at the community level as well. Some of the following practices need to be questioned:**

- Teenage marriages need to be stopped not only because this puts the girl at grave risks for life-threatening complications, but also because this has a ripple effect of multiple and frequent pregnancies.
- Gender norms that make a woman less important, especially with regard to nutrition can lead to several life-threatening complications.
- Tendency to 'normalise' symptoms that the pregnant woman may complain about. For example, many pregnant women may have headaches or blurred vision. These should not be treated as normal. It is important to address these concerns as soon as possible to avoid complications.
- Certain postpartum norms: restricting the woman's movement; not giving her enough water, making her follow practices that tend to dehydrate her; making her stay in a room with little air and light; etc., can put the woman at risk for developing clots in the brain.
- Seeking inappropriate treatment from unskilled persons when the woman exhibits altered behaviour; when the woman wants to abort the foetus, etc.
- Women need support and respect during pregnancy. This can go a long way in avoiding complications.

Responsibility of the healthcare provider

The healthcare provider is a very crucial stakeholder in the issue of maternal health. The healthcare provider should have both the necessary skill or training, and also the right attitude to provide quality care for the pregnant woman. **Studies from different countries indicate that disrespect and abuse in healthcare facilities are the biggest deterrents for opting for institutional deliveries. Some of the other responsibilities in providing quality of care include the following:**

- Ensure that the pregnant woman is registered and gets the recommended care.
- Identify and treat risks early on in the pregnancy and refer to a higher facility, only if required.
- Allow nature to decide the course of labour and not do anything to unnecessarily hasten the process of delivery.
- Respect the woman's choices, like not wanting to be shaven or getting an enema, and treating her with respect.

Remember!

- ☐ According to WHO, maternal death means the death of a woman while she is pregnant or within 42 days of the termination of pregnancy or after delivery. This includes all pregnancies, irrespective of the duration or site (ectopic pregnancy). The death can be due to any cause related to or aggravated by the pregnancy or its treatment. This includes complications of pregnancy, labour and the postpartum period, the treatment provided for these complications, which may or may not be correct. All deaths are considered maternal deaths except if they are caused due to the following reasons: road traffic accident, accidental injury, assault, rape, etc.
- ☐ The causes of maternal deaths are: severe bleeding after childbirth; infections (usually after childbirth); high blood pressure; and complications during delivery.
- ☐ The consequences of maternal death are: increased deaths of newborns/infants; breaking up of the family structure; financial instability; and loss of education and teenage marriages.
- ☐ If all the stakeholders contribute, it would make a significant difference in dealing with several issues in maternal health, which can, in turn, reduce maternal death.

6.3 MISCARRIAGE

Miscarriage (also known as spontaneous abortion or pregnancy loss), is the natural death of an embryo or foetus before it is able to survive independently of the mother. This occurs when foetal growth is very poor for an unknown reason. The foetus may not show any signs of life and therefore it gets naturally aborted before the 20th week of pregnancy. A miscarriage may occur with or without pain and is common among women, especially if they are pregnant for the first time.

WHAT ARE THE CAUSES OF MISCARRIAGE?

- Poor/no growth of the foetus.
- Gestational diabetes.
- Kidney diseases and high blood pressure, which result in decreased blood flow to the womb.
- Stress and anxiety may increase blood pressure and thereby alter blood flow to the womb.
- Older pregnant women above the age of 40 may have other health complications.
- Women, who have had a previous miscarriage, are at an increased risk of another miscarriage, if the subsequent pregnancy occurs within a year.

WHAT ARE THE SYMPTOMS OF MISCARRIAGE?

- Lower abdominal or back pain.
- Bleeding from the vagina. (This discharge is exactly like a period and therefore may go unnoticed by women, as they think it is a part of their monthly cycle.)
- Feeling tired easily.
- Excessive urination.

The woman should seek medical help immediately, if any of the symptoms occur after a missed period.

WHAT IS THE TREATMENT FOR MISCARRIAGE?

Since a miscarriage happens naturally, without any prior warning or signs, there is no way of preventing it. Thus, there is no treatment for miscarriage. However, once it occurs, the woman must ensure that the embryo or foetus has been removed from the womb completely by visiting the healthcare provider. If some bits remain inside the womb, it can cause complications such as bleeding and infections.

CARE AFTER MISCARRIAGE

Care after miscarriage is crucial. It generally tends to be ignored not only by the family, but also by the woman herself. If she does not take good care of herself, it can harm her in the long run. 'Good care' refers to: resting for one and a half months after the miscarriage and taking precautions to ensure no subsequent pregnancy occurs for at least two years. (This is to restore the blood lost during the miscarriage.)

WHAT ARE THE CONSEQUENCES OF MISCARRIAGE?

Consequences of miscarriage can be both physical and psychological. Other than the loss of pregnancy (as long as the abortion is complete), there are largely no other physical consequences. However, psychologically, miscarriage can be very difficult for the woman. It is important for her to realise that she does not have any control over some processes that may occur internally; miscarriage, being one of them. Studies across countries show that women feel anxious, guilty and depressed because they think they are somehow responsible for the loss of pregnancy. Further, families and communities also blame the woman, and she is given the tag of being 'irresponsible and careless'. Therefore, not only do these women have to deal with their own negative feelings, but also cope with the constant taunts and humiliation that others put them through. This lack of support systems for such women makes life even harder, especially because they are going through an emotionally delicate period.

Remember!

- Miscarriage (also known as spontaneous abortion or pregnancy loss) is the natural death of an embryo or foetus before it is able to survive independently of the mother.
- Miscarriage is common. It may occur with or without pain.
- The causes of miscarriage are: poor/no growth of the foetus; high levels of blood sugar; kidney diseases and high blood pressure; stress and anxiety; other health complications in pregnant women over 40 years; and a previous miscarriage.
- The symptoms of miscarriage are: lower abdominal or back pain; bleeding from the vagina; feeling tired easily; and excessive urination.
- There is no treatment for miscarriage. But it is important to confirm that the embryo or foetus has been removed from the womb completely by seeking medical help.
- Consequences of miscarriage can be both physical and psychological. The latter is more long-lasting because the woman has to deal with her own negative feelings as well as taunts and humiliation by others in the family and/or community.
- Care after miscarriage includes: resting for one and a half months after the miscarriage; and taking precautions to ensure no subsequent pregnancy occurs for at least two years. (This is to restore the blood lost during miscarriage.)

6.4 INFANT DEATH

Infant death refers to the death of a baby who is less than one year old.

WHEN IS AN INFANT DEATH MORE LIKELY?

- **Low birth weight babies:** When the mother is undernourished or has poor spacing between children, she is more likely to have low birth weight babies. Health conditions in the mother, which also result in low birth weight babies, are anaemia, high blood pressure and STIs. These babies may not be able to feed properly, have a lowered ability to fight infections and may have breathing difficulties. All these factors significantly increase the risk of infant death.

- **Infants with respiratory infections:** Infants, suffering from breathing difficulties, are at an increased risk for infant death.

- **Bottle-fed infants:** Infants, who are bottle-fed, are likely to run the risk of having diarrhoea (because of poor sterilisation), which can be fatal because it causes severe dehydration.

HOW CAN INFANT DEATHS BE PREVENTED?

- Girls should be married after the age of 18 years, when the body is ready to deal with the challenges of pregnancy.

- The spacing between pregnancies should be at least two years.

- The woman should go for regular antenatal check-ups during pregnancy so that risks (anaemia, high blood pressure, etc.) are identified and treated early.

- The family should ensure that adequate nutrition is provided for the woman especially during pregnancy and in the postpartum period.

- The baby must be exclusively breastfed for the first six months. After that, breastfeeding must be continued along with other complementary food for a period of two years.

- The parents must ensure that the baby is immunised as per the Government of India schedule.

- The parents must be alert to danger signs in the baby, such as: lethargy; cold extremities (ears, hands or feet); difficulty in breathing; looking blue; fits; swollen abdomen; yellow palms and/or soles; not enough weight gain; vomiting; and diarrhoea. If they notice any of these symptoms, they should seek medical care immediately for early identification and treatment of problems.

Remember!

- Infant death refers to the death of a baby who is less than one year old.
- Infant deaths due to factors related to the mother are: undernutrition; poor spacing between children; aneamia; high blood pressure; and STIs.
- Infant deaths due to factors related to the baby are: low birth weight babies; bottle-fed infants and infants with respiratory infections.
- Infant deaths can be prevented in the following ways: avoid pregnancy before the age of 18; ensure spacing of at least two years between pregnancies; go for regular antenatal check-ups; ensure adequate maternal nutrition; breastfeed exclusively for the first six months; follow the immunisation schedule; and look out for danger signs to identify and treat problems.

6.5 STILLBIRTH

Stillbirth refers to the birth of a dead baby who has died at or after seven months of pregnancy.

WHAT ARE THE RISK FACTORS FOR STILLBIRTH?

There are no specific reasons for stillbirths. However, it has been established that some conditions increase the likelihood of having a stillbirth.

- **Childbirth complications:** Complications such as prolonged labour and difficult delivery may prevent oxygen supply to the foetus. This can result in the death of the foetus.
- **Infections:** The presence of infections such as rubella or syphilis in the mother can cause stillbirth.
- **Other health conditions:** Health conditions such as diabetes, high blood pressure, early separation of placenta, etc., in the mother, may affect blood flow to the womb causing stillbirth. Additionally, when the mother is suffering from anaemia, she may not be able to provide sufficient nutrition to the foetus. Thus, if the foetus is poorly developed, there can be a stillbirth.
- **Carrying twins:** When the woman is carrying twins and there is inadequate nutrition, one foetus is at an increased risk for stillbirth.
- **Continuation of pregnancy beyond 10 months:** If the woman does not experience labour pains and there is no sign of delivery beyond 10 months, blood flow to the placenta decreases. This may result in a stillbirth.
- **Birth defects:** Birth defects such as Down's Syndrome may be very severe, resulting in stillbirth.
- **Assisted deliveries:** Although this is not common, when healthcare providers assist deliveries, they may use instruments that can injure the foetus and cause death.

WHAT ARE THE SYMPTOMS OF STILLBIRTH?

- Lack of foetal movements. **(A live foetus must move at least eight to ten times in two hours.)**
- Vaginal bleeding in the mother.
- Early onset of labour pains.

HOW CAN STILLBIRTH BE CONFIRMED?

Stillbirth can be confirmed only by scanning.

WHAT ARE THE CONSEQUENCES OF STILLBIRTH?

- Many women experience labour pains within two weeks after the foetus has died in the womb. If labour pains do not begin even after two weeks, then the healthcare provider may recommend inducing labour. It is important to induce labour since there is a small risk of developing blood clots, which are dangerous for the mother after these two weeks.
- The woman may have vaginal bleeding for a few days to more than three weeks after the stillbirth.
- She may have foul smelling vaginal discharge and/or fever. In such cases, she should seek medical care immediately.
- The woman may naturally start producing breast milk. Healthcare providers give injections to stop this. In addition, women can also put cabbage leaves over their breasts and use tight brassieres. This prevents milk production.
- The woman may experience pain because of milk collection in the breast.
- The woman may experience shock, numbness, denial, deep sadness, guilt, anger and depression because she feels she is responsible for the stillbirth.
- At a time, when the woman needs support, families and communities tend to hold the woman responsible for the stillbirth. This isolates a woman who is already going through a difficult time because she is also blaming herself. This makes her more vulnerable to anxiety, guilt and depression.

CAN STILLBIRTH RECUR IN THE SUBSEQUENT PREGNANCY?

The risk of stillbirth in subsequent pregnancies is low for most couples. However, the risk of stillbirth may be high if the mother has diabetes.

STEPS TO REDUCE THE LIKELIHOOD OF STILLBIRTH

Since diseases such as diabetes, high blood pressure, and anaemia are associated risks with stillbirth, it is important to identify and treat these conditions early in pregnancy.

Remember!

- ☐ Stillbirth refers to the birth of a dead baby who has died at or after seven months of pregnancy.
- ☐ The risk factors for stillbirth are: childbirth complications; infections; other health conditions; carrying twins; continuation of pregnancy beyond 10 months; birth defects; and damage to the foetus during assisted deliveries.
- ☐ The symptoms of stillbirth are: lack of foetal movements; vaginal bleeding; and early onset of labour.
- ☐ Stillbirth can be confirmed only by scanning.
- ☐ The consequences of stillbirth are: labour pains two weeks after the foetus has died; vaginal bleeding that lasts for more than three weeks, fever, or foul smelling vaginal discharge; natural production of breast milk; pain because of milk collection in the breast; shock, numbness, denial, deep sadness, guilt, anger and depression because the woman feels she is responsible for the stillbirth; isolation makes the woman more vulnerable to anxiety, guilt and depression.
- ☐ The risk for stillbirth in subsequent pregnancies is low for most couples, unless the mother has diabetes.
- ☐ Since diseases such as diabetes, high blood pressure, anaemia, etc. are risks associated with stillbirth, it is important to identify and treat these conditions early in pregnancy.

6.6 PRETERM BIRTH

Preterm birth refers to the birth of a live baby before 37 weeks of pregnancy.

WHY DO PRETERM BIRTHS OCCUR?

There is no specific cause for preterm births. However, **certain conditions increase the risk of preterm birth and these are:**

- Previous preterm birth
- Diabetes
- High blood pressure
- Carrying twins
- Hydramnios
- Infections
- Early induction of labour or Caesarean: Some conditions like high blood pressure may require the healthcare provider to either deliver the woman normally or conduct a Caesarean, to save the mother's life.
- Defects in the foetus

WHAT ARE THE PROBLEMS OF PRETERM BIRTHS?

The smaller the baby, the higher the risk of developing complications.

- **Breathing problems:** Preterm babies have difficulties in breathing because their lungs cannot expand like those of full term babies.
- **Inadequate weight gain:** Preterm babies are unable to suckle and hold on to the mother's breast while feeding. Thus, they are usually fed expressed breast milk using a tube. Since the baby's nutritional requirement may not be adequately met, they do not gain weight.

- **Jaundice:** Preterm babies may be at a higher risk of getting jaundice because blood cells are fragile and break easily.

- **Infections:** The ability of preterm babies to fight illnesses tends to be low and they are therefore, highly vulnerable to infections.

- **Bleeding in the brain:** Preterm babies tend to have an increased risk of bleeding in the brain.

- **Mental and physical problems:** Preterm babies are at a high risk for mental retardation and problems in vision, speech and hearing later in life.

WHAT KIND OF CARE NEEDS TO BE GIVEN FOR PRETERM BABIES?

Preterm babies have to be cared for in big hospitals. They need to be kept in boxes that are artificially warmed. They also require round-the-clock nursing. These babies are given milk and fluids through a tube. They may be put on a machine that helps them breathe easily. Preterm babies should be cared for in this manner until they are out of danger. Even after they have been discharged from the hospital, these babies require periodic evaluations.

Remember!

- ☐ Preterm birth refers to the birth of a live baby before 37 weeks of pregnancy.

- ☐ There is no specific reason for preterm births. However, certain conditions increase the risk of preterm birth: multiple pregnancies; hydramnios; infections; diabetes and high blood pressure; previous preterm birth; early induction of labour to save the mother's life; and defects in the foetus.

- ☐ Problems associated with preterm birth include: breathing problems; inadequate weight gain; increased risk for jaundice; increased risk for infections; increased risk for bleeding in the brain; and increased risk for mental and physical problems.

- ☐ Preterm babies have to be taken care of in big hospitals because: a) they need to be kept in boxes that are artificially warmed and b) they require round-the-clock nursing.

6.7 INTRAUTERINE GROWTH RESTRICTION

Intrauterine Growth Restriction (IUGR) means poor growth of the foetus within the womb during pregnancy. Undernutrition in the mother and lowered oxygen supply to the foetus result in poor growth.

WHO IS AT RISK?

Women, who have inadequate blood supply to the womb, tend to supply a lowered quantity of oxygen and nutrition to the foetus. This can be caused by:

- Anaemia.
- Diabetes.
- High blood pressure.
- Kidney diseases.
- Heart diseases.
- Consumption of tobacco products during pregnancy.

WHAT ARE THE SYMPTOMS OF IUGR?

The small size of the foetus is the only symptom of IUGR.

HOW IS IT DETECTED?

The healthcare providers first examine the size of the womb. If they feel that the foetus is too small for the duration of pregnancy, they confirm IUGR by conducting a scan.

Fig 29. Normal foetus

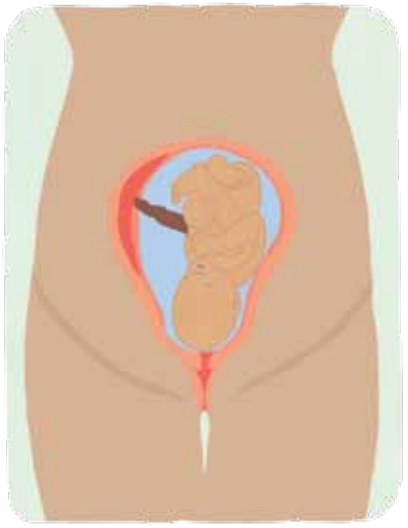


Fig 30. Foetus with IUGR

WHAT ARE THE CONSEQUENCES OF HAVING AN IUGR BABY?

Growth restricted foetuses/babies can have problems during pregnancy, delivery or later in life. IUGR babies can be stillborn. However, if they survive, they may have low sugar levels at birth, poor ability to fight infections, inability to maintain body temperature and are at an increased risk of brain paralysis.

WHAT IS THE TREATMENT FOR IUGR BABIES?

There is no specific treatment. However, treating the probable cause can improve foetal growth.

Remember!

- ☐ IUGR means poor growth of the foetus within the womb during pregnancy.
- ☐ Women, who have inadequate blood supply to the womb, tend to supply a lowered quantity of oxygen and nutrition to the foetus. This can be caused by anaemia; diabetes; high blood pressure; kidney and heart diseases.
- ☐ The small size of the foetus is the only symptom of IUGR.
- ☐ IUGR can be confirmed only by conducting a scan.
- ☐ IUGR babies can be stillborn.
- ☐ If they survive they may have low sugar levels at birth, poor ability to fight infections, inability to maintain body temperature and are at an increased risk of brain paralysis.
- ☐ There is no specific treatment. However, treating the probable cause can improve foetal growth.

6.8 LOW BIRTH WEIGHT BABIES

When a baby weighs less than 2.5 kg. at birth (after completion of nine months of pregnancy), it is termed as a low birth weight baby. The normal weight range for newborns is 2.5 to 3.4 kg.

HOW IS THIS DIFFERENT FROM A PRETERM BABY?

An infant is called a preterm baby when it is born before the completion of nine months of pregnancy. These babies also tend to have low birth weight and require care in a specialised healthcare facility.

WHO IS AT RISK OF HAVING LOW BIRTH WEIGHT BABIES?

Risk factors include:

- Anaemia
- High blood pressure
- Kidney diseases
- STIs and RTIs
- Poor spacing between pregnancies
- Multiple pregnancies
- Maternal undernutrition

WHAT ARE THE CONSEQUENCES OF LOW BIRTH WEIGHT BABIES?

If given the right care at the right time, along with adequate nutrition, these babies usually grow to be like other children whose birth weight was within the normal range. Breastfeeding can go a long way in helping such babies gain

weight during the initial years. **However, if appropriate care and nutrition are not given, this can lead to other complications:**

- Difficulty in breathing
- Difficulty in maintaining a steady and healthy body temperature
- Low blood sugar levels
- An increased number of red blood cells, which thickens the blood. This in turn, increases risk of bleeding and clotting problems.

Remember!

- ☐ When a full term baby weighs less than 2.5 kg at birth, it is called a low birth weight baby. This is different from a preterm baby.
- ☐ Risk factors for having low birth weight babies include: anaemia; high blood pressure; kidney diseases; STIs and RTIs; poor spacing between pregnancies; multiple pregnancies; and maternal undernutrition.
- ☐ Providing the right kind of care and nutrition is crucial if the baby is to grow up and be like other normal children.
- ☐ Consequences of low birth weight babies are: difficulty in breathing; difficulty in maintaining a steady and healthy body temperature; low blood sugar levels; and increased risk of bleeding and clotting problems.

6.9 FITS IN THE NEWBORN

Fits in the newborn refer to fits that occur in an infant who is less than 28 days old. It is a serious condition. Several problems can cause fits in the newborn. Generally, fits in such small babies are caused due to insufficient oxygen supply to the brain. Fits indicate problems in the brain and nerves.

WHAT CAUSES FITS IN THE NEWBORN?

Fits in the newborn can be due to problems in both the mother and the baby.

Problems in the mother:

- **Difficult, prolonged or breech delivery:** If the woman has had a difficult, prolonged or breech delivery, it is likely that there was a delay in delivering the head of the baby. This can result in the baby inhaling the amniotic fluid instead of oxygen. Such babies do not cry after birth because the lungs cannot expand after birth. This in turn, causes a lowered supply of oxygen to the baby's brain, causing fits.

- **Other health conditions:** If the woman has anaemia or high blood pressure, it is very likely that the baby is poorly developed. This can lead to fits. If the woman is suffering from gestational diabetes, her baby may have difficulty in breathing soon after birth. This reduces the oxygen supply to the brain and may cause fits.

- **Infections:** Infections in the woman such as syphilis, rubella, etc, may cause fits in the newborn because of reduced oxygen supply.

- **Assisted delivery:** If the woman is having a difficult labour, healthcare providers may assist the delivery. During this process, they may use instruments that can injure the baby's head, which can lead to fits.

Problems in the baby:

- **Preterm birth:** When there is a preterm birth, there is a lack of sugar and calcium in the blood, which can cause fits.

- **Infections:** The newborn may acquire infections such as bacterial infection of the brain, syphilis or rubella, which affects the baby's brain. This may cause fits.

WHAT ARE THE CONSEQUENCES OF FITS?

- Fits can cause poor brain development in the newborn. The extent of brain damage will depend on the severity of the fits.

- Fits may continue and feeding difficulties may set in.

- Fits can cause infant death.

TREATMENT FOR FITS IN THE NEWBORN

When a newborn has fits, it appears very sick. Usually, the healthcare provider examines the baby in between two episodes of fits. More detailed examinations through X-ray, blood and spinal fluid [33] tests are required to determine the exact cause. This is important because the line of treatment depends on what is causing the fits.

HOW TO MANAGE A NEWBORN WITH FITS?

- The baby must be treated by a doctor, whose expertise is in dealing with problems of the brain.

- It is recommended that parents are aware of developmental milestones such as neck-holding, sitting, crawling, etc. They should be able to assess whether or not

[33] Spinal fluid refers to the fluid from the lower back.

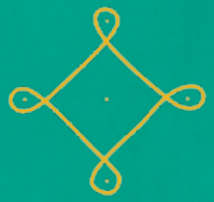
the baby has crossed these milestones at the right age and report these to the doctor accordingly.

- Parents must follow the treatment prescribed by the doctor strictly. Generally, treatment depends on the severity of the fits. If the baby does not get fits for a continuous period of three to six months, medication may be stopped. Such children usually tend to recover fully.

- Even if the child has recovered fully, it is important for parents to follow up with the doctor, until s/he indicates that no further follow up is required.

Remember!

- ☐ Fits in the newborn refer to fits that occur in an infant who is less 28 days old.
- ☐ Fits in the newborn can be due to problems in both the mother and the foetus/baby.
- ☐ Causes in the mother are: difficult, prolonged or breech delivery; assisted delivery; other health conditions; and infections.
- ☐ Causes in the newborn are: preterm birth; and infections.
- ☐ The consequences of fits are: poor brain development; feeding difficulties; death.
- ☐ Fits in the newborn is a serious problem and medical help should be sought immediately and medical advice must be followed strictly.



PART 7

SERVICES

SERVICES

7.1 ANTENATAL CARE

WHY IS ANTENATAL CARE (ANC) IMPORTANT?

Pregnancy is a natural event in every woman's life. Nevertheless, it is important to understand that specific care and nutrition is required to ensure the wellbeing of the woman and her foetus during this period. Going for regular antenatal check-ups is a crucial aspect of specialised care during pregnancy. These visits are critical for monitoring the woman's pregnancy and are also meant for early identification and treatment of risks that can develop into complications at a later stage.

Some women are unable to attend antenatal clinics regularly. For some others, there may be factors that prevent continuity in seeking care. For example, it is customary for a pregnant woman to go from her marital home to her natal home during the last trimester; a woman may be forced to migrate to another village in search of work; or a woman may feel she knows what to expect because she has had earlier pregnancies. While the reasons for not attending antenatal clinics may be compelling, it is necessary to understand that these visits are crucial for the health of the mother and foetus. Therefore, not just the pregnant women themselves, but even their families should ensure that regular antenatal care is sought.

WHAT DOES ANTENATAL CARE INCLUDE?

Confirmation of pregnancy: If a woman has a missed period, then pregnancy should be confirmed by conducting a urine test as early as possible. The benefit of early diagnosis of pregnancy is that the woman can be registered for antenatal care (by the Anganwadi Worker (AWW) or ANM with the help of the ASHA) from the initial stages. Early detection of pregnancy gives the woman a better chance of having a healthy baby and enables her survival because the healthcare provider has more time for both risk identification and treatment, if required.

Antenatal visits: The first time a pregnant woman makes an antenatal visit, it will take longer than subsequent visits. This is because the **first visit is more detailed and it includes the following:**

- As mentioned earlier, once the pregnancy is confirmed, the woman must get registered.
- During registration, the healthcare provider should take a complete history of the woman's current and previous pregnancy, and any past or present medical/surgical problems. For example, the healthcare provider must find out about complications such as high blood pressure, diabetes, Caesarean delivery, stillbirth, premature birth, infant death, or repeated abortions. This is vital information, because depending on the history of the woman, appropriate care can be given.
- The healthcare provider is supposed to make note of the height, weight and blood pressure of the pregnant woman. S/he should also test blood for haemoglobin to detect anaemia, and test blood sugar to rule out diabetes. VDRL and HIV tests should be conducted to check for infections spread by sex and HIV. A urine test is required to identify the presence of any urinary infection. The healthcare provider also conducts an abdominal examination to assess pregnancy.
- The healthcare provider gives IFA tablets and TT injection to the woman. In the first pregnancy, the first TT injection is given as early as possible, while the second is given four weeks after the first injection. However, if the next pregnancy occurs within five years, then only one additional dose is given. The healthcare provider should counsel the woman about the importance of balanced meals, rest, regular exercise and IFA tablets, as well as reporting of risk symptoms. If the healthcare provider feels the woman is reluctant to take IFA tablets, s/he should make the pregnant woman understand how critical these tablets are for a safe pregnancy. However, if the woman has side effects or there is no improvement in Hb levels, alternative treatment is provided.

During subsequent antenatal visits:

- The healthcare provider should make a note of weight, blood pressure, and Hb levels.

The healthcare provider must follow up with the woman regarding risk symptoms if any; intake of IFA tablets; TT injection if required; and other tests depending on what the pregnant woman's health status.

HOW OFTEN SHOULD A WOMAN VISIT THE ANC CLINIC?

Ideally, the woman must visit the healthcare facility every month until the seventh month; then once in 15 days until the ninth month; and every week in the ninth month. However, several women are unable to make so many visits for a variety of reasons. Despite this, the woman should ensure that she makes at least four visits during her pregnancy. The first visit should be within three months, but preferably soon after pregnancy is suspected; the second visit between three and a half months to six and a half months; the third visit between seven months to eight and a half months; and the fourth visit after nine months.

WHEN SHOULD A WOMAN SEEK MEDICAL HELP?

A woman should seek medical help immediately if she notices any of the following symptoms:

- Vaginal bleeding
- Swelling of feet, hands and face
- Tiredness
- Big abdomen
- Headache
- Dizziness
- Blurred vision
- Fits
- Fever
- Pain or burning while urinating
- Low or no foetal movement for more than two hours

The woman should not treat the above mentioned symptoms as normal. These symptoms indicate that there is a serious problem either with the woman or with the foetus. Therefore, it is important to seek care immediately and follow all the advice given by the healthcare provider.

WHAT IS POSTNATAL CARE?

Care of the woman after delivery and up to 42 days is called postnatal care. It is important for the woman to stay in the healthcare facility, where she has delivered for at least two days, as most complications in the mother and baby occur during this time. They should be monitored by the healthcare provider on the day of the delivery, the third day, the seventh day and six weeks after delivery. The baby must get vaccinations as recommended by the government. The mother should receive counselling on umbilical cord care, keeping the baby warm, respiratory infections and diarrhoea in the newborn, nutrition and family planning. (For more information on postnatal care, refer to Part 5, section 5.3.)

EFFORTS TO IMPROVE ACCESS TO ANTENATAL AND POSTNATAL CARE

Given the importance of antenatal and postnatal care, the government has introduced ASHAs as a link between the community and the public health system. Thereby, trying to improve access to antenatal and postnatal care. An ASHA is supposed to motivate women to seek care during pregnancy, counsel them about nutritious food, risk symptoms, birth preparedness, importance of safe delivery, etc.

In addition, the government has also introduced a 'mother and child protection card'. In Karnataka, it is known as the Tayi Card. Among other things, this card has information about basic risks in pregnancy, ANC services offered and obtained, as well as available schemes.

EFFORTS TO PROMOTE SAFE MOTHERHOOD THROUGH SCHEMES

Government of India, Karnataka State Government and other states have launched specific schemes to encourage pregnant women to seek institutional deliveries (hospital deliveries) without incurring any cost.

Some of the schemes provided by the Central Government are:

Janani Surakhsa Yogana

It is a safe motherhood intervention under the National Rural Health Mission (NRHM). Its objective is to reduce maternal and infant deaths by promoting institutional delivery among poor pregnant women. The scheme is supposed to provide cash assistance to pregnant women belonging to Scheduled Castes/Scheduled Tribes or those who fall under below the poverty line category, for delivery and postpartum care. Under the scheme, women in rural areas should be paid Rs. 700/- to Rs. 1000/- while, women in urban areas should be paid Rs. 600/- to Rs. 1000/- if they have an institutional delivery.

Janani Shishu Surakhsa Karyakram

Free and cashless services are supposed to be provided to all pregnant women and infants up to one year, irrespective of their caste or economic status in any government health institution. All pregnant women are entitled to the following services free of cost: cashless normal or C-section delivery, treatment of sick infants, drugs and consumables, diagnostics, food, and provision of blood. In addition, there are no user charges, during a woman's stay in the health institution. She is also entitled to free transport (home to facility and back, between facilities in case of referral). If the woman has a normal delivery, then she needs to stay for three days in the hospital, while the duration is seven days in case of C-section births.

Indira Gandhi Matritva Sahyog Yojana

This is a conditional cash transfer scheme for pregnant women and breastfeeding mothers aged 19 years and above for the first two live births. It provides partial wage compensation[34]. The amount given in the first instalment is Rs. 3000/-. To be eligible she needs to fulfil the following conditions: she should register her pregnancy within the first four months; attend one ANC; and attend one counselling session. The second instalment is transferred three months after delivery. She is entitled to this only if the baby's birth is registered; the child is immunised at birth, at one and a half months and at two and a half months; and the mother attends at least two counselling sessions in the first three months.

SCHEMES IN KARNATAKA

Madilu

Madilu is supposed to address needs of the mother and child during the postpartum period. The objective of this scheme is to encourage poor pregnant women to opt for institutional deliveries, to reduce the number of maternal and infant deaths. To avail of the benefits of the scheme, the beneficiaries must belong to families below the poverty line, and should have delivered in government hospitals. The scheme can be used by every woman until she has two live deliveries.

The scheme provides a kit, which contains the following items:

- Mosquito curtain
- Medium sized carpet
- Bed sheet for the mother and baby
- Bed spread over rubber sheet for the baby
- A thick blanket

cont. >>

[34] Financial compensation for women for wage loss during childbirth and childcare as well as provision of adequate nutrition.

- Bathing soap for the mother and baby
- Washing soap
- Cloth to tie the mother's abdomen
- Sanitary pads
- Comb and coconut oil
- Towel
- Tooth paste and brush
- Rubber sheet
- Diaper
- Baby vest
- Sweater, cap and socks for baby
- One plastic kit bag

Prasuti Aarike

This is an incentive of Rs. 2,000/-, which is supposed to be given to poor women for nutrition supplements during antenatal and postpartum periods.

Tayi Bhagya

This scheme is a public-private partnership that is meant to provide free services in registered private hospitals for pregnant women, belonging to families below the poverty line. Women can use these facilities without paying money to the healthcare provider for any of the services they may need.

OTHER STATE SPECIFIC SCHEMES

Matri Shishu Suraksha Yojna

This is a new scheme that is yet to be implemented through the Directorate of Family Welfare, Government of Delhi. It will be funded by the Department for the Welfare of SC/ST/OBC/Minorities, Delhi. It is only for the residents of Delhi. This scheme applies to poor pregnant SC women in their third trimester of pregnancy. It offers Rs. 1000/- towards nutritional support. It is geared towards preventing undernutrition and anaemia in pregnant women. Thereby, reducing preterm births and low birth weight babies. This in turn, will help in reducing maternal and infant deaths.

Mamata

To address the issue of maternal and infant undernutrition, the Government of Odisha, has launched this conditional cash transfer maternity benefit scheme for pregnant women and nursing mothers. It is supposed to provide support to the beneficiaries by enabling them to seek improved nutrition and promote health seeking behaviour. Under this scheme, Rs. 3000/- is given in two instalments of Rs. 1500/- each. The first instalment is given at the end of the sixth month of pregnancy, and the second is given after the third month of delivery.

Remember!

- Going for regular antenatal check-ups is a crucial aspect of specialised medical care during pregnancy.
- Antenatal visits are not only supposed to monitor the woman's pregnancy, but these are also meant for early identification and treatment of risks to avoid complications later.
- Antenatal care includes: confirmation of pregnancy; registration of pregnancy; taking the history of the woman; making note of height, weight, blood pressure; conducting relevant tests and examinations; providing IFA tablets and TT injections; and counselling on various related aspects.
- Ideally, the woman should make 15 antenatal visits. Such a large number of visits may not be possible. Therefore, she should make at least four visits to the antenatal clinic.
- Medical help should be sought immediately, if symptoms such as fever, fits, headache, tiredness, etc. occur because these are not normal.
- Care during the postnatal period is important for the wellbeing of both mother and baby.
- In order to improve access to ANC, the government has made the following efforts: introducing ASHAs and the "mother and child protection card".
- Additionally, the central and state governments have also initiated schemes that are aimed at increasing institutional deliveries and enabling safe motherhood.

7.2 ABORTION AND MEDICAL TERMINATION OF PREGNANCY (MTP) ACT

ABORTION

WHAT IS ABORTION?

Abortion is the act of terminating a pregnancy. Safe abortion refers to getting the unwanted pregnancy removed medically/surgically, by a trained healthcare provider using clean instruments and in a clean surrounding. Abortion can be conducted any time up to the fifth month of pregnancy. However, it is safer to conduct this procedure as early as possible.

WHY ARE PREGNANCIES TERMINATED?

- **Contraceptive failure:** A contraceptive failure is when the couple used a family planning method, but it failed and resulted in pregnancy. Some couples may not be ready or want to take on the responsibility of a child at that point in time.
- **Unwanted pregnancy:** A pregnancy may be unwanted for other reasons such as the woman being unmarried, or because it is the result of rape or incest.
- **Pregnancy can be life-threatening for the mother:** Continuing pregnancy in conditions such as high blood pressure can cause grave problems for the woman. Therefore, it may be necessary to terminate the pregnancy for the safety of the woman.
- **Birth defects in the foetus:** Sometimes, the foetus may develop birth defects. Such problems are likely to come up during routine scans conducted in the second trimester. The defects may be so severe that the pregnancy may have to be terminated.
- **Others:** There are several other reasons why a woman may opt for abortion:
    - The woman may not be emotionally prepared.
    - Financial constraints.
    - The woman may not be in a position to support or care for this child because she already has other children to look after.
    - The woman may have issues related to her partner. For example, he may not want the baby, he may be addicted to alcohol, he may be abusive, etc. Her marital family may also be abusive and unsupportive.
    - The woman herself may be addicted to alcohol/tobacco.
    - She may suffer from mental health problems.

TYPES OF ABORTIONS

There are two types of abortions: medical and surgical.

What happens when pregnancy is medically terminated?

Pregnancy is terminated by medications prescribed by a healthcare provider. This method can be used in the first two and a half months of pregnancy. The woman who wishes to undergo termination will first be examined by the healthcare provider to confirm that there is no ectopic pregnancy. This is because an ectopic pregnancy cannot be terminated in this manner. Moreover, these medicines can hide the symptoms of ectopic pregnancy. Thus, it may go undiagnosed and lead to life-threatening complications later. Once the ectopic pregnancy has been ruled out, the woman is given oral medicines, which cause painless abortion. Although it is rare, the abortion may not take place. In such cases, healthcare providers intervene.

What happens when pregnancy is surgically terminated?

This method of abortion uses surgery to remove the foetus. It can be conducted between two and a half months up to five months of pregnancy. The woman undergoing termination has to be given anaesthesia[35] since the procedure can be painful. The cervix is opened and the foetus is removed using clean equipment. After surgery, the woman may experience cramps in the lower

[35] Anaesthesia refers to medicines given to numb the area that is going to be operated upon.

abdomen. It is essential that she rests for at least one and a half months. In the long run, she also has to take precautions to ensure no subsequent pregnancy occurs for at least two years. This is to enable restoration of blood lost during the abortion.

Women experience normal, period-like bleeding, which lasts between five to seven days after terminating pregnancy either through medication or via surgery.

WHAT ARE THE PROBLEMS OF ABORTION?

The following problems may occur rarely:

- A woman presents symptoms such as: giddiness, vomiting, fever, abdominal pain or foul smelling discharge. These may indicate that the abortion is incomplete. The woman must seek medical care immediately in such cases.

- Sometimes the pregnancy does not get terminated or termination may be incomplete when the woman takes abortion pills. In such cases, healthcare providers have to intervene and terminate the pregnancy surgically.

- The woman may experience any of the following after a surgical termination: irregular bleeding; no bleeding at all for the first five to seven days, but it may start much later; or the woman may bleed very heavily for more than five to seven days. In any of these cases, the woman must seek medical care immediately. This is to ensure that the entire foetus has been removed from the womb and to rule out infections.

BARRIERS TO ACCESS SAFE ABORTION SERVICES

- **Lack of information about abortion:** Given the stigma attached to abortion, awareness and information about abortion services is very low. Many women may not understand the process of abortion. They may be unaware of safe methods of abortion, and where such services are available. Therefore, a majority of women tend to seek unsafe abortion services, simply because they lack information.

- **Reasons for abortion:** One of the biggest barriers to accessing safe abortion services is the reason behind getting the pregnancy terminated. If the woman seeks abortion for a reason that is acceptable to society, accessing safe abortion services is much easier. For example, the woman has a serious health problem and pregnancy is complicating her condition even further. In this situation, she tends to be treated with sympathy not only by the family and community, but also by the healthcare provider. She gets permission and acceptance from everyone to go ahead with the abortion. However, if the woman terminates the pregnancy for a reason that society does not approve of, then accessing safe abortion services can be difficult. For example, if the woman is unmarried, then she is harshly judged, as a person with no moral values and rejected by the family, community and society. Since this can be very isolating, the woman would rather secretly seek unsafe abortion services, because the chances of not being found out are higher in such a setting.

- **Health system issues related to abortion:** Although abortion is legal, there are significant numbers of unsafe abortions that continue to take place. Some of the issues related to the health system include: a limited number of government approved abortion facilities; a lack of skilled personnel; attitude (being judgemental) of the healthcare provider towards the woman; shortages of drugs, poor infrastructure; etc. These factors contribute to high levels of unsafe abortions.

Barriers in accessing safe abortion services force women into unsafe abortions. WHO defines unsafe abortion as a procedure for terminating an unwanted pregnancy either by persons lacking the necessary skills or in an environment lacking the minimal medical standards, or both. The consequences of unsafe abortions include ill health, life-threatening infections, and death.

Remember!

- Abortion is the act of terminating a pregnancy.
- There are two types of abortions: medical and surgical termination of pregnancy. Both these methods are safe and are easily available in healthcare facilities.
- In medical termination of pregnancy, the embryo is aborted with the use of medicines. This method can be used in the first two and a half months of pregnancy.
- In surgical termination of pregnancy, the foetus is removed surgically. This method of abortion can be conducted between two and a half months up to five months of pregnancy.
- Although rare, a woman presents symptoms such as: giddiness, vomiting, fever, abdominal pain or foul smelling discharge. These may indicate that the abortion is incomplete. The woman must seek medical care immediately in such cases.
- Barriers to access safe abortion services: lack of information about abortion; reasons for abortion; and health system issues related to abortion.
- Barriers in accessing safe abortion services force women into unsafe abortions. WHO defines unsafe abortion as a procedure for terminating an unwanted pregnancy either by persons lacking the necessary skills or in an environment lacking the minimal medical standards, or both.
- The consequences of unsafe abortions include: ill health, life-threatening infections, and death.

MEDICAL TERMINATION OF PREGNANCY ACT

WHAT IS THE MEDICAL TERMINATION OF PREGNANCY ACT?

MTP means medical termination of pregnancy, or the surgical removal of the embryo or foetus from the womb. The Government of India made medical termination of pregnancy legal in 1971 through the MTP Act. The Act was revised in the year 2002 and is currently being revised further.

HOW DOES THE MTP ACT SUPPORT WOMEN?

The MTP Act allows women to terminate their pregnancies by registered and trained doctors in recognised hospitals or health centres. The Act makes safe abortion services available to women. This may decrease the risk of unsafe abortions because when untrained persons provide these services, it can cause complications such as infection, bleeding or even death.

The Act supports both, the person seeking abortion and the healthcare provider, performing the abortion.

UNDER WHAT CONDITIONS IS A WOMAN ENTITLED TO AN MTP?

The Act specifies where, when and under what conditions a pregnancy can be terminated. Thus, a woman can seek abortion when:

- It is risky for her to continue her pregnancy. That is, when the pregnancy threatens her life or health (physical or mental).
- The foetus has physical or mental abnormalities that are likely to result in the child being handicapped later in life.
- Her pregnancy is the result of rape.
- Her pregnancy occurs because of failed contraception.

WHEN IS MTP CONSIDERED LEGAL?

Termination is considered legal when it satisfies three conditions:

- It is conducted by qualified doctors who are registered with the government to provide abortion services.
- It is conducted at a healthcare facility or hospital approved by the Act.
- It is conducted within the first 20 weeks of pregnancy.

A woman undergoing termination must give her consent to the procedure. If the woman is below 18 years or is mentally ill, then consent has to be taken from her parent/guardian/caretaker.

Abortions conducted within the first 12 weeks require the opinion of one doctor. Those conducted between 12 and 20 weeks require the opinion of two doctors.

MTP AND WOMEN'S RIGHTS

Every woman has the right to choose when to have sex and when to bear children. She has a right to choose whether or not to continue with the pregnancy without being subject to coercion and violence. Given this, her family, community and healthcare providers must respect these rights and help her realise them.

Remember!

- ☐ MTP means medical termination of pregnancy.
- ☐ The MTP Act makes safe abortion services available and thereby reduces life-threatening complications and deaths that may occur due to unsafe abortions.
- ☐ The Act approves termination up to 20 weeks of pregnancy.
- ☐ Termination should be done by an approved doctor at a recognised health centre or hospital.
- ☐ A woman has the right to choose whether or not to continue with the pregnancy, without being subject to coercion or violence.

7.3 SCANNING IN PREGNANCY

WHAT IS SCANNING?

The use of powerful sound waves to get images of organs and structures inside the body is called ultrasound scanning. Images can be seen because of the reflection of these sound waves over the organs and body structures, which get displayed on the computer screen. Scanning gives details of the organs, their condition, size, shape and problems if any. This is not an X-ray.

WHY IS SCANNING DONE?

Scanning should be conducted in the first trimester to confirm the pregnancy. Scans are also conducted at later stages to provide essential details about the condition of the foetus and the womb.

Scanning is conducted for the following reasons:

- To confirm pregnancy.
- To determine the size of the foetus in early pregnancy to arrive at an accurate expected date of delivery.
- To assess whether the woman is carrying twins.
- To view the location and condition of the placenta.
- To identify lumps in the womb and the cervix, if any.
- To understand the causes of bleeding (if any) during pregnancy.
- To track the growth of the foetus.
- To identify possible birth defects in the foetus.
- To judge the quantity of water around the foetus.

- To identify which part of the foetus is at the cervix prior to delivery.

The scan is extremely useful and helps avoid complications, for both the mother and the foetus. Yet it has its limitations. For example, even though the scan does pick up the heart beat, it cannot identify heart problems in the foetus. As a result, heart problems in the baby are usually identified only after it is born.

PREPARATION FOR SCANNING

Since scanning is usually conducted over the abdomen, it is better to wear loose clothes that can be easily adjusted or removed.

If the woman is in her first trimester, a transparent and clear liquid medium is required to see the inside of the womb. Therefore, this is seen through a filled up urinary bladder. Since drinking water fills the urinary bladder, women in their first trimester are asked to drink six to ten glasses of water and not pass urine for two hours before the scan. However, this is not required for scans beyond the first trimester.

SCANNING PROCESS

The process of scanning takes around 20 to 30 minutes. The woman must lie down on the bed which is meant for scanning. A gel is applied on the abdomen, which helps the sound waves reach inside the abdomen. This is followed by healthcare providers moving the scanning instrument (probe) all around the abdomen. As a result, images of the womb, placenta and the foetus are captured and displayed on the computer screen. These pictures are examined and a report is written.

DISCOMFORT CAUSED BY SCANNING

While conducting the scan, healthcare providers move the probe by exerting a little pressure all around the mother's abdomen. This can cause some discomfort for the pregnant woman, especially because her bladder is full. At times, the healthcare workers insert the probe into the vagina, to get a better view. While this is perfectly safe and does not cause any pain, the woman may feel uncomfortable.

UTILITY OF SCANNING

Scans can help in identifying problems in the mother as well as the foetus during pregnancy. Early diagnosis of the problem helps healthcare providers give appropriate treatment.

Remember!

- The use of powerful sound waves to get images of organs and structures inside the body is called ultrasound scanning.
- Images can be seen because of the reflection of these sound waves over the organs and body structures. These are then displayed on the computer screen.
- Scanning gives details of organs, their condition, size, shape and problems if any; it is not an X-ray.
- A scan should be conducted in the first trimester to confirm the pregnancy. Additionally, scans conducted at later stages provide essential details about the condition of the foetus and the womb.
- While a scan confirms pregnancy, identifies the location and condition of the placenta, etc., it also has limitations. For example, it cannot detect heart problems in the foetus.
- Women in their first trimester are asked to drink six to ten glasses of water and not pass urine for two hours before the scan. However, this is not required for scans beyond the first trimester.
- The process of scanning takes around 20 to 30 minutes.
- When the scan is underway, the woman may feel uncomfortable, especially if the bladder is full.
- Scans can help in identifying problems in the mother as well as the foetus. Early diagnosis helps in providing appropriate and timely treatment.

7.4 FAMILY PLANNING SERVICES

WHAT IS FAMILY PLANNING?

Family planning refers to taking an informed decision about when to have a baby, how many children to have and to postpone an unwanted pregnancy using a method of contraception.

WHAT ARE THE METHODS OF CONTRACEPTION?

There are temporary and permanent methods that both men and women, married or single, can use to prevent or postpone pregnancy.

WHAT ARE TEMPORARY METHODS OF CONTRACEPTION?

The main available temporary methods include: calendar method, condoms (Nirodh), oral contraceptives (Mala N and Mala D) and copper T. These are called temporary methods because once these are no longer used the woman can get pregnant.

- **Calendar method:** This method is based on the calculation of the day of egg release. Since the egg is released 15 days prior to the onset of next period, the first and last week after a period is considered safe for sex. However, since many women do not have cycles once in 28 days or remember their exact date of menstruation, the risk of pregnancy is high. In addition, women may not be able to negotiate when to have sex with their partners. Hence, it is not recommended. There is a 24 percent failure rate associated with this method.

- **Condom:** This method is used by men. In India, the brand that is commonly distributed by the government is called Nirodh. A condom is put on the penis before sexual contact. This prevents the sperm from entering the vagina. The condom also protects the couple from STIs. While condoms are safe to use, they can be utilised only once, after which these have to be thrown away. The failure rate of this method is 18 percent.

Female condoms also exist that can allow women to protect themselves from infection and conception but these are not easily available in India.

Fig 31. Male condom

- **Oral contraceptives:** Oral contraceptives are used only by women. These tablets prevent the egg from releasing and also thicken the discharge in the cervix making it difficult for the sperm to enter the womb. The tablets also reduce bleeding during the menstrual cycle.

  Oral contraceptives come in packets, which contain 28 tablets each. The packet has arrows indicating the direction of use of the pills. The tablet is taken as per the arrows marked on the back of the packet. The woman must start taking these pills on the fifth day of her period and the tablets will get over on the 28th day of her period. Oral contraceptive pills must be taken every day without fail. The next period tends to start two to seven days after the woman stops taking the tablet. In case the woman forgets to take a tablet one day, then she has to take two tablets the next day – one for the previous day and one for that day. Healthcare facilities should provide Mala N and Mala D tablets.

  These oral contraceptives are safe and effective. However, some women experience side effects in the initial stage, which fade away eventually over a period of three months. Some of the side effects include: nausea, weight gain,

headaches, dizziness, pain in the breast, spotting and mood swings. There are also oral contraceptives with low dosage preparations that do not have any side effects.

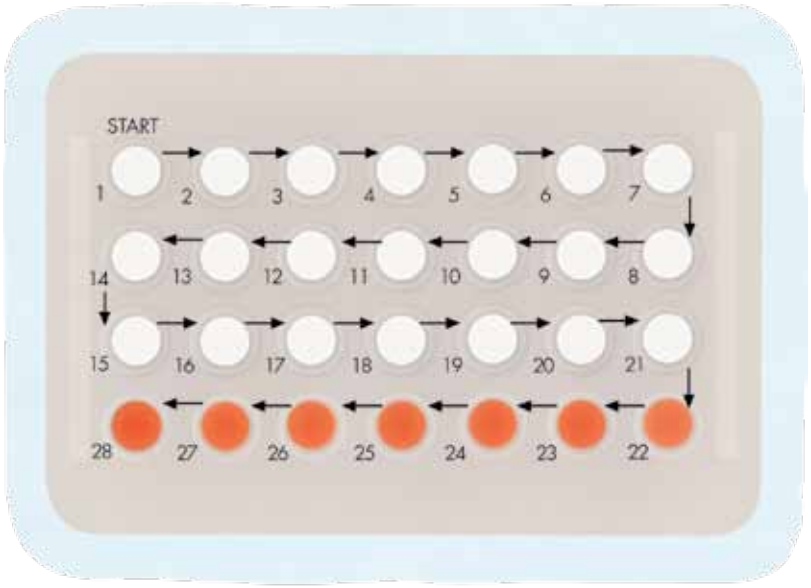


Fig 32. Oral tablets

Even though these tablets are easy to take and have a very low rate of failure (0.9%), they do not provide protection from STIs.

If the woman wants to have a child, the pills have to be stopped. She has to go through one or two normal menstrual cycles, after which conception is possible.

- **Emergency contraception:** These are oral pills that a woman takes only in an emergency situation. In this context, 'emergency' means, when the couple has sex without using contraception, or when the contraceptive has failed thereby increasing the risk of pregnancy. Emergency contraceptive tablets must be taken within three days of having sex without the use of any contraceptive method. But the sooner it is taken after sex, the more effective it tends to be. There are no long term side effects.

It is important to remember that the risk of pregnancy is reduced by these pills only for that particular sexual act. The woman cannot use emergency contraception every time she has unprotected sex, like the oral contraceptive pills. These tablets do not provide protection from STIs. They will also not work if the woman is already pregnant when she takes these tablets. The failure rate of these pills is 0.9 percent.

- **Copper T:** The copper T is a small, T-shaped plastic device, which has very thin copper coils inside it. This can be used only by women. The vertical limb of the 'T' ends in two threads. The healthcare provider is supposed to insert the copper T into the womb on the fifth day of the period or 40 days after a delivery or an abortion. Prior to insertion, the provider must first examine the woman's womb to check for any infections and treat them. Otherwise, the insertion can increase infections and the woman may experience vaginal discharge.

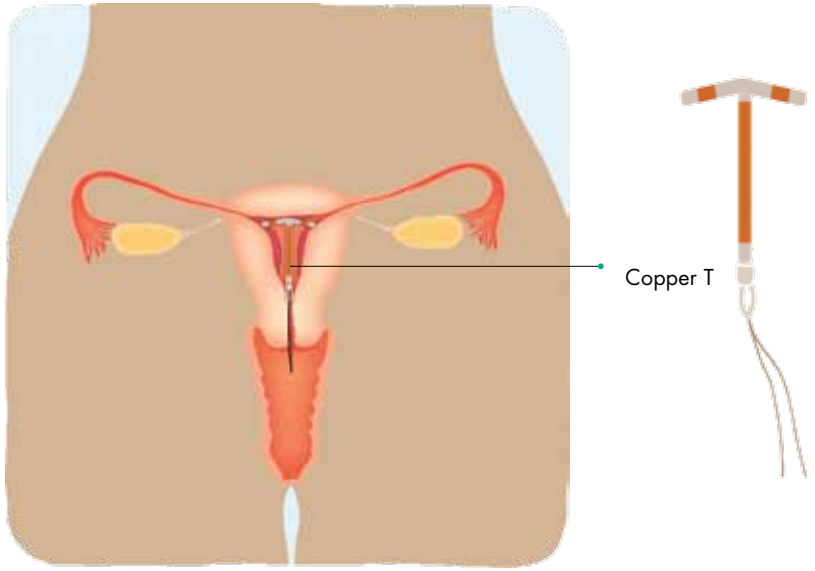


Fig 33. Copper T

The copper T remains in the womb, where the foetus would be located, if the woman were to be pregnant, thereby preventing foetal implantation. The copper T also makes the discharge in the cervix thick and prevents sperm from

getting into the womb. A copper T can be worn for a period of five to ten years. When the woman wants to have a child, she can get it removed. After two or three normal period cycles, conception can take place.

It is important to remember that after her menstrual cycle, the woman must check the two threads tied to the vertical limb of the T, to ensure they are in the right place. The position of the threads can be checked by washing hands with soap and placing the finger in the vagina to feel for them. The thread does not prick while having sex.

Many women fear that the copper T increases bleeding. But this need not always be true. Since it is alien to the body, it can take a little time for the entire system to get used to it. However, if a woman does experience excessive bleeding, then she can consult the healthcare provider and get treatment without getting the copper T removed. The bleeding will usually settle down in two or three months. Another common fear is that the copper T moves up in the womb, but this is not possible because there is no place for it to do so. The failure rate is only 0.8 percent. The copper T does not provide protection from STIs.

WHAT ARE PERMANENT METHODS OF FAMILY PLANNING?

Both men and women can opt for permanent family planning methods. **These are called permanent methods because these cannot be reversed, unlike temporary methods.** Tubectomy is the permanent method used for women. This can be conducted either through an open surgery or by using a laparoscope. The permanent method for men is called vasectomy.

- **Tubectomy:** In a tubectomy, the fallopian tubes that connect the ovary to the womb are cut and stitched. As a result, the sperm cannot meet the egg. The woman may need to stay in the hospital for five to seven days post surgery. However, if a laparoscopy is done, the woman may go home the same day. The failure rate of this method is 0.5 percent.

- **Vasectomy:** In a vasectomy, the tubes that carry the sperm are cut, so that the sperm do not come out. The semen released during sexual contact will not contain sperm but only the liquid produced by the tubes. The retained sperm will then get absorbed into the body.

  After vasectomy, it is possible that for one or two months, sperm that are already present in the tube may get released. Thus, it is advisable to use some other family planning method for a few months after the operation to prevent pregnancy. A vasectomy has no bearing on sex. The failure rate for this method is 0.15 percent.

  The individual or couple should meet a healthcare provider to discuss the different options available for family planning and choose the most suitable one.

Remember!

- ☐ Family planning refers to taking an informed decision about when to have a baby, how many children to have and to postpone an unwanted pregnancy.
- ☐ There are temporary and permanent methods of contraception.
- ☐ Temporary methods include: calendar method, condom, oral contraceptives, copper T and emergency contraceptives.
- ☐ Only condoms prevent STIs.
- ☐ Permanent methods include: for women, a tubectomy conducted through open surgery or by using a laparoscope; and for men, a vasectomy.
- ☐ The couple should meet a healthcare provider to discuss the different options available and choose the most suitable one.

7.5 BLOOD DONATION

Blood is a red coloured liquid flowing continuously in the body's circulatory system. A person has about four to six litres of blood. There is no substitute for human blood.

WHAT ARE THE COMPONENTS OF BLOOD?

- The liquid component of blood is called **plasma.** Plasma is a mixture of water, sugar, fat, protein, and salts. The main job of the plasma is to transport blood cells throughout the body along with nutrients, unwanted materials, antibodies, and chemical messengers (such as hormones).
- Floating in plasma are red blood cells, white blood cells and platelets.
    - **Red blood cells:** Blood appears red because of the large number of red blood cells. These get their colour from haemoglobin. (Refer to Part 3, section 3.5, on Anaemia in Pregnancy). Red blood cells account for 40 to 45 percent of the blood.
    - **White blood cells:** These cells act as soldiers and protect the body from infections. These are fewer in number, when compared to the red blood cells. These account for about 1 percent of the blood.
    - **Platelets:** These help the blood clotting process, by gathering at the site of an injury, sticking to the lining of the injured blood vessel, and forming a platform on which blood clotting can occur.
- There are four main blood groups: A, B, AB and O. There are two blood types, Rh positive and Rh negative. A person is either Rh positive or negative and may belong to any one blood group.

WHAT IS BLOOD DONATION?

The process of a healthy person, voluntarily giving blood to another person who needs it, is called blood donation. Blood donation is very easy and takes only 10 to 15 minutes. Yet, this seemingly simple gesture, of donating blood, can save a person's life.

WHY IS BLOOD DONATION NEEDED?

Blood is needed for the following reasons:

- To replenish lost blood due to pregnancy, delivery, accidents, surgery or diseases.
- For individuals who have had burns.
- For people with severe bleeding or blood disorders.

WHO CAN DONATE BLOOD?

Any healthy person can donate blood. Men can donate once in three months and women can donate once in four months.

WHEN IS A PERSON ELIGIBLE TO DONATE BLOOD?

- The donor must be between 18 to 55 years of age.
- The donor's Hb% reading must be at least 12.5%.
- The donor's pulse rate must be between 50 to 100 beats per minute.
- The donor's blood pressure must be between 180/90 mm Hg to 100/50 mm Hg.
- The donor's body temperature must not be more than 37.5° C.
- The donor must weigh more than 45 kg.

WHEN SHOULD BLOOD DONATION BE AVOIDED?

Blood donation must be avoided if the person:

- Suffers from cancer, kidney diseases, heart diseases, diabetes, high blood pressure, blood clotting disorders, STIs, tuberculosis, asthma, cold or cough.
- Is taking treatment for malaria.
- Is taking homeopathy treatment for the past two days.
- Has consumed alcohol in the last 12 hours.
- Has taken treatment for dental problems.
- Has taken aspirin tablets in the last seven days.
- Is menstruating.
- Has taken a vaccination for jaundice in the last six months.
- Has taken vaccines, such as BCG for TB, oral polio, measles, yellow fever in the last two days.
- Has taken an injection for a dog bite in the last one year.

WHAT ARE THE BENEFITS OF BLOOD DONATION FOR THE DONOR?

- It reduces the risk of heart diseases.
- It helps improve the quality of red blood cells in the body.
- Donating 450 ml of blood burns 650 calories, which is as good as a strenuous exercise session.

ARE THERE ANY SIDE EFFECTS OF DONATING BLOOD?

There are no side effects of donating blood. In fact, blood donation has benefits mentioned on the previous page.

MYTHS AND CONCERNS ABOUT BLOOD DONATION

- **Myth:** Needles used during blood donation can spread HIV.
  Fact: Syringes and needles used during blood donation are opened in front of the donor, so it is unlikely that a new needle will carry any infection. In addition, since donors give blood, rather than take, they are safe from getting HIV or any other infection.

- **Myth:** Donating blood repeatedly makes a person weak.
  Fact: Donors are first examined and allowed to donate blood only if they meet all the eligibility criteria. This is a simple procedure and a donor can go to work 15 to 20 minutes after donating blood. However, strenuous work must be postponed for at least one day.

- **Concern:** Filling the form prior to donation.
  Fact: Anyone who donates blood must answer questions about their sexual life. It is important to answer them honestly, in order to facilitate safe blood donation.

PREPARING FOR BLOOD DONATION

- The donor should eat three hours prior to blood donation.
- The donor should have at least six hours of rest one day prior to blood donation.
- The donor must not smoke for at least two hours or drink alcohol for at least 12 hours before blood donation.

WHAT IS THE PROCESS OF BLOOD DONATION?

- When the person goes to donate blood, relevant questions are asked to understand her/his health status.
- The temperature, blood pressure and pulse are taken.
- Once the doctor confirms that the individual is eligible to donate blood, then s/he is made to lie down on the bed. The specific area in the arm where the needle is to be inserted is cleaned and blood is collected in a designated bag.
- For individuals weighing less than 60 kg, 350 millilitre (ml.) of blood is collected, while if the donor weighs more than 60 kg, then 450 ml. is collected.
- Immediately after the blood is drawn, the individual has to rest for a little while and eat the light snacks that have been provided.
- The blood is tested for its group (A, B, etc.), type (Rh – or +), health complications such as anaemia, malaria and STIs (HIV, hepatitis B and C).
- Once the test results indicate that the blood is safe, the blood is separated into different blood components: plasma, red cells, and platelets within eight hours of donation.
- Plasma is used for people who have suffered burns and can be stored for a year. Plasma also contains factors that help blood clot; these blood clotting factors can be stored for five to six months. Red cells can be stored for 20 to 40 days.
- Finally, the tested blood is given to those who need it after matching the patient's plasma with the donor's cells.

Remember!

- A person has about four to six litres of blood and there is no substitute for human blood.
- The components of blood are: plasma, red blood cells, white blood cells and platelets.
- There are four main blood groups: A, B, AB and O. There are two blood types, Rh positive and Rh negative. A person is either Rh positive or negative and may belong to any one blood group.
- Blood donation refers to the act of a healthy person giving blood voluntarily to one who is in need of it.
- The donor should be between the age of 18 to 55 years; the Hb% reading must be at least 12.5%; the pulse rate must be between 50 to 100 beats per minute; the blood pressure must be between 180/90 mm Hg to 100/50 mm Hg; the body temperature must not be more than 37.5° C; and the weight must be more than 45 kg.
- Blood donation is needed to replenish lost blood due to pregnancy, delivery, accidents, surgery or diseases; for individuals who have had burns; for newborns or children with severe bleeding or blood disorders.
- Blood donation must be avoided if a person: suffers from cancer, kidney diseases, heart diseases, diabetes, high blood pressure, blood clotting disorders, STIs, tuberculosis, asthma, cold or cough; is taking treatment for malaria or dental problems; is taking homeopathy treatment for the past two days; has consumed alcohol in the last 12 hours; has taken aspirin tablets in the last seven days; is menstruating; and has taken any sort of vaccines.
- There are no side effects of donating blood. In fact, blood donation is beneficial for the body.

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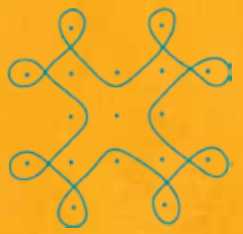

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