What You Need To Know About WOMEN 'S HEALTH

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What You Need to Know about Women's Health

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Dedication

This Book Is Dedicated To:
My grandmother,
Aribiene Felicia
1918-2006

Preface

As a young graduate doctor, after I did my one-year internship followed by the compulsory National Youth Service Corps (NYSC), which every Nigerian graduate below the age of years must take part in after graduation from a tertiary institution, I worked at a private hospital in Port Harcourt, the capital of Rivers State, Nigeria. One day, my boss and medical director then, Dr Hope Ilanye Bellgam walked into my consulting room and asked me to write an outline for a comprehensive talk on "Women's Health" as she had been invited by a women's group to give a health talk, and I agreed. Years later, l came across the outline while sorting through my files. This book was born out of that outline.

The health of every woman is important as a healthy nation starts with a healthy woman. There is a saying that, 'if you train a girl, you train a nation. The health of every woman is vital in the same way, as the reproductive life of every woman undergoes several changes from the young girl phase to adolescence, puberty, womanhood, and later menopause.

What You Need to Know About Women's Health is the second in the series of 'what you need to know by the author. It is an easy-to-read book about women's health. It narrates the health of women from cradle to adulthood and then, as ageing sets in, to menopause. The reproductive system of the woman changes at every stage in life from childhood, puberty, young adult to menopause.

This book is about the health of women, especially as it concerns the female reproductive system and the genital tract. Any disease or disorder of the female reproductive tract can harm the general health of a woman or girl, and affect her dealings with her immediate environment: the social, psychological and mental state.

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Acknowledgements

I present this book with great humility and thanks to the Almighty God for choosing me to write a book on *Women's Health*, thus bringing my long-sought dream into reality. I recognise with gratitude the assistance of those who read the text and made useful criticism and suggestions. My special gratitude goes to Dr Shelley Ross, the Secretary-General of the Medical Women's International Association (2007-2019) for writing the foreword; and Prof. Bettina Pfleiderer who was the Chair (2010-2013) of the Scientific and Research Committee of the Medical Women's International Association of which I was a member.

I recognise all my teachers at the various levels of my education: Sunrise Nursery School, Pabod Model Primary School, and Archdeacon Crowther Memorial Girls' School, Elelenwo, all in Rivers State, Nigeria where my foundation in education was firmly laid. My teachers at the University of Port Harcourt, Rivers State is also recognised as they taught me hard work, perseverance, and diligence, as well as all I know about women's health. I would like to recognise my friends though the list is endless.

My special thanks go to my colleagues. I also wish to recognise all the members of the Medical Women's Association of Nigeria, Rivers State branch; Nigerian Association of Resident Doctors and the Medical Women's International Association. I am also grateful to both my immediate and extended families who have had a positive impact on my life positively in every stage of my life.

Foreword

As Secretary-General of the Medical Women's International Association (MWIA), it is my pleasure to write a foreword to this book on Women's Health. The Medical Women's International Association has had no input into the content of this book and acknowledges that the opinions stated are those of Dr Buowari. The Medical Women's International Association congratulates Dr Buowari on taking on such a worthy project.

Putting pen to paper, I soon realized that any comments I would make on women's health could not compare with what has been written in MWIA's Training Manual on Gender Mainstreaming in Health. I, therefore lift my remarks directly from the training manual.

According to the World Health Organization, the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political beliefs, economic or social conditions.

Women came to the world's attention through the Decade of Women and the four World Conferences on Women. The Fourth World Conference on Women in Beijing in 1995 produced the Beijing Platform for Action, in which there was a commitment to mainstream a gender perspective into all United Nations activities, and particularly to develop gender-sensitive initiatives for women's health.

Since 1995, there has been a shift from talking about Women in Development (WID) to Gender and Development (GAD). The gender approach recognizes three things. The first is that women and men are different and need to be valued despite their differences. The second is that society values what is male over what is female, and if economic and social advancements are to be made, both women and men must work together toward this goal of gender equality. The third is that gender is not just your biological sex, but rather the role society gives you by being female or male. It was this inherent power relationship

between women and men that failed to improve women's position in society in the Women in Development (WID) strategies.

When using the Gender and Development Approach (GAD) in health, it has been well documented that incorporating a gender perspective into health care delivery and policy development improves the health of both women and men. Health is a fundamental human right. The emphasis on women's health in looking at gender is not meant to minimize the impact of gender on men's health, but to correct historical imbalances based on the fact that until the present, men have been considered the norm in education, research and health services.

The understanding of women's health has evolved significantly over the past half-century and especially in the past decade. Earlier teachings about women's health in the Western tradition were based on the assumption that a woman was dominated by her sexual functions and the physiology and pathology of her reproductive system provided the key to understanding her physical case – a deviation from the norm presented by the male. In the late 19th century, being a woman was considered to be a disease or a disorder, and women's biological functions were seen as the source of a host of psychological disorders, from strange mood or feelings to hysteria and insanity. Indeed, at that time, it was stated that "any disease occurring in a woman will almost certainly involve some modification in the work of her sexual system. On the other hand, the ordinary work of her sexual system will influence the course of any disease which may assail her, however independent this disease may be seen".

Well into the 20th century, the area of women's health retained its traditional focus on reproductive issues, and women's health continued to be defined primarily in terms of childbearing, menstruation and menopause – all of these, whether normal physiologic processes or pathological conditions, deemed to require medical attention. More recently,

and in particular, in the past two decades, we have seen a major shift in our vision and understanding of women's health.

Currently, women's health is perceived as a continuum that extends throughout the life cycle and which is critically and intimately related to the conditions under which women live. Women's health is seen to depend upon complex interactions between individual biology, health behaviour and the historical, economic and socio-political context of women's lives and extends well beyond the reproductive system.

Enjoy your read of this new book and also kindly take some time to read and use the MWIA training manual, which can be found on the MWIA webpage (www.mwia.net).

Shelley Ross MD CCFP, FCFP
Secretary-General,
Medical Women's International Association,
November 2013.

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Chapter 1

Introduction

Good health is essential for the wellbeing of any individual, and that of women is not an exception. The World Health Organisation (WHO), which aims to improve health worldwide and limit the spread of diseases, defines health as complete physical, social and mental wellbeing and not merely the absence of disease or ill health. Health is a vital part of development that can be defined from different points of view. A non-professional defines health as the absence of ill health (sickness) while the sociologist defines health as a quality resulting from the total functioning of the individual in his or her environment that allows him or her to achieve a personally satisfying and socially useful life.

There are biological and sex differences between females and males, and these affect some of their health needs. The health of women is not merely about biological differences or reproductive health but also includes social or gender differences that have effects on women's health. Thus, health is a product of many interconnected factors including age, ethnicity, and culture, language, physiology, ability and disability, financial circumstances, sexual orientation, religion and spirituality, educational level, geography, housing, and access to information and health services. Health is a definite state calling attention to social and personal resources for everyday life, as well as physical capacity, not just the goal of living.

All living things reproduce themselves; this is what differentiates living from non-living things. The reproductive system is vital in continuing the species, and the health of women informs their sexuality. The health status of women affects their biology and socioeconomic

status. In many countries of the world, wealthier women are far more likely to give birth with the help of a trained medical provider than women from poor households in developing countries. Improving access to quality maternal health services is essential to reduce the number of women who die during pregnancy and childbirth.

There are several challenges to the health of women in the course of their journey through life. Every time women talk about their health, they openly talk about their whole lives. Women are clear that their health cannot be considered alone. Therefore, dealing with women's health starts with respect and safety for their life. These needs are put forward in writing in various reports about women's health issues that have gained full attention and study by the United Nations. Every woman should be provided with the opportunity to achieve, preserve, and safeguard her good health.

In general, people do not always conform to socially defined gender roles, which are the logical tools for understanding social conditions and practices inherent in society. In essence, gender refers to the differences between men and women that are socially defined and created by cultural values rather than biological facts. These differences in roles are not unchangeable but vary between cultures and change over time. Therefore, the social meaning of gender decides the opinion about what men and women can do, how they should behave, what kinds of role models to have, and these impressions are readily available to men and women who occupy positions of power that finally affect society and access to resources. Some women can take up the male character not socially designed for women, but this does not, by any means, make them males.

The health status of a person gets better when that person has a greater sense of control over his or her health. Poverty is a limitation for women's rights and also limits the use of healthcare services. Women with low incomes are more likely to use inadequate public health facilities than women with high incomes, who do not mind travelling long distances

with their children to seek healthcare. Being involved in professions where the workers work shift duties creates barriers to their ability to use healthcare facilities.

Many women stay away from using healthcare services because of past experiences such as discrimination or feeling unsafe or unwelcomed by those in charge, especially men. Women healthcare providers sometimes feel that they have no power in the male-dominated system and may face a lack of respect or safety in their job. The health of women is the key to social healthcare improvements.

There are different stages in a woman's life, and each stage has its health challenges, from childhood to adolescence, to puberty, to the reproductive age, and finally to menopause. Adolescence is the period of physical, psychological, and social changes from childhood to adulthood; from about ten to nineteen years, which means they are no longer children, yet not adults. This is a crucial period in the life of the woman. The term adolescence originated from the Latin word *adolescere*, which means "to grow or to mature." It describes fast physical growth, emotional, and psychological changes. During the period of adolescence, puberty sets in, and the person grows from the point of an early form of the sexual features to that of full sexual maturity. The person's psychological processes and patterns of personality grow from those of a child to that of an adult. The body of every woman is uniquely designed to nurture pregnancy and give birth. What is more, women are at risk of problems that do not take place in men.

Some cultures have rites of passage for women to usher girls into adulthood. These are translated as a celebration of womanhood, coming of age, or rites of passage. For instance, among the Ibani people of Grand Bonny and Opobo in Rivers State, in the south of Nigeria, a rite is performed for women known as 'Iria'.

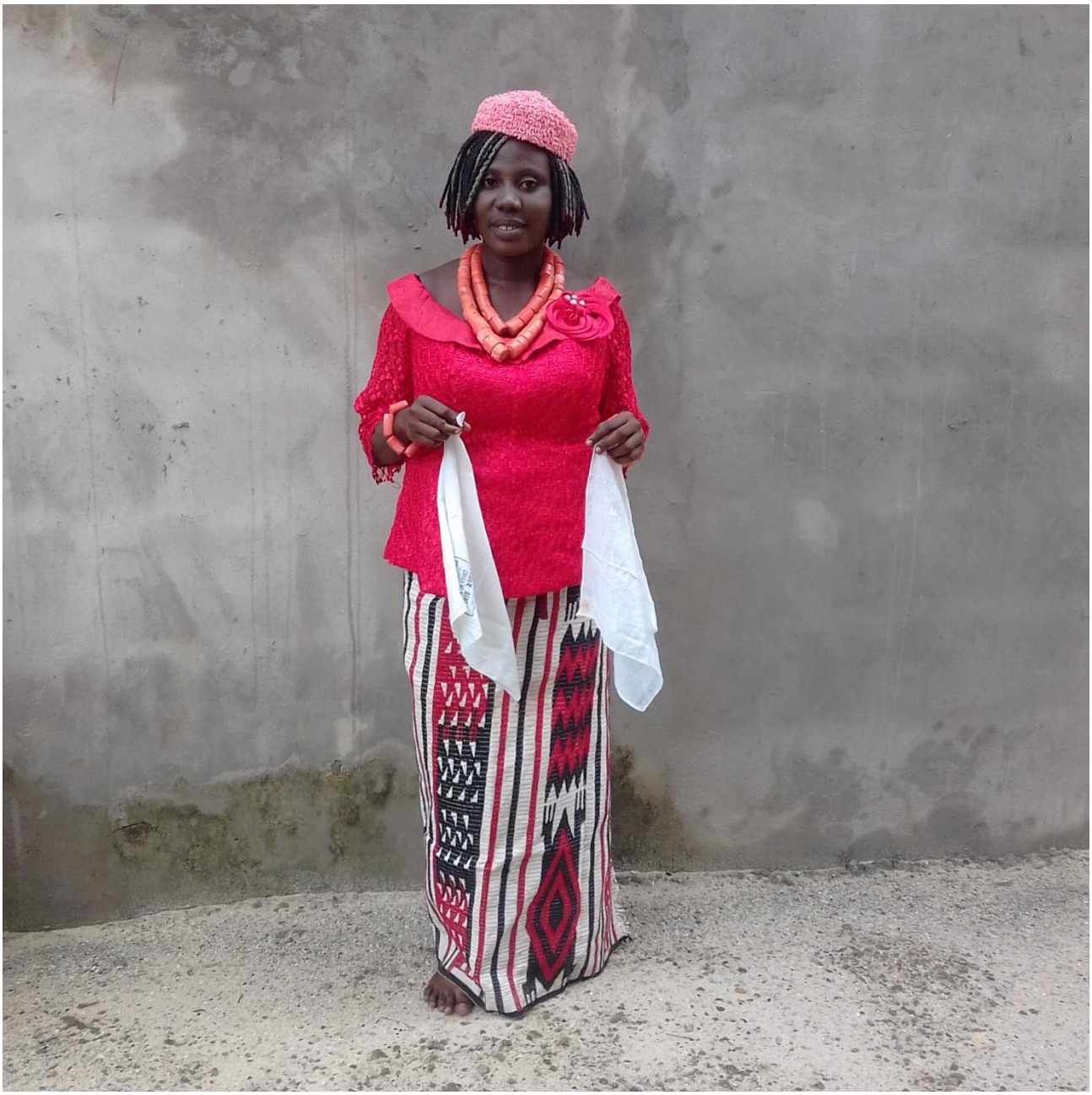

Figure 1: An Ibani maiden from Grand Bonny in Southern Nigeria dressed for the Iria ceremony that initiates her into womanhood.

Chapter 2

Puberty and the Girl-Child

The life of a woman has different stages. Puberty is the stage in a person's life when they grow from a child into an adult because of changes in the body. It is also the process of the changes in the body where the child grows into an adult. During puberty, the reproductive organs grow quickly with the help of the sex hormones that bring about the growth of the secondary sexual features. Puberty takes place in boys and girls differently. Several factors affect the age at which puberty occurs, such as heredity, geographic location, exposure to x-rays, general health, nutrition, and psychological factors. Normal puberty takes four to five years in both sexes but starts earlier in girls than in boys.

Adolescence is the period in a person's life when they are growing into adults; it is a crucial stage of life. Adolescence is challenging for girls because of the physical changes, such as increased body size, ability to reproduce as well as psychological changes that include the ability to think critically, an expanded reasoning capacity, and ability to identify formation and sensitivity to the new body image. Worldwide, once a girl reaches puberty, her parents and guardians start to worry that their daughter might contract a sexually transmitted infection or become pregnant.

Hormones and Puberty

Hormones are chemical substances released in one part of the body and transferred to another part of the body through the blood, where they carry out their effects. Hormones are responsible for the changes that occur during puberty. Two areas of the brain produce

the hormones for puberty, which are the hypothalamus and the pituitary glands. The hypothalamus, apart from its work in puberty, has other functions such as the control of body temperature, hunger, and thirst.

For girls, puberty begins when the ovaries start to produce a hormone known as oestrogen. Oestrogen is responsible for most of the changes in a girl's body during puberty. It causes the body of the girl to mature and be prepared for pregnancy. The hypothalamus in the brain releases a hormone called gonadotropin, which tells the pituitary gland to release two hormones, namely follicle-stimulating hormone and luteinising hormone; these act on the female reproductive organs, especially the ovaries.

Puberty Changes in Girls

The events of puberty have a typical pattern in the timing of their growth. Good nutrition is vital for the onset of puberty; for instance, well-nourished children reach puberty earlier than malnourished ones.

Pubertal changes in girls:

1. Growth spurt.
2. Breast growth.
3. Growth of hair in the armpit and genital area (private parts).
4. Menstruation.

1. Growth Spurt

There is little difference between the average heights and weights of boys and girls at the start of puberty. However, between the ages of eight and thirteen years, girls tend to become taller because of an early puberty growth spurt. Little growth occurs afterwards. The hips broaden, and the waist becomes more defined as the girl takes up the shape of a woman. The external genitalia takes the form of that of an adult too.

2. Hair Growth

At puberty, there is the growth of hair in the pubic area (genitals) and armpit. Hair growth in the pubic area starts before the growth of hair in the armpit. *Pubarche* is the medical term for the onset of growth of hair in the pubic area, and this occurs in stages.

3. Breast Development (Thelarche)

At puberty, the breasts develop, and this occurs in four stages. First is the growth of the breast bud, followed by the areola, the dark coloured ring around the nipple, and lastly, the breast tissues. The nipple and the areola then increase and further grow to the final stage of the adult breast. *Thelarche* is the medical term for the onset of growth of the female breast, which is the first sign of puberty in a girl. Thelarche occurs between eight and fourteen years. At puberty, the female nipple and breast both increase in size and then take the form of the female breast throughout life. The female breast differs in size and form in different women, but the size of the base of the breast is the same for all women. Breast growth at puberty can occur before the expected time; this is known as premature thelarche in which one or both breasts grow with no other features of puberty. The increase in the size of the breast is caused mainly by the increase in the deposition (accumulation) of fatty tissue within the breast.

4. Menstruation Begins (Menarche)

Menarche is the medical term for the onset of the first menstrual period that occurs in ninety-five percent of girls between the ages of eleven and fifteen years. It is the last developmental change that occurs during puberty in girls. During puberty, the level of a type of oestrogen in the blood known as oestradiol fluctuates widely, probably reflecting successive waves of the development of follicles in the ovary that fail to reach the ovulatory stage. The endometrium, which is the inner lining of the womb, is affected by these changes and undergoes cycles of proliferation and regression until a point is reached when substantial growth occurs, so that withdrawal of oestrogens results in the first menstruation.

The factors that determine the age at which the first menstruation occurs are physical activity, nutrition, and psychological stress. Girls with anorexia nervosa (eating sparingly) or who are involved in a rigorous exercise programme can show a delay in the age menstruation starts. Whether menstruation starts early or late, it is clearly about nutrition and the environmental conditions in which the girl lives. Better nutrition and absence of chronic illness leads to early menarche, which supports growth with larger body size at an earlier age. The improvement in the standards of living, which has occurred in most countries, has generally led to a lowering of the age at which menstruation begins throughout the world.

Abnormalities of Puberty in Girls

1. Premature or precocious puberty

Premature puberty starts when the changes that occur in puberty take place before the age of eight, and in three-quarters of the girls, the cause is not known. The breasts develop, hair grows in the pubic area and armpit, and menstruation occurs earlier than the age it is expected to begin. The terms premature *thelarche*, *pubarche*, *adrenarche*, and *menarche* are used interchangeably. Premature adrenarche is the growth of hair in the pubic area and the armpit without other signs of puberty, which does not necessarily mean that true puberty has started. Premature puberty can lead to the closure of a part in the bones of the legs, which can cause the girl to not grow to her full height.

2. Delayed Puberty

Delayed puberty is when the changes that occur in puberty is delayed or has not taken place by the age of eighteen years. Delayed puberty, as the name goes, is when menstruation has not started by the age of eighteen years with its attendant pubertal changes, or there is no sign of pubertal growth in girls by the age of fourteen. The symptoms of delayed puberty are lack of pubic hair and failure to menstruate, at least by the age of sixteen years. Some of the risks of the girl-child reaching puberty late are delayed puberty experienced by other female members of the family (that is hereditary), certain chronic

diseases, and increased exposure to lead, a very dense, soft, dark-grey, poisonous metal, used primarily in the past on roofs and for pipes and also for protection against radiation.

Causes of Delayed Puberty in Girls

1. Delayed puberty occurring in other females in the family (family history).
2. Severe disease.
3. Abnormal chromosomes.
4. Constitutional delay, which is a variation of normal puberty. Some girls simply take longer than their peers; they will, at some point, catch up.

5. Increased serum gonadotropins

a. Turner's syndrome or gonadal digenesis.

b. Klinefelter's syndrome.

i. Premature ovarian failure.

ii. Resistant ovary syndromes.

iii. Irradiation.

iv. Certain drugs used in the treatment of cancer known as cancer chemotherapy.

v. Trauma.

vi. Certain infections.

6. Low serum gonadotropin.

a. Constitutional delay of puberty.

b. Hypothalamic dysfunction.

i. Malnutrition.

ii. Strenuous exercise.

iii. Severe illness.

iv. Eating disorder, for example, anorexia nervosa (eating sparingly).

v. Severe obesity.

vi. Tumours of the central nervous system

c. Hypopituitarism

i. Panhypopituitarism.

ii. Isolated gonadotropin shortage

iii. Kallman syndrome

7. Chronic illness that can cause delayed puberty:

a. Diabetes Mellitus.

b. Inflammatory bowel disease.

c. Kidney disease.

d. Cystic fibrosis.

e. Anaemia.

f. Severe infections.

g. Anorexia nervosa.

h. Cancer

8. Autoimmune diseases

9. Use of X-rays in the treatment of certain cancers (radiotherapy)

10. Intensive physical training or exercise, for example, athletes.

Chapter 3

Structure of the Female Reproductive System

The female reproductive system, also known as the female reproductive tract, is what differentiates a female from a male. The structure of the female reproductive system includes the external and internal reproductive organs. The functions of the female reproductive tract are for sexual intercourse (copulation), menstruation, pregnancy (conception), childbirth, and the production of certain chemicals in the body required for the function of the reproductive system. The external reproductive organs are the parts of the body of a woman's genitals that can be seen with the eyes, while the internal reproductive organs are the part of the reproductive system that cannot be seen except with special medical investigations such as ultrasound scan. The external genitalia includes the vulva and perineum.

The internal reproductive organs include the following:

1. Vagina
2. Cervix (neck of the womb)
3. Womb (uterus)
4. Two fallopian tubes also known as uterine tubes, and
5. A pair of ovaries

The External Female Genitalia

Collectively, the external genitalia of the female reproductive system is the vulva, which includes the followings:

1. Mons pubis

2. Clitoris
3. The urethra which is the opening for the passage of urine
4. Vestibule
5. Labia majora
6. Labia minora
7. Vagina opening
8. Hymen

Labia

There are two labia, namely the labia majora and labia minora, the labia is the equivalent of the scrotum in the male reproductive system.

Perineum

The perineum is the short stretch of skin starting at the bottom of the vulva and extending to the anus. In some women, the perineum can tear during childbirth.

Bartholin's Glands

The Bartholin's glands are also known as the greater vestibular glands; they are two in number one on each side of the vulva opening into the vagina. The Bartholin's gland produces substances (secretions) that lubricate the vagina. It cannot be felt or touched when in a healthy state but become noticeable when infected as it swells and increases in size.

Vaginal opening

The opening of the vagina is located in the vulva and it is covered partially by a structure known as hymen in a virgin. Lying deep on either side of the vagina are the openings of the two Bartholin's glands.

Hymen

The hymen is an elastic structure that partially blocks the entrance to the vagina; it is partially broken by sexual intercourse or use of tampon ruptures further during childbirth.

Female Internal Reproductive Organs

Vagina

Functions of the Vagina

1. A passageway for discharging menstrual fluids.
2. It receives semen during intercourse.
3. It connects the opening of the vagina to the womb.
4. The female organ of coitus.

Cervix

The cervix is the neck of the womb; it opens during labour and delivery.

Functions of the Cervix

1. The cervix prevents microorganisms from entering the womb, especially during menstruation and pregnancy.
2. For the passage of spermatozoa.

The Womb (Uterus)

This is what is referred to as the womb by the layperson; it is the home of the growing unborn child. The womb is divided into two parts, namely, the cervix and the corpus, which is the body of the womb.

Layers of the Womb

1. **Endometrium**

The endometrium is the lining of the womb that changes during the menstrual cycle. The monthly cycle usually ends in the shedding of the surface layers of the endometrium as menstruation. The endometrium is the mirror of the activities of the ovary and a sample of it can be collected in an operation called dilatation and curettage (known colloquially as D and C). From puberty to menopause, the endometrium undergoes several changes.

2. **Perimetrium**

The perimetrium is the outer layer of the womb that covers the womb.

3. **Myometrium**

The myometrium is the middle layer of the womb and contains thick muscles.

The Changes of the Womb during the Lifetime of a Woman

At childbirth, the size of the cervix is much bigger than the womb. During puberty, when there is a slow increase in oestrogens level, the neck and the body of the womb become equal. In adulthood, the cervix is one-third of the size of the womb that grows with the cervix. In adulthood, the body of the womb is twice as long as the cervix.

The Function of the Womb

1. **Menstruation:**

The lining of the womb, known as the endometrium, breaks off during the menstrual cycle.

2. **Pregnancy:**

The womb supports the unborn baby and allows the baby to grow until it is mature (term) and appropriate time for delivery.

3. **Labour and Birth:**

The neck of the womb opens during labour to allow the delivery of the baby.

The Fallopian Tube

The fallopian tube, also known as the uterine tube, is a pair of tubes one on each side of the womb that extends from the ovaries to the womb. The egg released by the ovary is received by the fallopian tube and passes into the womb if it is not fertilised. The fallopian tube has four parts, namely, the interstitium, the isthmus, the ampulla, and the infundibulum. The ampulla is the place where fertilisation of the egg (from the woman) and the sperm (from the man) occurs. It is the longest and widest part of the fallopian tube.

Functions of the Fallopian Tube

1. It transports the egg, whether fertilised by the spermatozoa or not, to the womb.
2. It picks up the egg released by the ovary
3. It transports the sperm to meet the egg.
4. It is where fertilisation occurs. During intercourse, the spermatozoa deposited in the vagina, swims through the neck of the womb (cervical canal) to the womb and into the fallopian tube to meet the egg released by the ovary.

The Ovary

Functions of the ovary

1. The ovary produces eggs that are released during each menstrual cycle at ovulation.
2. The ovary produces two hormones, namely, oestrogen and progesterone required for reproduction. Hormones are substances that are made in one organ and moved through the blood to act on another organ or tissue. Oestrogens stimulate the growth of the female sexual features that prepares the lining of the womb to receive the baby while progesterone has effects on the womb and causes a rise in the body temperature during ovulation.

Abnormalities of the Structures of the Female Reproductive System

Abnormalities in the structures of the female reproductive system may exist with abnormalities in the structures of the urinary system because they develop from the same organs. Congenital abnormalities of the female reproductive tract may include the womb,

the cervix, the fallopian tube or the vagina. Therefore, childbirth can be affected depending on the exact defect.

Imperforate Hymen

In this condition, there is no opening in the hymen for the flow of menstruation. This condition can lead to what is called haematometra, and haematocolpos. Haematometra is the accumulation of menstrual blood in the womb. Haematocolpos, on the other hand, is the accumulation of menstrual blood in the vagina. In adolescents, cryptomenorrhoea occurs as primary amenorrhoea (explained in chapter four) as cyclic lower abdominal pain, difficulty in passing urine or faeces because of the effect of the swelling in the vagina on the urinary passage (urethra) and anus. Imperforate hymen is treated surgically by making an opening on the hymen.

The Pelvis

The pelvis is not part of the female reproductive system but is the bony support that protects the lower abdominal and internal reproductive organs. It has muscles, joints, and ligaments that offer added support for the internal organs of the pelvis against the downward force of gravity. There are differences between the pelvis of a male and that of a female.

Chapter 4

Menstruation

Menstruation is the monthly discharge of blood from the womb through the vagina of a non-pregnant female. Menstruation is commonly called 'period' or "menstrual period." A girl starts menstruating two years after the breasts develop. The age at which the first menstruation starts differs worldwide. Diet and physical activity affect menstruation as well-nourished girls may begin menstruating earlier than their peers.

During the first two years, when menstruation begins, it is normal for the period not to be regular. Menstruation can be uncomfortable, painful, and embarrassing, but there are many ways of coping with it. Menstruation usually occurs every month throughout the reproductive period in the life of a woman within which she can get pregnant. When a woman is pregnant or breastfeeding a child, the process of menstruation is suppressed; therefore it does not occur. The process that leads to menstruation is called the menstrual cycle, which occurs between twenty-one to thirty-five days. The duration of the menstrual flow lasts from three to seven days. The bleeding during menstruation is from the lining of the womb as the cervix opens slightly to allow the flow through the vagina.

The Menstrual Cycle

The menstrual cycle is the process that occurs every 28 days in the reproductive system of a female that leads to menstruation. It prepares the womb for a possible pregnancy. The average menstrual cycle varies from one woman to another. The first day of the menstrual cycle is the day the bleeding starts. An average menstrual cycle lasts about twenty-eight

days. The first two weeks of the menstrual cycle controls the action of oestrogen as it causes the womb to thicken. On the fourteenth day, an egg (or eggs in rare cases) is released from the ovary known as ovulation. If the egg is not fertilised, the lining of the womb peels off and flows out of the vagina. The absence of a menstrual period raises a high suspicion of pregnancy. Menarche is the medical term for the onset of menstruation, which usually occurs at puberty when the girl is a teenager. At this time, ovulation does not usually take place.

Stages of the menstrual cycle

There are four stages in the menstrual cycle. The destructive or menstruation stage that takes place from day 1 to 5, the follicular or proliferative stage that takes place from day 5 to 14, the ovulation stage that takes place on the 14th day, and lastly the pregestational or the secretory stage that takes place from day 14 to 28.

Stage 1: Menstruation

The lining of the womb is shed, the faster the tissue loss the shorter the time of flow. Delay or partial shedding is associated with a heavier flow and greater blood loss.

Stage 2: Proliferative or follicular stage

This is the first phase of a new cycle as the womb thickens, and the follicles in the ovaries grow and get ready for ovulation. This stage occurs in the ovaries, and the proliferative stage starts with the end of menstruation of a previous cycle.

Stage 3: Ovulation

Ovulation occurs when the follicle in the ovary ruptures and releases a mature egg known as *ovum* (ova for plural). Ovulation always takes place fourteen days to menstruation, which is constant. Some females may have abdominal pain at the time of ovulation. There is a rise in body temperature by one degree Celsius and increased vagina secretions. Accurate timing of ovulation can be used as a family planning method. Ovulation is

sometimes accompanied by slight vaginal bleeding or spotting caused by changes in the level of oestrogen.

Stage 4: The Luteal stage

The luteal stage or phase starts after ovulation has taken place. If fertilisation occurs after ovulation, the womb gets ready to receive the embryo, which develops into a baby. When a female child is born, there are about a million follicles in the ovary. The numbers reduce to about forty thousand during puberty. After puberty, and during each menstrual cycle, some of the follicles undergo a series of developmental changes. However, only one from either the left or right ovary develops into full maturity and releases an egg at ovulation. Menstruation is characterised by some symptoms in some women, such as abdominal discomfort, headache, fullness and pain in the breast, tiredness, and dizziness. Some of these symptoms can affect the quality of life of some women. Females of reproductive age are at risk of low blood levels (medically known as anaemia) because of the continuous loss of iron in blood during each monthly menstrual cycle.

Management of Menstruation

Menstruation management refers to what a female might use during her menstrual cycle. For women and girls to live healthy, productive, and dignified lives, they must be able to manage menstrual bleeding effectively. An item is required to absorb the bleeding. The options available are pieces of clothes, toilet paper (also known as toilet roll, tissue paper or tissues in some countries), sanitary pad, tampon, and a menstrual cup. The item used depends on her environment, financial capability, and availability.

Pieces of Cloth

Pieces of cloth, condemned clothes or rags are used to absorb the menstrual blood. The pieces of clothes used are either used ones and thrown away or washed and reused. When pieces of clothes are used, they should not be shared with other women.

Toilet Roll (Toilet tissue paper/Tissue napkin)

Toilet paper can be used to absorb menstrual blood. The disadvantage of using toilet paper is that it breaks into tiny bits and shears when it is wet, which can irritate the female external genitalia. The advantage of using toilet paper for menstruation is that it can be disposed of in a water closet after use as it does not block the sewage or cause plumbing problems. Toilet paper was initially made to clean the anus after passing faeces (defecation).

Sanitary Napkin or Pad

Sanitary pads are worn outside the body. They are placed on the panties and catch the blood as it leaves the vagina. Sanitary pads are absorbable materials that soak up the menstrual fluid. Some sanitary pads have adhesive tape to keep them in place, attached to the panties close to the vagina. Sanitary pads come in different shapes, sizes and absorbencies for light, regular, and heavy periods. Some of them are scented; that is, perfume has been added to them.

They should not be flushed down the water closet toilet as they can block the pipes causing plumbing problems as well as embarrassment when the plumber discovers the cause of the problem. Used sanitary pads should be wrapped neatly with old newspapers or condemned paper and put in the dustbin, pit latrine, or buried.

Tampon

The tampon is inserted into the vagina and catches the blood before it leaves the body. It is available in different sizes: light, regular, super, and ultra. The light tampon is for light periods, regular for normal flow while super and ultra are for heavy menstrual flow. Tampons should be changed every four to six hours and can be left in place when bathing and swimming. When tampons are forgotten in the vagina, it is a source of infection and leads to a condition known as toxic shock syndrome. The use of the tampon can tear the hymen. Hence it is not commonly used in cultures where the girl must be married as a virgin.

Toxic Shock Syndrome

Toxic shock syndrome is an illness that occurs when the tampon is forgotten in the vagina. It is caused by a bacterium that is usually present in the body, such as the cervix and vagina. Toxic shock syndrome is dangerous and can be fatal if not diagnosed and treated early.

Symptoms of Toxic Shock Syndrome

The symptoms of toxic shock syndrome are fever, vomiting, diarrhoea, muscle pain, and redness of the skin with a low blood level (anaemia). There is also irritability and reduced ability to respond when touched (stupor). When a woman with toxic shock syndrome goes to the hospital, swabs (samples) are collected to be examined in the laboratory to identify the microorganism causing it and the antibiotic that will kill the microorganism. Further tests are performed to find out the state of the function of the kidney, the liver, the muscles, the central nervous system and the blood, especially platelets involved in the clotting of blood as they are all affected by the illness.

Treatment of Toxic Shock Syndrome

The tampon is removed if it is still in the vagina, and the woman is resuscitated, especially if she is in shock where there is a collapse of the circulatory system. Infusions and antibiotics are administered through the vein to kill the bacteria causing the toxic shock syndrome.

Prevention of Toxic Shock Syndrome

Toxic shock syndrome is prevented by maintaining good genital hygiene during menstruation. Baths should be taken frequently, and the genitals washed with soap and water. Tampons must be changed frequently and a sanitary pad worn at night. This is because the tampon may be forgotten in the vagina at night, especially if she wakes up late and starts rushing out in the morning to work or her business place. Sanitary pads which are not inserted into the vagina are unlikely to be forgotten. If a tampon must be used, then the lowest tampon absorbency should be used. A woman recovering from toxic shock

syndrome should have a regular follow-up in the hospital to check if she is still carrying the bacteria that caused the illness.

Menstrual Hygiene

Menstruation is a natural process that needs hygienic management. The word "hygiene" refers to the practice of keeping oneself and surrounding clean, especially to stop illness or the spread of diseases. Hygiene refers to the behaviours and practices that are used to break the chain of infection spread in the home or the community. Good hygiene and sanitation practices are closely linked and often difficult to distinguish. Menstrual hygiene management focuses on practical plans for dealing with monthly periods. It refers to ways a woman keeps herself clean and healthy during menstruation; how to get, use, and dispose of the blood absorbing material used. Menstrual hygiene is an issue that every female has to deal with once she starts menstruating.

Menstrual hygiene and management contribute to universal education, gender equality, and women empowerment. A key priority for females is to have the necessary knowledge, facilities, and the cultural environment to manage menstruation hygienically and with dignity. Menstrual hygiene is an important issue that needs to be addressed at all levels. A variety of factors affect menstrual behaviour, the leading ones being economic and environmental status. For instance, a woman living in an urban area is likely to use toilet paper, sanitary pad, or tampon while a woman in a rural area is likely to use pieces of cloth or toilet paper. Some of the roadblocks to menstrual hygiene are scarce waste disposal facilities, lack of privacy for changing menstrual materials, leakage from inferior quality protection materials, lack of resources for purchasing items for washing such as soap, lack of clean water; limited education about menstruation, and the fear caused by cultural myths and taboos about menstruation.

Menstrual hygiene is a subject of taboo that is not discussed openly in many countries, families, and cultures. In some of these societies and communities where pieces of clothes

are used for menstruation, there are no places to wash and dry them under the sun because of the lack of clean water. The women must find hidden places to hide them which is not good hygienic practice. For women and girls to live healthy, useful, and dignified lives, it is essential that they can manage menstrual bleeding effectively and this needs access to water, which is used for washing panties and clothes, bathing, and sanitation. It is also important that women have a private place to change menstrual materials and dispose of them off hygienically. The genitals should be washed at least twice a day during menstruation to reduce bacteria and bad smell. The hands should be washed whenever the menstrual blood material is changed.

Beliefs, Myths, and Taboos about Menstruation

In several cultures, there are cultural and religious taboos, myths, and beliefs about blood, menstruation, and menstrual hygiene. Some cultures believe in particular taboos at menarche and menstruation. The event of menarche may be associated with taboos and myths that have a negative implication on women's health, particularly their menstrual hygiene. These beliefs, myths, and taboos about menstruation in those societies stop females from expressing their needs and the problems of poor menstrual hygiene management, which are overlooked or misunderstood. Some women keep away from certain foods and drinks, either cold or hot during menstruation with the belief that it causes menstrual pain. Others believe that drinking cold sugared drinks such as soft drinks increases menstrual flow. Restrictions during menstruation limit the daily activities of women and girls. These manifest from beliefs that a woman during her menstruation is dangerous and unclean, which can result in them spoiling food and plants, biological and social processes.

In some cultures, menstruating women and girls do not take their baths as they will become infertile. They are also not allowed to touch or milk a cow, as it is believed that the cow will become infertile. They are not allowed to touch any plant as it is believed that the plant will die. Other restrictions given to the menstruating woman are not to look at the mirror,

not to touch the holy book of the religion that is practised, not allowed to cook, not to play with peers, sleep separately from other family members and do not attend school. In some cultures, women stay in separate rooms or huts during their menstruation. In the end, they must bathe and wash all clothes worn during the period before mixing up with other family members, including their husbands, children, and siblings. Some women may appreciate the banishment to menstrual rooms or huts as they are given a period of rest from the daily household chores. The beliefs, myths, and taboos are passed on over from generation to generation by word of mouth through older family members who enforce them. Once a girl attains menarche, she learns about the menstrual beliefs, myths, and taboos from her mother, grandmother, aunties, elder sisters, and other females in the family and neighbourhood. In some cultures, menstruating women are not allowed to cook. These limits create the belief that menstruation is shameful, and the menstrual blood is harmful. Various cultural methods for dealing with menstruation have effects on the rights, physical, social, and mental wellbeing of women and girls.

Menstruation in Adolescents and Schoolchildren

Puberty and the onset of menstruation is a significant change for the girl. Most girls attain menarche while in primary or secondary/high school and few in tertiary institutions. Adolescence is a crucial stage of life and one that is challenging for most girls because of its physical and psychological changes. Menstruation is a barrier to the education of adolescent girls in some societies.

There is a lack of information on the process of menstruation, the physical and psychological changes associated with puberty. Adolescent girls often lack knowledge regarding reproductive health, including menstruation which can be due to socio-cultural barriers in which they grow up. The hygiene-related practices of girls in the adolescent period related to menstruation can affect their health. Research has confirmed that the onset of puberty leads to significant changes in school participation among girls. The monthly menstruation period creates obstacles for female teachers. They either report

themselves as being sick or go home early especially if there is nowhere to change the sanitary material that is been used or having menstrual pain. Therefore they do not have enough time to give extra attention to children who may need it. Some adolescent girls do not have information about the process and hygiene of menstruation before menstruation begins. Mothers, television programmes, friends, teachers, and female relatives are usually the primary sources that provide information on menstruation to adolescent girls. Attitudes of parents and society in discussing issues related to reproduction are barriers to the right kind of information, especially in rural communities. Menstruation is considered to be a matter of embarrassment in most cultures; therefore, it is not discussed. In some cultures, the onset of the first period is celebrated with a ritual.

Schoolgirls from low and middle-income families often struggle to manage their monthly periods due to physical, economic, social, and cultural factors. Sometimes, menstruating school girls absent themselves from school for various reasons such as not having enough sanitary protection materials such as sanitary pads, abdominal pain associated with menstruation, or no place to change the menstruation absorbing material used. In reality, menstruation-related school absenteeism is likely to be a mixture of many factors. The United Nations Educational, Scientific and Cultural Organization (UNESCO), a department of the United Nations which aims to encourage peace between countries through education, science and culture estimates that one in ten African girls miss school during menses, and in the end drop out of school because of menstruation-related issues such as inaccessibility to affordable sanitary protection material, social taboos about menstruation, and the culture of silence that surrounds it. Disposal of used sanitary clothes and napkin (pad) is a challenge in most schools. Other menstruation-related disorders such as menstrual pain and too much bleeding as well as the mental stress during menstruation affect the daily life and routine of school girls to the degree that it affects their attention and concentration.

Problems Associated with Menstruation and Menstruation

Abnormalities

Menstrual problems are common and can be disruptive to the daily life of a woman. Abnormalities in menstrual bleeding can be changed in frequency, duration, and amount of menstrual bleeding.

Some problems associated with menstruation are:

1. Premenstrual tension
2. Menstrual migraine
3. Premenstrual dysphoric syndrome
4. Period pain (dysmenorrhoea)
5. No menstrual bleeding (amenorrhoea)

6. Abnormal bleeding from the womb (abnormal uterine bleeding)

a. Too much bleeding (menorrhagia)

b. Little menstrual bleeding (oligomenorrhea)

c. Polymenorrhoea (frequent irregular menstruation)

d. Menometrorrhagia

e. Metrorrhagia

f. Anovulation (no ovulation)

g. Intermenstrual bleeding (bleeding between menstrual periods)

h. Dysfunctional uterine bleeding

Premenstrual Tension Syndrome

Premenstrual tension syndromes are physical, psychological, or behavioural symptoms that become visible after ovulation and resolves with the onset of menstruation. In some women, these symptoms are severe enough to disrupt personal relationships, social activities, academics, and even job performance. The symptoms of premenstrual tension

syndrome vary from one woman to another. The cause of premenstrual tension syndrome is not known.

Some of the symptoms of premenstrual syndrome are:

- ·Headache
- Back pain
- Tiredness
- Easily irritable
- Depression
- Difficulty in taking decisions
- Poor sleep
- Feeling unwell
- Fullness and pain in the breast
- Discomfort in the abdomen pelvis
- Chest pain
- Pounding of the heart
- Numbness and tingling of the finger and toes
- Dizziness
- Cold sweats
- Vomiting
- Nausea (Feeling like vomiting)
- Hot flashes

Premenstrual tension syndrome may occur in women who have reached menopause (postmenopausal women) on hormone replacement therapy. It is managed by treating specific symptoms. For instance, pain medicine is given if there is a headache or back pain.

Menstrual Migraine

A migraine is a form of headache that is severe. Migraines cause episodes of severe or moderate headaches, which are often one-sided lasting from four to seventy-two hours;

accompanied by problems in the digestive tract such as vomiting, nausea and a heightened sensitivity to bright light (photophobia) and noise (phonophobia). The international classification of headache disorders (ICHD) defines menstrual migraine as attacks of migraine headache occurring during menstruation extending from two days before the onset of the menstrual flow with such attacks occurring in at least two of three menstrual cycles. Pure menstrual migraine implies that the migraine attacks occur during menstruation and at no other time. Menstrual migraine is treated with pain medicine, rest, and avoiding things like caffeine contained in coffee and energy drinks.

Premenstrual Dysphoric Disorder (PMDD)

The premenstrual dysphoric disorder is a term used by the American Psychiatric Association (APA) to describe cases of premenstrual syndrome that are characterized by changes in the mood that impairs concentration at work or school and social relationships.

Some of the symptoms of premenstrual dysphoric disorder are:

a. Feeling sad, hopeless and worthless
b. Tension
c. Anxiety
d. Frequent crying
e. Easily irritable
f. Difficulty in concentrating
g. Low self-esteem
h. Interest in unusual activities
i. Significant changes in mood
j. Anger
k. Interpersonal conflict
l. Lack or reduced interest in daily activities and relationships
m. Difficulty in concentrating
n. Fatigue

o. Lethargy

p. Lack of energy

q. Changes in appetite that may increase or decrease.

r. Cravings for certain types of food

s. Sleeping too much or difficulty in sleeping

t. Headache

u. Reduced interest in usual activities

Menstrual Pain and Cramps (Medically known as Dysmenorrhoea)

Pain in the abdomen and the pelvic region during menstruation is medically known as dysmenorrhoea. Menstrual pain manifests as continuous lower abdominal pain, back pain, and sometimes pain in the thigh. The pain may be associated with sweating, increased heartbeat, headaches, vomiting, loose bowel movement, nausea, diarrhoea, and restlessness. Any form of therapy is given to stop the pain and the associated symptoms. Menstrual pain can either be primary or secondary.

Primary Menstrual Cramps and Pain (Primary Dysmenorrhoea)

Primary menstrual pain starts one to two years after the first menstruation, and there is no obvious abnormality in the structure or function of the female reproductive tract. The cause of primary menstrual pain is attributed to contractions in the womb and the production of a substance known as prostaglandin. It is common in women and girls who have never had a child and when ovulation occurs during the menstrual cycle. It is a leading cause of school absenteeism; the intensity of the pain reduces following childbirth.

Secondary Dysmenorrhoea (Secondary Menstrual Pain)

This is menstrual pain associated with disease or disorder in the female reproductive tract.

Some of which are:

a. Endometriosis in which tissues of the womb are found in other parts of the body

b. Pelvic inflammatory disease

c. Fibroids

d. Infection of the fallopian tube and ovary

e. Severe uterine retroversion

f. Sexually transmitted infections

g. Genital tract obstruction

h. Use of Intrauterine Contraceptive Device (IUCD) for family planning

i. Cancer of the ovary (ovarian cancer)

j. Cervical stenosis, which is the narrowing of the neck of the womb

k. Adenomyosis

Treatment of Menstrual Pain

Abdominal pain associated with menstruation is treated with pain medicine. A group of pain medications known as non-steroidal anti-inflammatory drugs (NSAIDS) is best for its treatment. This group of drugs is most effective when the drug is commenced before the onset of the pain. These drugs can cause stomach upset, cramps, and vomiting of blood, if taken on an empty stomach. In some countries, these drugs can be bought over the counter that is without a prescription. The goal of the treatment of primary menstrual pain is to provide relief. The treatment of secondary menstrual pain is aimed at treating the cause, which can vary; therefore, its treatment varies also. The treatment of secondary menstrual pain (secondary dysmenorrhea) is to treat the disease or disorder causing it.

Absence of Menstruation

Amenorrhea is the medical terminology to denote when there is no menstrual flow; there are two types of amenorrhea known as physiological and pathological amenorrhea. Amenorrhea can be termed physiological when the amenorrhea is normal at four distinct phases of a woman's life, the early stage of the menarche, during pregnancy, breastfeeding, and following menopause. In physiological amenorrhea, the absence of menstruation is not caused by any disease. There are two types of pathological amenorrhea known as primary and secondary amenorrhea.

Primary Amenorrhoea

Primary amenorrhoea means the woman has never menstruated. It is the failure in the commencement of menstruation at fourteen years old without two sexual characteristics or at sixteen years with secondary sexual characteristics. It is likely because of congenital abnormality, genetic disorder, or defective glands.

Causes of Primary Amenorrhoea

A. Disorder in the brain

1. Pituitary gland disorder
2. Disorder of the hypothalamus

B. Developmental defects of the lower genital tract

1. Occlusion of the hymen, the vagina, or the cervix
2. Imperforate hymen
3. Absence of the uterus or the vagina
4. Cryptmenorrhoea
5. Transverse vagina Septum

Cryptomenorrhoea:

This is the cause of primary amenorrhoea when there is no visible bleeding although the symptoms associated with menstruation occurs every month such as lower abdominal pain. The female is menstruating, but the menstrual blood does not flow out of the body because something is blocking it from flowing out of the vagina. An example is an imperforate hymen. There are three stages of cryptomenorrhoea.

- **Haematocolpos:** In this condition, the vagina is swollen with menstrual blood.
- **Haematometra:** In haematometra, the womb and the vagina are filled with menstrual blood.
- **Haematosalpinx** This occurs in long-standing cases of cryptomenorrhoea where the fallopian tubes, womb, and vagina are swollen with menstrual blood.

All these types of cryptomenorrhoea are treated by making an opening on the vagina and draining the menstrual blood.

Secondary Amenorrhoea

Secondary amenorrhoea is the absence of menstruation for three to six months in a woman who was previously menstruating.

Causes of secondary amenorrhoea

1. Severe weight loss
2. Eating disorders such as eating sparingly (anorexia nervosa) and excessive eating (bulimia nervosa).
3. Brain tumours
4. Head injuries
5. Severe medical illness can cause dysfunction of the hypothalamus or pituitary gland in the brain leading to amenorrhoea.
6. Asherman's syndrome.
7. Infections such as tuberculosis that affects the womb and other infections of the womb (suppurative endometritis).
8. Failure of the proper functioning of the ovaries (ovarian failure) leading to menopause taking place before time (premature menopause)
9. Ovarian tumours
10. Chronic illnesses such as diseases of the thyroid gland (hyperthyroidism and hypothyroidism), diabetes, adrenal disease, etc.
11. Severe physical activity such as intense athletic training
12. Certain drugs especially oral contraceptives
13. Psychological stress
14. Surgery such as hysterectomy in which the womb is removed
15. Polycystic ovarian syndrome
16. Turner's syndrome

The treatment of amenorrhoea depends on what is causing it.

Asherman's Syndrome

Asherman's syndrome also known as intrauterine synechiae is caused by scarring of the lining of the womb. It may follow vigorous scraping of the lining of the womb for diagnosis or treatment of some disease conditions of the female genital tract.

Abnormal Bleeding from the Womb (Abnormal Uterine Bleeding)

Too Much Menstrual Flow (Menorrhagia)

Menorrhagia is heavy menstrual bleeding. Abnormal uterine bleeding is bleeding from the womb and any change from the regular frequency, duration, or amount of menstrual blood. Some of the causes of abnormal bleeding from the womb are:

1. Complications of pregnancy such as miscarriage (spontaneous abortion), ectopic pregnancy, and molar pregnancy
2. Disease in the pelvis such as an endometrial polyp; cancer of the vagina, vulva and cervix
3. Endometriosis
4. Infections
5. Some general systemic illness
6. Disorders in the blood.

Treatment of abnormal uterine bleeding depends on the cause. If the bleeding is too much, the woman may have symptoms such as weakness, tiredness, and fatigue. It interferes with the woman's physical, emotional, social life.

Oligomenorrhoea: Is a decrease in the frequency of menstruation in which the interval between the menstrual cycles is longer than thirty-five days but less than three months or five or fewer cycles every year.

Hypomenorrhea: Hypomenorrhea is the reduction in the menstrual flow or shortening of the period of menstruation.

Irregular Menstrual Flow

a. Metrorrhagia:

Metrorrhagia is menstrual bleeding that is not regular at frequent intervals. This bleeding occurs between periods from an imbalance in the levels of hormones. It can be caused by

- Use of oral contraceptives
- Pregnancy
- Ectopic pregnancy
- ·Endometriosis
- Sexually transmitted infections
- Growth from the neck of the womb, that is, the cervix (cervical polyp)
- Growth from the womb such as uterine polyp and uterine fibroids
- Cancer of the cervix and the womb.

b. Menometrorrhagia: Menometrorrhagia is too much bleeding from the womb during the menstrual period as well as between the menstrual periods.

c. Polymenorrhoea: Polymenorrhoea is abnormal menstruation with the normal menstrual flow but frequent.

d. Polymenorrhagia: Polymenorrhagia is menstrual bleeding that is excessive and too frequent.

Anovulation

Anovulation is menstruation that occurs without ovulation. Anovulation may be caused by anything that disrupts the process of ovulation. Anovulation is treated by restoring ovulation and treating the cause of the anovulation.

Some of the causes of anovulation are:

- Congenital factors
- Failure of the ovaries to function (ovarian failure)
- Hard drugs
- Removal of the ovaries by surgery
- Defects in the structure of the female genital tract

Dysfunctional Uterine Bleeding (DUB)

Dysfunctional uterine bleeding is abnormal bleeding from the womb in the absence of disease of the female reproductive system, the cause of the bleeding is not related to any abnormality in the structure of the womb or its lining. The symptoms of dysfunctional uterine bleeding are heavy menstrual bleeding (menorrhagia), polymenorrhoea, metrorrhagia, and menometrorrhagia. It is diagnosed after other causes of abnormal bleeding from the womb have been excluded. Treatment of dysfunctional uterine bleeding starts with finding the cause of the bleeding and treating the cause.

Intermenstrual Bleeding

Intermenstrual bleeding is bleeding that occurs between menstrual periods that is caused by a sudden rise and then fall in the level of oestrogen at the time of ovulation. Some of the causes of intermenstrual bleeding are cervical polyp, endometrial polyp, cervical erosion, cancer of the cervix, and stress.

Chapter 5

Breast

The breast is fully developed in females than in males. The size and shape of the breasts are dependent on age, hereditary characteristics, pregnancy, and breastfeeding. There are two breasts, but as with other organs in the body that are paired that is two like the hands, legs, one may be slightly bigger than the other, this is normal. Gross inequality in the sizes of both breasts is due to disease. Some women experience changes in the breast during the menstrual cycle.

Development of the Breast

At birth, the chest of boys and girls are the same and not developed. The female breasts do not start growing until puberty. After pubic hair starts to grow, the breasts will begin responding to hormones that signal the development of the breast tissues.

Structure of the Breast

Despite the individual variation in the size of the breast, the size of the base of the breast is fairly constant. The breast is richly supplied by blood vessels. The breast also consists of the areola and nipple. The areola is the darkened area of skin around the nipple. In early puberty, the areola becomes prominent, and the breasts begin to enlarge. There is another structure in the breast known as milk ducts that transport the breast milk produced in the lobules to the nipple. Each breast contains fifteen to twenty sections known as lobes. Many lobules make up a lobe. The lobules have groups of many tiny glands that produce breast

milk. After the birth of a baby, breast milk flows from the lobules through thin tubes (ducts) to the nipple.

Abnormalities in the Structure of the Breasts

Abnormalities in the structure of the breast are not common.

1. **Polythelia**:

Polythelia is the presence of an extra nipple; it can coexist with an extra breast or areola.

2. **Accessory Breasts (Polymastia**):

This is when there are extra breasts. Fully formed extra breasts may produce breast milk a few days after the commencement of breastfeeding. Some accessory breasts may cause no symptom or pain, restriction of movement of the arm, cosmetic problems, and anxiety. The accessory breast is treated by a surgical operation to remove it.

3. **Inverted Nipple:** The nipple turns inward

4. **Absence of the Nipple:** The nipple is absent in one or both breasts

5. **Absence of the Breast:** It is when one or both breasts are absent.

6. **Hyperplasia of the Breast**

Diseases of the Breast

Breast pain is the most common sign of breast disease.

Some Diseases of the Breast are:

1. Breast cancer, discussed under the chapter on cancer.
2. Mastitis
3. Breast abscess

4. Haematoma of the breast
5. Blocked milk tubes
6. Tuberculosis of the breast

Mastitis

Mastitis means inflammation of the breast. The symptoms of mastitis are redness, swelling, and pain in the breast; fever and feeling unwell. The redness and pain in the breast area due to swelling or blocking of the milk tubes.

Treatment of Mastitis

1. Increase the frequency of breastfeeding, especially in the affected breast. A breast pump may be used to express breast milk
2. Pain medicine
3. Rest to allow the baby to feed more repeatedly
4. Antibiotics kill the growth of the causative microorganism. The causative microorganism is identified by testing a sample of the breast milk in the laboratory.

Complications of Mastitis

1. Weaning baby off the breast before the planned time
2. Breast abscess when mastitis is not treated

Breast Abscess

It is a localized gathering of pus within the breast; it is most common in the first few weeks after delivery but can also occur after the menstrual period. Breast abscess occurs in five to ten per cent of women with mastitis. It is often associated with delayed or inadequate treatment of mastitis. The symptoms of breast abscess are pain and swelling of the breast. Sometimes the swelling is red and warm or hot when touched with the back of the hand. The woman generally feels unwell. A breast abscess is treated by antibiotics, pain medicine and surgical removal of the abscess by a procedure known as incision and drainage.

Blocked Milk Duct

Blocked milk tubes result when the milk tube is blocked, and it is not easy to distinguish it from mastitis. The breasts are painful and swollen; this condition usually resolves within twenty-four to forty-eight hours if managed correctly. The treatment of blocked milk ducts involves rest and increasing the frequency of breastfeeding of the affected breast.

Haematoma of the Breast

Haematoma means the collection of blood in the breast that can result from a direct blow to the chest. This condition is diagnosed by taking a piece of the swelling (biopsy) and examining it under the microscope.

Chapter 6

Symptoms of Diseases of the Female Reproductive Tract

Diseases of the female reproductive tract are diseases that affect the reproductive system of females. They are infections, swellings, and cancer. Some of the infections that affect the female reproductive tract especially sexually transmitted infections affect men also. Symptoms of diseases of the female reproductive tract can be general symptoms not specific to diseases of the female reproductive tract or symptoms specific to diseases of the female reproductive tract.

General symptoms (not specific to diseases of the female reproductive tract)

- Fever: There is an increase in body temperature. The woman may be shivering; this indicates the presence of an infection.
- Nausea.
- Vomiting.
- Weakness
- Getting tired easily
- Swelling of the abdomen

Symptoms Specific to Diseases of the Female Reproductive Tract

Specific symptoms of diseases of the female reproductive tract include vaginal discharge, vaginal itching, genital sore, swelling of the pelvis, menstrual irregularities, vaginal

bleeding after intercourse (postcoital bleeding), painful intercourse (dyspareunia), and swelling of the genitals. Menstrual irregularities are discussed in the chapter on menstruation.

Vaginal Discharge

Vaginal discharge is simply any substance that comes out of the vagina that is not blood. The vagina is an organ that is always moist. Vaginal discharge may be emanating from the vulva, vagina, fallopian tubes, or womb. It can be normal or abnormal; normal vaginal discharge occurs at different phases of the menstrual cycle which determines its quality and volume. Normal vaginal discharge is clear that is it does not have any colour, does not smell, does not look like pus (non-purulent), or causes itching. Abnormal vaginal discharge is a symptom of disease, usually an infection, and not a disease entity itself.

Different types of bacteria naturally live in the vagina that works together to prevent infection. Sometimes, there is an imbalance in these bacteria leading to an unusual vaginal discharge, which can be yellowish, greenish or grey, watery or thick, foul-smelling, and foamy, curdy. Abnormal vagina discharge causes vagina itching, burning sensation in the vagina or while passing urine, and soreness of the vagina. Vaginal discharge is treated by relieving the symptoms, providing comfort, and treating the cause of vagina discharge.

Predisposing Factors to Vaginal Discharge:

- Psychological stress
- Douching
- Pregnancy
- Oral contraceptives
- Some medications are known as immunosuppressant used in treating cancer and after transplant surgery of any body organ
- Allergic reactions
- Irritation of the vagina
- Antibiotics

- Sexually transmitted infections

Causes of vaginal discharge

1. Infection

- Bacterial vaginitis
- Candida (yeast)
- Sexually transmitted infections such as gonorrhoea, Chlamydia, and trichomoniasis.

2. Not caused by an infection

- Objects forced into the vagina such as a tampon
- Cancer of any organ of the female reproductive tract
- Allergic reactions
- An abnormal connection (opening) between the vagina and other organs such as the urine pipe (urethra) known as vesicovaginal fistulae (VVF).

Pain

Pain associated with disease of the female reproductive system is painful menstruation (dysmenorrhoea), painful intercourse, low back pain, or pain in the pelvis.

Painful intercourse

Pain during sexual intercourse is medically known as dyspareunia, which can be physical or psychological. Persistent superficial or deep painful intercourse can also be a result of vagina dryness following changes that accompany menopause. Psychological causes of painful intercourse are emotional problems, anxiety, depression, stress, and previous experience of rape. The pain may be felt superficially around the entrance of the vagina or deep within the pelvis.

Causes of Superficial Painful Intercourse

1. Inflammation or infection of the skin around the genitals such as eczema and other skin problems. An infection in the genital area or urinary tract can cause painful intercourse.

2. It may be caused by an improperly fitted diaphragm or cervical cap.

3. Vaginismus is the involuntary contraction (spasm) of the muscles of the vagina wall which makes penetration painful.

4. Stinging or burning sensation around the opening of the vagina.

5. Insufficient lubrication of the vagina.

Causes of Deep Painful Intercourse

Certain illnesses and conditions cause deep painful intercourse. They are:

1. Endometriosis
2. Pelvic inflammatory disease
3. Uterine prolapse
4. Retroverted uterus
5. Uterine fibroid
6. Inflammation or infection of the bladder
7. Irritable bowel syndrome
8. Ovarian cyst
9. Infection of the cervix, the womb, and the fallopian tubes.
10. Surgeries that lead to scarring involving the pelvis, such as removal of the womb (medically known as a hysterectomy).
11. Treatment of cancer with radiation.

Painful intercourse is managed by treating the cause of pain and counselling.

Vaginal Bleeding

Vaginal bleeding is a symptom of a disease of the female genital tract and not a disease itself.

Causes of vaginal bleeding that is not menstruation are:

1. From the womb

a. Uterine fibroid

b. Growth in the womb (endometrial polyp)

c. Infection of the womb (endometritis)

d. Cancer of the womb.

2. Bleeding from the neck of the womb (cervix)

a. Cancer of the neck of the womb (cervical cancer)

b. Cervical dysplasia

c. Growth in the neck of the womb (endometrial polyp)

d. Infection of the cervix (cervicitis)

3. Bleeding from the vagina and the vulva

a. Cancer of the vulva and the vagina

b. Infection of the vagina (vaginitis)

c. Injury to the vagina or the vulva

d. Objects placed into the vagina

e. Vaginal pessaries

4. Others are:

a. Abnormal menstruation

b. Ectopic pregnancy

c. Miscarriage (spontaneous abortion)

Bleeding After Intercourse (Post-Coital Bleeding)

Bleeding after intercourse is a symptom of a disease of the female genital tract. It is commonly caused by cancer of the neck of the womb (cervical cancer) and infection with *Chlamydia*.

Sore in the Genital Area

This is caused by some sexually transmitted infections such as syphilis, chancroids, and herpes simplex. The sores can also appear on the anus, which is caused by genital warts.

Pain in the Lower Abdomen and Pelvis

1. Pain emanating from the womb

a. Uterine Fibroid

b. Adenomyosis

c. Endometritis

2. Pain emanating from the fallopian tube

a. Pelvic inflammatory disease

b. Ectopic pregnancy

3. Pain originating from the ovaries

a. Ovarian cyst

b. Ovulation pain (mittelschmerz)

4. Other causes are:

a. Endometriosis

b. Adhesions

c. Intrauterine contraceptive device (coil)

d. Infection

e. Womb falling out (uterine prolapsed)

Other causes of lower abdominal pain in women not related to the female reproductive tract are:

1. Urinary tract infection
2. Infection of the bladder
3. Cancer of the urinary system
4. Bladder stone or kidney stone (nephrolithiasis)
5. Constipation
6. Obstruction of the intestines (Intestinal obstruction)
7. Low back pain
8. Hernia

Swelling of the Abdomen

The swelling may be originating from the womb or the ovaries.

1. Swelling originating from the womb

a. Pregnancy

i. Normal pregnancy

ii. Missed abortion (a type of miscarriage)

iii. Molar pregnancy in which the womb is larger than the expected age of the pregnancy.

b. Adenomyosis

c. Uterine Fibroid

2. Swelling emanating from the ovaries, for example, the ovarian cyst

Hirsutism

Hirsutism is when a female has the distribution of body hair like a male; that is the woman or girl develops hair on the chest and beards. It is caused by too much secretion of

androgen, mainly testosterone which is a hormone produced in large amounts in males that is responsible for the physical and sexual features of males.

It is caused by:

- Polycystic ovary syndrome
- Congenital adrenal hyperplasia
- Cancer of the ovary (ovarian tumours) that produce androgen.

Hirsutism is treated by:

- Diathermy where heat is used in pulling the hair out of its follicle.
- Using creams known as depilatory creams and waxes. Depilatory wax is applied, and when it sets, the wax is removed, which pulls the hair out.
- The definite and permanent cure of hirsutism is to treat the cause of hirsutism.

Virilism

Virilism is when a female has the signs of the pubertal changes of a male because the female is producing too much of the male reproductive hormones, which is an androgen. Some of the symptoms are deepening of the voice, growth of hair on the chest and beard. It is caused by tumours such as tumours of the ovary, which produces androgens mainly testosterone. The female may notice an increase in hair distribution, reduction, or cessation of menstruation, the breasts reduce in size or fail to develop, the clitoris gets enlarged, and the voice deepens.

Douching

Douche is a French word that means 'to wash or soak.' Douching simply means washing or cleaning inside the vagina with water or other fluids and solutions. Some women use the practice of douching as part of their general hygiene or cultural practice. There are many reasons why women douche. Some women believe that douching cleans the vagina, removes blood from the vagina after the monthly periods, gets rid of bad odour, and

prevents pregnancy, and sexually transmitted infections. None of these is true as there are no benefits of douching since the vagina cleans itself.

Douching may help spread infection by pushing it up into the womb. Besides, it can wash away some of the good bacteria that helps to keep off bad bacteria from the vagina. Naturally, there are both good and bad bacteria in the vagina. Any change in their balance leads to the bad bacteria growing in large numbers more than the good ones. Some of the problems associated with douching are irritation of the vagina, bacterial vaginitis, sexually transmitted infections, and pelvic inflammatory disease.

Chapter 7

Common Diseases of the Female Reproductive Tract

Many diseases affect the female reproductive tract, this includes congenital deformity, infections, swellings, and cancers. Infections of the female reproductive tract can lead to complications such as infertility, ectopic pregnancy, severe pelvic pain, miscarriage, and increased risk of Human Immunodeficiency Virus (HIV). Common symptoms of diseases of the reproductive tract in females are vaginal discharge, pruritus (itching) of the vulva, lower abdominal pain, sore in the genitals, swelling in the groin, menstruation problems, and burning sensation while urinating. Risk factors for infections of the female reproductive tract are lack of proper hygiene of the genitals, unhygienic practices such as douching, improper care during menstruation, and having multiple sexual partners.

Common Diseases of the Vulva

Diseases of the vulva manifest as itching of the vulva, swellings, pain, sores, abscesses, and trauma.

Pruritus Vulvae

Pruritus is the term used to describe a feeling of discomfort from which the person gets relief by scratching; this damages the surface of the vulva. Itching of the vulva can occur at any age and may be distressing if it occurs in the public and at night. If severe, it can lead

to bleeding. Itching of the vulva can be caused by conditions restricted to the vulva or other disease conditions in the body known as systemic causes.

Causes of Vulva Itching Restricted to the Vulva

1. Vulva and vagina candidiasis (yeast infection)
2. Infection with trichomonas vaginalis, a sexually transmitted infection
3. Pubic lice (pediculosis)
4. Scabies
5. Threadworm
6. Infection with herpes simplex virus, a sexually transmitted infection
7. Genital warts of the vulva
8. Reaction to certain sanitary pads
9. Drug reaction
10. Foreign bodies such as pessaries and suppositories
11. Vaginal discharge
12. Some conditions affecting the urinary system such as glucose in urine (glycosuria) and the inability to control the passage of urine (urinary incontinence).

Systemic Causes of Vulva Itching

1. Diabetes mellitus
2. Psychological
3. Diseases of the liver
4. Severe kidney failure
5. Certain cancers such as the lymphomas
6. Hypothyroidism
7. Polycythaemia
8. Drug reaction

Treatment of vulva itching is aimed at identifying the cause of the itching, treating the cause and relieving the sensation of itching.

Infections of the Vagina

The vagina naturally prevents infections through the secretions from the glands in the vagina, and the acidic nature of the vagina (PH 5.45). PH is used as a standard to measure the acid content of a substance.

Vaginitis

Vaginitis is an infection of the vagina that affects the external genitalia and the lower reproductive tract in women. When the infection involves the vulva, it is called vulvovaginitis. Vaginitis can be caused by organisms that infect the vagina or by substances that irritate the vagina, such as soap or powder. The most common causes of infections of the vagina are yeast infections, bacterial vaginosis and trichomoniasis. Infections of the vagina manifest as vaginal discharge, vaginal itching, painful urination, painful intercourse, and awful odour. Vaginitis can also be caused by microorganisms that are already present in the vagina. Sexual activity can introduce microorganisms into the vagina or may displace the good bacteria in the vagina. A microorganism is known as lactobacilli naturally dominates the vagina.

Some substances (irritants) that cause infection of the vagina (vaginitis) are:

1. Contraceptive barrier devices such as condoms and diaphragm
2. Spermicidal foams, gels, and creams
3. Douching
4. Heat keeping clothing and undergarments such as pantyhose
5. Tampons
6. Sex toys
7. Injury to the vagina
8. Poor hygiene

Treatment of Vaginal Infection

Treatment of infections of the vagina involves the elimination of the organism causing the infection.

Risk Factors for Vaginal Infection

1. Pregnancy
2. Uncontrolled diabetes mellitus
3. Oral contraceptive
4. Antibiotics
5. Corticosteroids
6. Douching
7. Use of intra-contraceptive uterine devices for family planning.
8. Use of vaginal sponge for contraception
9. Wearing tight clothing and synthetic undergarments
10. Human Immunodeficiency Virus (HIV)
11. Having multiple sex partners.

Antibiotics destroy the normal bacteria that naturally live in the vagina, thus reducing the struggle for nutrients and leaving the area clear for the microorganisms to thrive, especially yeast (*Candida albicans).*

Prevention of Vaginal Infections

1. Douching should be avoided because it may disturb the normal balance of organisms in the vagina and may spread them higher into the female reproductive tract
2. Wash the vagina daily.
3. Wipe the vagina and anus from front to back.
4. Take antibiotics only when necessary.
5. Wear cotton undergarments.
6. Limit the number of sexual partners.

7. Avoid the use of vaginal sprays, bath oils, and bubble baths.
8. Avoid the use of scented tampons, pads, or toilet paper.

Complications of Infections of the Vagina (Vaginitis)

Complications arising from an infection of the vagina are dependent on the cause of the infection, which can pose problems during pregnancy and in the newborn baby. Besides, reinfection after treatment is possible. Complications in the pregnant woman are premature birth, infection of the womb after miscarriage or abortion, premature rupture of the bag of water that envelops the baby in the womb medically known as premature rupture of membrane, delivery before the expected time (preterm birth), labour taking place before the expected time (preterm labour), and low birth weight. Other complications of vaginal infections are pelvic inflammatory disease, ectopic pregnancy, infertility, severe pelvic pain, and the increased risk of sexually transmitted infections.

Bacterial Vaginosis

Bacterial vaginosis is an infection of the vagina by more than one germ. The acidity of the vagina changes and not every woman with bacterial vaginosis has symptoms. Symptoms of bacterial vaginosis are vaginal discharge, itching, and bad odour. It can take place in women who have not experienced sexual intercourse. When bacterial vaginosis is not treated, it can lead to pelvic inflammatory disease.

Candidiasis

A fungus called C*andida Albicans* causes candidiasis. About two-thirds of women will have at least yeast vagina infection in their lifetime. Yeast is normally present in the vagina, mouth, and intestines of many people but it can cause disease when it overgrows. Yeast is not considered a sexually transmitted infection. A healthy vagina is slightly acidic and has some helpful bacterial protection against harmful microorganisms like yeast that live and grow in dark, warm, and wet environments such as the vagina. Vaginal thrush (yeast) occurs when the natural balance of good and bad bacteria in the body is impeded. Mucous produced by the neck of the womb (cervix) moistens and lubricates the vagina. Yeasts are

tiny organisms that normally live in small numbers on the skin and inside the vagina. The acidic environment of the vagina helps keep yeast from spreading. Yeast is mostly harmless when present in small quantities. Symptoms of vaginal yeast infection are itching of the vagina and vulva, vaginal discharge, painful urination, and intercourse. Yeast infection of the vagina is also known as vaginal thrush.

Bartholin's Abscess and Cyst

The Bartholin's glands are two small glands on each side of the vagina opening that produce mucous. Each gland produces a slippery liquid that moves through a small tube called a duct which lubricates the vagina. Sometimes, the thin passage (a duct) between the Bartholin's gland and the vagina gets blocked, and the secretion produced by the gland accumulates in the gland causing a swelling known as Bartholin's cyst. Small cysts may not cause any problem, but large cysts may cause pain while sitting or during intercourse. Bartholin's abscess occurs when the blocked Bartholin's gland becomes infected, swollen, and painful.

Atrophic Vaginitis

Atrophic vaginitis happens in women who have reached menopause. The symptoms of atrophic vaginitis are vagina discharge, itching, and painful intercourse. The vagina with atrophic vaginitis is prone to infection and trauma.

Common Diseases that Affect the Womb (Uterus)

Endometriosis

Endometriosis is the presence of tissues of the lining of the womb in other parts of the body. It occurs in women of reproductive age then shrinks after menopause. These tissues originating from the lining of the womb commonly occur in the pelvis though they can also occur in other organs of the body such as the lungs, liver, kidney, bladder, brain, etc. The cause of endometriosis is not known. However, when this condition happens within the muscle of the womb, it is called adenomyosis. The symptoms of endometriosis depend on

where the tissue of the lining of the womb is abnormally located. During the menstrual cycle, the tissue swells and bleeds.

Some of the symptoms of endometriosis are:

1. Pelvic pain
2. Infertility
3. Mass or swelling in the pelvis
4. Disturbances of menstruation may be spotting before the period starts, heavy menstrual bleeding (menorrhagia) or polymenorrhoea.
5. Passing blood in the urine (menstrual haematuria) during menstruation if the deposits are on the bladder.
6. Symptoms related to the digestive system, there can be a periodic passage of blood from the anus (haematochezia) or vomiting of blood during menstruation.
7. Abnormal uterine bleeding
8. Convulsions during menstruation if the tissues of the lining of the womb are present in the brain.

9. Pelvic pain

(a) Painful menstruation

(b) Painful intercourse

(c) Severe pelvic pain.

Diagnosis of Endometriosis

Endometriosis is diagnosed by laparotomy, laparoscopy, and ultrasound scan. Laparotomy is abdominal surgery done to look at the deposits of the tissues of the lining of the womb. Laparoscopy is also known as pinhole surgery involves making a small incision below the navel and looking into the abdominal cavity with a tube. A camera called a laparoscope is attached to the tube.

Management of Endometriosis

The treatment of endometriosis is based on its symptoms and severity, the abnormal location of the tissues of the lining of the womb, the desire to have more children, and the age of the woman. The goal of the treatment of endometriosis is to suppress the periodic bleeding from the abnormal deposits of the tissues of the lining of the womb, to ease and relieve the symptoms, to help the woman get pregnant and to delay the reoccurrence of the condition. If the woman wishes to get pregnant or if medicines do not relieve the symptoms, surgery is performed to remove the deposits of the tissues of the womb lining.

Another surgery done for the treatment of endometriosis is removing the womb (hysterectomy). Laparotomy is another treatment for endometriosis, which is also used for its diagnosis. During this procedure, a piece of tissue is removed and examined under the microscope to show if it looks like tissue from the womb. Drugs used in the treatment of endometriosis include pain medicine and hormones.

Adverse Effects of Some Drugs used in the Treatment of Endometriosis

1. Bleeding between periods
2. Weight gain
3. Increased appetite
4. Difficulty with breathing (apnoea)
5. Reduced libido (lack of interest in sex)
6. Virilisation, which means having the features of a man like deep voice
7. Hirsutism, which is the growth of hair in places other than the head like a man such as on the chest and beards
8. Muscle cramps
9. Hot flushes
10. Post-menopausal symptoms
11. Osteoporosis

Complications of Endometriosis

1. Fibroids
2. Adhesions
3. Infertility
4. Painful intercourse

Uterine Fibroid

Uterine fibroid is the most common tumour that occurs in the female reproductive system and occurs in the womb (uterus). It does not spread to other parts of the body. Uterine fibroid is also known as fibromyoma, leiomyoma, or myoma. The exact cause of it is not known. The development of fibroid may be related to the changes in the levels of the hormones oestrogen and progesterone because fibroids are associated with exposure to circulating oestrogen, reduces in size during menopause, and increases in size during pregnancy. It grows slowly in the cavity or from the wall of the womb, and sometimes it grows into the neck of the womb (cervix). As the fibroid grows, the womb may become deformed or displaced from its normal position. When this occurs, the resulting pressure on surrounding tissues may cause symptoms in the bladder or intestine. Some of the predisposing factors to fibroid are not having children (nulliparity) or few numbers of deliveries, the Negroid race, and strong family history. Fibroid can grow as a single tumour or there can be many of them in the womb. They can be small or as big as a grape. Fibroids can grow singly or in clusters. Some birth control pills may speed up the growth of fibroids. Fibroids are usually found in women of childbearing age. Some conditions that present or mimic fibroid are pregnancy, a tumour of the ovary, adenomyosis, endometriosis and tumours of the womb.

Types and Locations of Fibroids

Fibroids can grow in different parts of the womb, inside the wall, outside the cavity of the womb, or towards the outer surface of the womb.

1. **Subserous Fibroid:** Subserous fibroid is a fibroid located in the outer wall of the womb, which does not affect menstruation but can cause pelvic and back pain, as well as put pressure in the abdomen and pelvis.

2. **Intramural Fibroid:** Intramural fibroid is found within the muscle layer of the wall of the womb. This is the most common type of fibroid with symptoms.

3. **Submucous Fibroid:** This is a fibroid that protrudes into the cavity of the womb, which is the least common fibroid though it can cause a lot of problems, even the small ones.

4. **Pedunculated fibroid:** This fibroid grows on a stalk out from the surface of the womb and extends into the neck of the womb (cervix), or the cavity of the womb. It looks like mushrooms.

Symptoms of Fibroids

Not all fibroids cause problems. Some are accidental findings during medical examinations of the woman or for other conditions.

1. Vaginal Bleeding: This is the commonest symptom and can be heavy menstrual flow, prolonged menstrual bleeding, bleeding after reaching menopause, irregular menstruation, or bleeding between periods (intra-menstrual bleeding). This leads to symptoms of low blood level (anaemia) such as dizziness, weakness, getting tired easily, etc.

2. Pain

a. Painful menstruation
b. Twisting of the stalk (pedicle) of a pedunculated fibroid can result in sudden severe pain.
c. Pain in the pelvis, the back, and the waist
d. Pain can result from contraction of the womb in other to force the fibroid out.
e. Painful intercourse if the fibroid is protruding into the vagina

f. Pain can arise if the neck of the womb is forced open by a submucous fibroid protruding into it.
g. Pain can arise if a complication known as degeneration occurs

3. Symptoms because of pressure on other organs in the abdomen and the pelvis
(a) Frequent urination
(b) Difficulty in the bowel movement (constipation)
(c) Difficulty in getting pregnant
(d) Miscarriage

4. Swelling in the abdomen which might be so big that the tummy looks like a pregnancy.

Diagnosis of Fibroid

The diagnosis of fibroid is made through the symptoms, conducting some tests and physical examination of the lady.

- **Ultrasound scan:** Ultrasound scan is the use of high-frequency sound waves to view the image of an organ on a screen; it confirms the diagnosis and excludes pregnancy.

- **Magnetic Resonance Imaging (MRI):** This is accurate in the diagnosis of fibroid as its images give the size, location, and the number of fibroids. This test differentiates fibroid from other disease conditions with symptoms similar to the fibroid. The magnetic resonance imaging machine uses magnets and radio device waves to produce pictures.

- Other tests performed include:

a. Blood tests to determine the blood level in the body
b. Urinalysis to examine the urine
c. Laparoscopy is used for both the diagnosis and treatment of fibroid

Treatment of Fibroid

A fibroid that is not causing any problem or symptoms does not need any treatment especially if the woman is near menopause. Treatment of fibroid depends on some factors such as the size, location, the number of children, desire to have more children, the extent and severity of the symptoms, other medical conditions, if the woman wishes to keep her womb, and the general health of the woman. The early treatment of fibroid includes pain relief and blood transfusion if the blood level is low. Fibroids can be of different sizes, and the severity of the symptoms differs.

The treatment of fibroid involves surgery. The surgical treatment of fibroid involves removing the fibroid alone and leaving the womb or removing the womb. The surgery is performed by opening the abdomen in an operation known as laparotomy or through a pinhole surgery known as laparoscopy.

Myomectomy

This is surgery performed in which only the fibroid is removed, and the womb is kept intact. Any woman to undergo myomectomy is counselled that her womb might be removed (hysterectomy) if the bleeding is uncontrollable, although safety measures to reduce the blood loss during the surgery is undertaken.

Hysterectomy

This is the surgical removal of the womb and some of the reasons for removing the womb during surgery for uterine fibroid are a large fibroid, severe symptoms and when the woman has completed her family size.

Laparoscopy

This involves placing a camera into the abdomen through a small incision near the navel to view the womb. Laparoscopy is not suitable for large fibroids and when the fibroids are many.

Other methods for the treatment of fibroids without performing surgery are:

a. **Uterine Fibroid Embolization**: This a new technology in which the blood vessels supplying the fibroids are blocked, so there is no blood supply to it thus causing the fibroid to stop growing and shrink.
b. Magnetic Resonance Imaging Guided High Intensity Focused Ultrasound (MR/HIFU)

Complications of Fibroid

1. Heavy menstrual bleeding leading to low blood level (anaemia)

2. Infertility, this results from:
   a. Blockage or impairment of the movement of spermatozoa to fertilise the egg of the woman
   b. Prevention of implantation of a fertilised egg in the womb
   c. Changes in the structure of the lining of the womb thus making it difficult for a fertilised egg (embryo) to settle (implant).

3. **Effects on pregnancy**

a. Abdominal pain
b. Difficulty in the determination of the size of a pregnancy
c. Miscarriage
d. Delivery before the expected time (preterm birth)
e. Breech position in which the baby is not coming out with the head.
f. Ectopic pregnancy
g. Premature rupture of membrane

4. **Effects on labour and delivery**
   a. Labour taking place before the expected time (preterm labour)
   b. Obstruction of the passage where the baby passes during delivery

c. Placenta not delivered after delivery of the baby (retained placenta)
d. Bleeding after delivery (postpartum haemorrhage)
e. A large fibroid can block the neck of the womb and prevent the baby from moving into the birth canal for delivery.

5. Some fibroids can undergo a process known as degeneration that causes severe pain.

Ovarian Cyst

Ovarian cysts are sacs on the surface of the ovary filled with fluid; they can also form within the ovary. Sometimes an ovarian cyst can cause problems such as sudden severe abdominal pain, fever, vomiting, abnormal menstrual bleeding, and irregular menstruation. An ovarian cyst can result in pressure on the surrounding organs and tissues such as increased frequency of urination, symptoms related to the digestive system such as abdominal pain, swelling of the legs (oedema), and difficulty with breathing. It is diagnosed from the symptoms and conducting some tests such as abdominopelvic ultrasound scan and laparoscopy. Laparoscopy is also used for the treatment of ovarian cyst. The treatment of ovarian cyst depends on its size, type of ovarian cyst, age of the woman, the symptoms, and desire to have children.

The treatment includes surgery to remove:

- Only the ovarian cyst
- The affected ovary (oophorectomy)
- The affected ovary and fallopian tube (salpingo-oophorectomy)

Complications of Ovarian Cyst

1. Sudden onset of severe lower abdominal pain
2. The fallopian tube may become blocked by the swollen ovary, and it can also become infected.

3. Torsion of the ovarian cysts that is, twisting of the ovary and it is a common complication of ovarian cyst. The blood vessels supplying the affected ovary becomes twisted, which leads to sudden sharp severe pain.
4. The ovarian cyst may rupture that is it breaks open, this may occur alone or together with the twisting of the ovary (torsion)
5. Bleeding
6. The ovarian cyst can become infected

Polycystic Ovarian Disease or Syndrome

Polycystic ovarian disease or syndrome is a condition that affects about five to ten per cent of women of the reproductive age group. The symptoms of the polycystic ovarian disease include hirsutism, scanty periods (oligomenorrhoea) or no periods at all (amenorrhoea), obesity, abnormal bleeding from the womb (dysfunctional uterine bleeding), acne (pimple), loss of hair from the head, repeated miscarriage and loss of weight. In polycystic ovarian disease, during the menstrual cycle, the eggs mature within the follicles or sacs in the ovary but the sac does not break open to release the egg. The whole process repeats during each menstrual cycle, the follicles continue to grow inside the ovary, and the cysts grow.

Chapter 8

Sexually Transmitted Infections

Sexually Transmitted Infections (STIs) also called venereal diseases are infections transmitted from one person to another through sexual intercourse. Infections spread through sexual contact are seen in people who are sexually active and adolescents make up one of the most vulnerable groups because they want to try out what they hear from their peers (peer pressure). The organisms that cause sexually transmitted infections are transmitted through semen, vaginal fluids, and other body fluids. Sexually transmitted infections include human immunodeficiency virus (HIV), syphilis, gonorrhoea, chlamydia, and genital herpes. Sexually transmitted infections are a major public health problem and are common too. Negative beliefs and stigma about sexually transmitted infections exist and this is a barrier that affects their diagnosis and treatment.

Causes of Sexually Transmitted Infections

Bacteria, viruses, fungi, and parasites cause sexually transmitted infections.

Bacteria

Bacteria are organisms that have only one cell and can cause many diseases. Bacteria that cause sexually transmitted infections are gonorrhoea (*Neisseria gonococcus*), syphilis (*Treponema pallidum*), and chlamydia (C*hlamydia trachomatis*). These bacteria cause illnesses with health, social, and economic effects. They can also lead to death.

Viruses

Viruses are complex molecules that can multiply when they invade the cells of their host. Viruses that cause sexually transmitted infections are Human Immunodeficiency Virus (HIV), herpes simplex, hepatitis-B virus, hepatitis-C virus, and Human Papilloma Virus (HPV).

Ectoparasites

Ectoparasites are small animals that get nourishment from the person they infest, called the host. Some of these parasites live in the wet and warm areas of the body like the genitals. They are common and easily spread through sexual contact though some can spread through contact with infected clothes, towels, and undergarments. Ectoparasites that cause sexually transmitted infections are pubic lice (*Phthisis pubis*), and scabies (*Sarcoptes scabiei*).

Risk Factors for Sexually Transmitted Infections

1. Being sexually active with more than one person at the same time.
2. Engaging in unprotected sex.
3. Having high-risk partners that are partners with other multiple partners.
4. Using alcohol and other illegal drugs.
5. Starting sexual activity at an early age.
6. Currently having sexually transmitted infections.
7. Having a history of sexually transmitted infections.

Sexually Transmitted Infections and Women

Women are more vulnerable to having sexually transmitted infections

1. The structure of a woman's reproductive system puts her at risk of infection. The lining of the vagina is thin and delicate than that of the male.
2. The vagina is a suitable environment for the growth of bacteria as it is always moist.
3. Complications of sexually transmitted infections in women affect their reproductive health.

4. Pregnant women can pass the infection to their babies.
5. The vagina has a large surface that comes in contact with the genital tract of the male.

Symptoms of Sexually Transmitted Infections in Women

Many women with sexually transmitted infections do not have symptoms. This does not mean that they do not have the disease. The symptoms of sexually transmitted infections in women are:

1. Vaginal itching.
2. Vaginal discharge.
3. Pain during sexual intercourse medically known as dyspareunia.
4. Pain during urination medically known as dysuria.
5. Sore throat in people engaging in oral sex.
6. Pain in and around the anus for those engaging in anal sex.
7. Sores in the genital area, the anus, and the tongue might be painful. People with sores are at a higher risk of contracting HIV than those without sores.
8. Rashes on the palms of the hand and soles of the feet.
9. Yellow eyes (jaundice).
10. Dark coloured urine.
11. Loose and light coloured stool.
12. Fever.
13. Body pains
14. Feeling unwell (malaise).
15. Unexplained weakness and fatigue.
16. Soft fleshly swelling (warts) around the genital area.
17. Abdominal or pelvic pain.
18. Abnormal vaginal bleeding.

Prevention of Sexually Transmitted Infections

1. Reduce exposure to the infection.

- Delay sexual activity for adolescents.
- Reduce the number of sexual partners. It is better to be in a monogamous relationship with someone free from sexually transmitted infections.
- Wash hands after contact with the genitals.
- Use latex condoms; condoms are not one hundred per cent effective against preventing transmission since they do not cover the entire genital area but reduces the risk significantly. Condoms are the most effective contraceptive that reduces the risk of sexually transmitted infections and must be used correctly always. They are less effective in preventing infections transmitted by skin to skin contacts, such as pubic lice and scabies.
- Use barrier during oral sex.
- Avoid high-risk sexual behaviours.
- Treat infection if present and the partner should be treated also.

2. Break the chain of infection.

- Detect and treat sexually transmitted infections early and effectively.
- Treat both partners.

Challenges to Preventing Sexually Transmitted Infections

1. Difficulty in changing human behaviour.
2. Reinfection with many sexually transmitted infections.
3. Some sexually transmitted infections do not have specific symptoms.

Sexually Transmitted Infections Prevention Control Strategies

1. Education and counselling.
2. Identifying and screening of people who do not have symptoms.
3. Identifying persons with symptoms.

4. Effective diagnosis and treatment of infected people.
5. Management of partners.

Methods of Testing and Screening of Sexually Transmitted Infections

1. Urine test.
2. Blood test.
3. Taking samples (swab) from the vagina, the anus, and the throat.

Treatment of Sexually Transmitted Infections

Some sexually transmitted infections are curable while some are not. If left untreated, some sexually transmitted infections can lead to complications and even death. There can be more than one sexually transmitted infection at a time, and reinfection can occur after treatment. Curable sexually transmitted infections are treated with antibiotics; it is also necessary to treat all sexual partners if possible.

Sexually Transmitted Infections Prevention Strategies

1. Surveillance.
2. Screening and follow up.
3. Health education.
4. Community mobilisation.
5. Advocacy.
6. Strategic planning.
7. Guidelines.

Role of the Community and Health Personnel in Preventing Sexually Transmitted Infections

1. To check the health status of the women.
2. Diagnose and investigate health problems.
3. Inform and empower people about health issues.
4. Mobilize community partnerships and actions.
5. Develop policies and plans that support efforts.

Complications of Sexually Transmitted Infections

1. Effect of sexually transmitted infections on reproductive health.

a. Infertility, which is difficulty in achieving a pregnancy.
b. Sexually transmitted infections can cause scarring of the fallopian tube by blocking it. The fertilised egg (embryo) can implant in the fallopian tube, causing ectopic pregnancy or miscarriage.
c. Cancer of the cervix.
d. Pelvic inflammatory disease.
e. Increased risk of Human Immunodeficiency Virus (HIV).
f. Vagina stenosis, in which the surfaces or walls of the vagina stick together.
g. Chronic pelvic pain, which is continuous pain in the pelvis for more than three months.
h. Infection of the urine passage (Urinary Tract Infection).

2. Effects on pregnancy.

a. Preterm delivery is a baby being born before the expected time or too early.
b. Premature rupture of the membrane that is the bag of water containing the unborn baby in the womb breaks before the expected time.
c. Puerperal sepsis, that is, infection of a new mother after delivery.
d. Miscarriage.

3. Sexually transmitted infections have an effect on babies as a pregnant woman infected with sexually transmitted infections can pass it on to her unborn baby.

a. Stillbirth where the baby is born dead.
b. The weight of a newborn baby is less than expected (low birth weight).
c. Pneumonia.
d. Neonatal sepsis, that is, infection of a newborn baby.
e. Infection of the liver of the baby.
f. Congenital abnormalities.

g. Brain damage.

h. Blindness.

i. Deafness.

j. Permanent neurological damage to the newborn.

Sexually Transmitted Infections Caused by Bacteria

Gonorrhoea

Gonorrhoea is caused by a bacterium called N*eisseria Gonorrhoeae*, which infects only human beings. Most strains of the bacteria cannot survive outside the body of a human being. Gonorrhoea is transmitted by vaginal, oral, or anal intercourse. Some types (strains) of this bacterium are resistant to antibiotics when treated. Fifteen to thirty per cent of women with gonorrhoea who are not treated develop the pelvic inflammatory disease. The bacteria can grow and multiply quickly in moist areas of the reproductive tract including the neck of the womb (cervix) and the fallopian tube. The bacteria can also grow in the eyes, mouth, throat, and anus.

Symptoms of Gonorrhoea

Some women can have symptoms that can sometimes be mistaken for an infection of the vagina or urinary tract.

They are:

1. Vaginal discharge which may be yellowish or greenish with an offensive smell.
2. Burning sensation or pain while urinating.
3. Bleeding between periods.
4. Non-specific symptoms such as vomiting, fever, and feeling unwell (malaise).
5. Painful intercourse
6. Lower abdominal pain occurs when the infection spreads to the fallopian tubes.
7. Sore throat when the throat is infected.

8. Infection of the anus manifests as:

a. Anal itching.

b. Sore in the anus.

c. Offensive discharge from the anus.

d. Pain in the anus.

e. Pain while passing stool (defecation).

f. Bleeding from the anus.

g. Blood or pus in the stool.

Treatment of Gonorrhoea

There must be abstinence from sex during the period of treatment. Treatment of gonorrhoea is recommended for people with the infection, their partners and newborn babies of infected mothers. The goals of the treatment of gonorrhoea are to cure the infection and treat infected partners to prevent further spread of the infection. Gonorrhoea is treated with antibiotics.

Complications of Gonorrhoea

1. Pelvic inflammatory disease.
2. Ectopic pregnancy.
3. Miscarriage.
4. Preterm delivery.
5. Infection of the eye of the baby during childbirth. This is medically called ophthalmia neonatorum. This leads to eye discharge and even blindness in the baby.

Chlamydia Trachomatis Infection

Chlamydia trachomatis is a bacterium that causes Chlamydial infection, a form of eye infection that is one of the world's leading causes of blindness that can be prevented. Chlamydia is transmitted through unprotected intercourse with an infected person, from mother to child and transmitting the infection through the fingers from the genitals to the eyes. Chlamydia trachomatis is the commonest cause of pelvic inflammatory disease.

Symptoms of Chlamydia Trachomatis Infection

1. Vaginal discharge.
2. Pain while urinating.
3. Lower abdominal pain.
4. Increased frequency of passing urine (frequent urination).
5. Painful sexual intercourse.
6. Bleeding after sexual intercourse.
7. Irregular menstrual bleeding.
8. Painful swelling and irritation in the eyes.

Diagnosis of Chlamydial Infection

1. Urine test.
2. Laboratory examination of secretions from the eyes, the vagina, and the cervix.

Complications of Chlamydia Infection

1. Pelvic inflammatory disease.
2. Infection of the cervix, the fallopian tubes, the ovaries, and the womb.
3. Ectopic Pregnancy
4. Premature birth
5. Infertility
6. Transmission from mother to child can result in infection of the eyes or lungs.

Syphilis

Syphilis is caused by a bacterium called *treponema pallidum* which is transmitted from person to person through direct contact with syphilis sore that occurs mainly on the external genitals such as the vagina, and the anus. Syphilis sores can also occur on the lips and in the mouth. Syphilis manifests in three stages, the primary, secondary, and tertiary stages.

Stage 1: Primary Syphilis

Primary or early syphilis occurs ten to ninety days (average of twenty-one days) after the infection. The primary stage is marked by the appearance of a type of sore known as chancre; multiple sores can occur. These chancres are small raised red to brown sores that are not painful with a hard raised edge and sunken centre that appears on the vulva, cervix, anus, mouth, and lips. The chancre lasts three to six weeks and heals with or without any treatment. A woman may not know that she is infected if the sore occurs in the neck of the womb (cervix). If the sore is not adequately treated the primary stage progresses to secondary syphilis.

Stage Two: Secondary Syphilis

Secondary syphilis occurs two to ten weeks after the sores (chancre) of primary syphilis disappears. In secondary syphilis, skin rashes appear as red patches on the skin. The lymph nodes enlarge; there are other non-specific symptoms such as headaches, fever, anorexia, fatigue, and feeling unwell (malaise). The rashes can also appear on the palms of the hands and the soles of the feet. The rashes are infectious and can be confused with other skin rashes. Non-specific symptoms of the secondary phase of syphilis such as headaches, fever, anorexia, and fatigue can resolve without any treatment within three months.

Stage Three: Tertiary Syphilis

This is the tertiary or late syphilis and is the stage of remission. The person feels no symptoms but can spread the disease. If not treated, syphilis affects the central nervous system and even death can occur. It is worth noting that not all women infected with syphilis develop tertiary syphilis. Life-threatening conditions can result if the bacterium finds its way into some organs of the body some of which are:

- Blindness
- Paralysis
- Liver damage
- Mental disturbance

- Bones are destroyed
- It can affect the body systems that pump blood around the body such as the heart, leading to heart failure, damage to the heart, and the blood vessels.
- Syphilis can affect the various systems in the body resulting in neurosyphilis where the brain, eye, spinal cord, and the system concerned with hearing is affected, resulting in deafness, paralysis, blindness, and insanity.

Latent Syphilis

Latent syphilis can take place after the primary stage. During this stage, there are no symptoms for months or years. The bacterium damages various organs in the body, such as the brain, the heart, and the reproductive organs, which can go unnoticed.

Diagnosis of Syphilis

Syphilis is diagnosed by conducting a blood test known as VDRL, which is named after the Venereal Disease Research Laboratory of the United States of America public health service.

Congenital Syphilis

The infected pregnant woman with syphilis can spread the infection to her unborn baby. If the expectant mother is not treated, it can cause congenital abnormality in the unborn baby and even death. This is called congenital syphilis and manifests as:

1. Hutchinson's teeth crotched incisor teeth.
2. Keratitis.
3. Deafness.
4. Deformities.

To prevent the defect and death of the baby, all pregnant women are tested for syphilis during antenatal visits before delivery.

Effects of Syphilis on Pregnancy

1. Death of the baby in the womb (intrauterine foetal death).
2. The baby is delivered before the expected time (preterm delivery).
3. The weight of the baby is less than expected (low birth weight).

Trichomoniasis

This affects the vagina, the urinary passage (urethra), and the bladder. The vagina is the most common site of this type of infection.

Symptoms of Trichomoniasis

1. Vaginal itching.
2. Bad odour from the vagina and the vulva.
3. Vagina discharge can be foamy, greenish, or yellow because of the gas made by the microorganism.
4. The vagina can be red and swollen because of trauma caused by scratching.

Treatment of Trichomoniasis

Antibiotic therapy is effective, and all sexual partners must be treated.

Scabies

Scabies spreads through contact with the skin of an infected person by a mite called *Sarcoptes scabiei*. The mites are not visible with the naked eyes and can live up to forty-eight hours outside the human body. The mite can also be contacted by contact with infected clothing or beddings; it can affect schoolchildren, residents of nursing homes, and overcrowded places. The female mite burrows beneath the skin to lay eggs that hatch and grow into adult mites. Sites infected are the web and sides of the fingers, wrists, genitals, abdomen, buttocks, and breasts.

Symptoms of Scabies

1. Itching can be intense and severe.

2. Rashes

Diagnosis of Scabies

Scabies is diagnosed by scraping the rash and examining it under the microscope.

Treatment of Scabies

1. There are creams and lotions available for the treatment of scabies; they are applied and washed off after a specified time interval as indicated by the manufacturer.
2. Clothes and beddings must be washed in hot water and ironed.

Pubic Lice

Pubic lice are informally called crabs with the scientific name *Phthisis pubic*. It is a tiny insect that does not have wings but crawls from the pubic hair of one person to the pubic hair of another person during sex. It can spread even when barrier contraceptive devices such as condoms are used but cannot survive for more than twenty-four hours outside the human body. They lay their eggs on the base of the pubic hair that hatch within a week. The lice attach to the pubic hair by their claws and drink blood from the blood vessels. The eggs can drop off into clothes, undergarments, and beddings.

Symptoms of Pubic Lice

1. Itching can be mild or severe caused by an allergic reaction to the saliva of the lice. The itching is not relieved by scratching.
2. The lice can leave marks in the pubic area and thigh from bites.

Diagnosis of Pubic Lice

The diagnosis of pubic lice is by visualizing the lice or their eggs.

Treatment of Pubic Lice

1. Pubic lice and their eggs are destroyed with the use of special shampoos or creams.
2. Wash clothes and beddings in hot water and iron them.

Viruses

Viruses are small microorganisms that cause illnesses; they reproduce and divide fast when they enter the body of a human being. Some lie dormant that is they do not cause any disease. Viruses that cause sexually transmitted infections are herpes simplex virus, Human Papilloma Virus, hepatitis-B virus, hepatitis-C virus, and Human Immunodeficiency Virus (HIV).

Viruses that Cause Sexually Transmitted Infections

Herpes Simplex

Herpes simplex virus I and II cause herpes, it has no cure, but any symptom is treated; for instance, if there is pain, pain medicine is administered. Sometimes, herpes can cause no symptoms. Recurrence of the disease can occur due to a latent virus. There are two herpes viruses, namely, herpes simplex virus I and herpes simplex virus II. Herpes simplex virus I affect the mouth while herpes simplex virus II affects the genital area. The symptoms of the disease start two to twenty days after contracting the virus.

Herpes Simplex Virus I

Herpes simplex virus I cause oral herpes that is the herpes of the mouth. It forms sores or blisters on the lips, in the mouth, tongue, and throat, there can also be a fever. The virus can be passed on to the genitals by contact of the hands or mouth to the genital area.

Herpes simplex Virus II

Herpes simplex virus II causes genital herpes which manifests as sores and blisters on the genitals. The virus can be passed on to the mouth by mouth to genital contact during oral sex.

Symptoms of Genital Herpes

1. Genital itching and burning.
2. Pain after sexual intercourse.
3. Abdominal pain.

4. Sores or blisters form in the genitals which contain large numbers of the herpes simplex virus. Some of these blisters heal without any form of treatment. The blisters can rupture resulting in painful sores, the blisters may contain pus. A pregnant woman can pass the virus to her baby whether the infected mother has any symptoms or not.
5. Swollen genitals.
6. Fever.
7. Vaginal discharge.
8. Headaches.
9. Weakness and fatigue.

Diagnosis of Herpes

Diagnosis of herpes is made by the presence of blisters.

Outbreaks of herpes simplex virus infection can occur. Herpes can affect the eyes if the virus is transferred from a sore to the eye. This should be treated quickly to avoid damage to the eye as it can cause blindness.

Human Papillomavirus (HPV)

The Human Papilloma Virus is the cause of genital warts and cancer of the cervix. Removal of warts does not remove the infection and women without symptoms can infect others, including her unborn baby if she is pregnant. Having many sexual partners is a risk factor for human papillomavirus infection. Warts usually appear three months after the infection.

Symptoms of Human Papillomavirus

Genital warts can appear anywhere along the genital tract but often at the opening of the vagina or around the anus. Warts can become inflamed and bleed. Some women infected with human papillomavirus have no symptoms, those with symptoms manifest with foul-smelling vaginal discharge, vaginal itching, pain in the vagina, and lower abdomen.

Treatment of Genital Warts

Warts are removed by cryotherapy, or treated with chemicals. Large warts may need surgical removal. Some warts might disappear without any treatment. Warts can reoccur after they have been removed.

Prevention of Human Papillomavirus

A vaccine is available, which is administered to girls before they become sexually active.

Diagnosis of Human Papillomavirus

Human Papillomavirus is diagnosed by:

1. Presence of warts.
2. Biopsies.
3. Pap smear.

Barrier contraceptive methods such as condoms do not prevent the transmission of the viral infections of the vulva and other areas of the genitals not covered by condoms.

Hepatitis-B and C Virus

Hepatitis B and C are viruses transmitted by sexual intercourse, contact with contaminated body fluids, transfusion with infected blood and affects the liver.

Symptoms of Hepatitis-B and C

1. Feeling unwell.
2. There may be no symptoms.
3. Fever.
4. Nausea and vomiting.
5. The yellowness of the eyes and skin because of the breakdown of the red blood cells (jaundice).
6. Weakness.
7. Dark urine.

8. The liver increases in size
9. Tiredness.
10. Severe infections with hepatitis B and C virus can lead to damage to the liver.

Diagnosis of Hepatitis-B and C

Hepatitis B and C are diagnosed by conducting a blood test to identify the virus. Hepatitis B and C are treated with bed rest and increased fluid intake.

Complications of Hepatitis-B and C

Hepatitis B and C destroy the liver leading to liver conditions such as liver cirrhosis, liver failure and cancer of the liver.

Prevention of Hepatitis-B and C

Vaccines are available for preventing hepatitis B and C.

HIV/AIDS

Human Immunodeficiency Virus (HIV) is a virus that attacks and destroys the immune system of the body and the white blood cells that fight against infection thereby making the body weak to a group of infections known as opportunistic infections. HIV is transmitted through sexual intercourse, transfusion with HIV infected blood and from an infected pregnant or nursing mother to her baby. HIV causes Acquired Immunodeficiency Syndrome (AIDS). Drugs known as highly active antiretroviral therapy (HAART) are available to enable the individual to live a normal life and reduce the amount of the virus (viral load) in the body. There are two types of HIV, namely, HIV-1 and 2. Some of the factors that contribute to and encourage the spread of HIV in some parts of the world are poverty, ignorance about the prevention of HIV and other sexually transmitted infections, cultural practices, gender roles, and lack of access to medical care and drugs used for management of HIV. Medications are available that help to suppress the multiplication of the virus and its effect on the body. When a person is infected with HIV, it takes about three months for the immune system to produce antibodies against the HIV that is

measured in the blood. This period is known as the window period, tests done for HIV will be negative but the person can transmit the virus to another person. Early detection of HIV is crucial as it allows for early diagnosis and treatment.

Acquired Immunodeficiency Syndrome (AIDS)

AIDS is caused by HIV infection; it is a collection of different symptoms. It is the disease stage of the HIV infection in which the body is weakened by the virus or cancers associated with AIDS occurs. A person can have HIV infection but not AIDS.

How AIDS Affects the Body

HIV attacks the white blood cells in the body especially a particular type called CD_4 cells. Typically these white blood cells protect the body from illnesses and help the body fight against infections. HIV multiplies inside the CD_4 cells destroying them. As HIV attacks the CD_4 cells the number of the virus (viral load) increases thereby weakening the immune defences. The body becomes invaded by infections known as opportunistic infections and certain cancers. These opportunistic infections will not cause problems for healthy people. HIV damages the body organs and systems and eventually destroying the immune system. The viral load is an indicator of the amount of the virus in the body. The body releases what is known as antibodies and white blood cells to fight HIV. The Immune system tries to control HIV by making more CD_4 cells. There are four stages of HIV infection; the first few weeks after HIV infection, the woman may be feeling generally unwell. This is followed by the window period when there are no symptoms. Then early HIV disease and advanced HIV disease. The immune system comprises several mechanisms to protect the body from disease, and this includes lymph nodes that produce CD_4 cells.

Symptoms of AIDS

There are many symptoms of AIDS, some of which are known as major symptoms and others, minor symptoms.

1. Fever.
2. Headache.

3. Muscle pain.
4. Swollen lymph nodes.
5. Rashes.
6. Fatigue.
7. Sore throat.
8. Weight loss.
9. Diarrhoea.
10. Night sweats.
11. Oral thrush.
12. Infection of the gum (gingivitis).
13. Wound in the mouth.
14. Dizziness.
15. Persistent cough for more than a month.
16. Generalised body itching.
17. Frequent yeast infection (candidiasis) of the vagina.
18. Infection of the heart leading to heart disease.
19. Infection of the brain leading to forgetfulness, and
20. Confusion.

Diagnosis of HIV and AIDS

Diagnosis of HIV and AIDS is confirmed by conducting blood tests to detect the virus and antibodies made by the body against it. A positive result means the virus is present while a negative test means the virus is absent.

Management of HIV/AIDS

HIV and AIDS cannot be cured but they can be managed so the individual can live a normal life. Managing HIV and AIDS involves making a diagnosis of the disease, counselling, and maintaining the health of the individual. Measurement of the amount of HIV in the blood can be used to check the progress of the disease since the goal of treatment is to lower the

amount of the virus and increase the number of CD_4 cells. There are special drugs used in the treatment of HIV and AIDS known as highly active antiretroviral therapy (HAART).

The side effects of highly active antiretroviral therapy include:

1. Fatigue
2. Fever
3. Rashes
4. Headaches
5. Vomiting
6. Diarrhoea
7. Liver problems

HIV and Pregnancy

A pregnant woman infected with HIV can transmit the virus to her baby.

Effects of HIV and AIDS

HIV affects the individual and society as the person becomes sick. There is reduced productivity at the workplace leading to economic problems. The individual goes through psychological stress and stigmatisation.

Chapter 9

Ectopic Pregnancy

Pregnancy occurs when the egg of the woman combines with the spermatozoa of the man in a process known as fertilization. The fertilized egg now known as an embryo settles in the womb where it has enough space to develop into a baby. Ectopic pregnancy is the growth of the embryo outside the womb usually inside one of the fallopian tubes that do not have enough space for it to develop into a baby. If the greater part of the placenta retains its attachment to the abdomen which is possible, it is called abdominal pregnancy.

The word ectopic means "out of place" is from the Greek word "*eck*" meaning 'out of' and "t*opos"* meaning place. Ectopic pregnancy is the second commonest reason a woman will die of any complication related to pregnancy. Apart from the fallopian tube, other sites where ectopic pregnancy can occur are the abdomen, ovary and cervix. When it occurs in the cervix, it is called cervical pregnancy; when an ectopic pregnancy occurs in the fallopian tube, it is called tubal pregnancy and when it occurs in the ovary, it is called ovarian pregnancy. Ectopic pregnancy is a life-threatening condition that can lead to fatal consequences and even death if it is not well managed and treated early. Sometimes, it can even occur at the site of a caesarean section.

Ectopic pregnancy is a global problem and a major health problem for women of childbearing age. The increase in the number of women developing ectopic pregnancy is associated with an increase in the rate of pelvic inflammatory infections, assisted reproduction technology, tubal surgeries, sterilisations, and use of intrauterine

contraceptive devices (known as coils by the layperson) used for family planning. When ectopic pregnancy develops into a baby as in abdominal pregnancy, delivery must be through surgery.

The Process by which Ectopic Pregnancy Occurs

When an ectopic pregnancy occurs, the fertilised egg settles and attaches (implants) itself on the wall of the fallopian tube which swells and finally ruptures. Any functional or mechanical factor that prevents or interferes with the passage of the fertilised egg to the womb can cause ectopic pregnancy (factors preventing or delaying the migration of the fertilised egg). These factors may be congenital, that is the woman is born with it or developed after birth.

Risk Factors of Ectopic Pregnancy

A risk factor is anything that increases a person's chance of getting or developing a disease. Not all women who develop ectopic pregnancy have risk factors for ectopic pregnancy.

1. **Previous Ectopic Pregnancy**: A woman who has had an ectopic pregnancy has a higher chance of developing another ectopic pregnancy.

2. **Assisted Reproduction**: Ectopic pregnancy is one of the complications of in-vitro fertilisation and embryo transfer for the treatment of infertility.

3. **Pelvic Inflammatory Disease**: Pelvic inflammatory infections and other infections of the female reproductive tract can cause scarring of the fallopian tube. Pelvic inflammatory disease can be caused by unsafe abortions. The infections cause distortion and scarring of the female genital tract including the fallopian tube. Termination of pregnancy and sexually transmitted infections increase the risk of ectopic pregnancy.

4. **Use of Intrauterine Contraceptive Device (IUCD)**: Intrauterine Contraceptive Device (IUCD) increases the risk of developing an ectopic pregnancy.

5. **Previous Surgery of the Fallopian Tube**: The scarring that follows the surgery of the fallopian tube causes abnormalities in the structure of the fallopian tube.

6. Congenital defects of the fallopian tube.

7. **Endometriosis**: Endometriosis is the implanting of the tissue of the womb outside the womb.

8. Abnormalities in the function and structure of the fallopian tube.

Symptoms of Ectopic Pregnancy

The symptoms of ectopic pregnancy depend on the age of the pregnancy (gestational age), the structure where the pregnancy settles in (that is the site of implantation) if the ectopic pregnancy has ruptured or not and if bleeding has taken place. An ectopic pregnancy most times remains without symptoms until it ruptures.

1. **Missed Period (Amenorrhoea):** Other symptoms of ectopic pregnancy may take place before the woman misses her period, especially if the ectopic pregnancy occurs in the part of the fallopian tube known as the isthmus.

2. **Abdominal Pain**: The abdominal pain may be sharp or a sudden tearing pain as the ectopic pregnancy ruptures. This tearing pain starts at the flanks (sides) and then towards the umbilicus (navel). If the ectopic pregnancy has not yet ruptured, the abdominal pain is dull and continuous.

3. **Shoulder Tip Pain (Pain at the Tip of the Shoulder)**: Pain at the tip of the shoulder occurs because of the rupture of the ectopic pregnancy and bleeding into the abdomen that irritates a structure known as the diaphragm which separates the

abdomen from the chest. Irritation of the diaphragm irritates a nerve known as the phrenic nerve that is connected to the tip of the shoulder.

4. **Evidence of Blood Loss**: In a ruptured ectopic pregnancy there is evidence of blood loss which manifests as weakness, dizziness, fainting and sudden collapse. This is because of the reduced volume of blood in the body and low blood pressure. Massive bleeding and death can occur in ruptured ectopic pregnancy.

5. Bleeding from the vagina

6. Fever

7. **Irritation of the digestive system:** This is due to the blood in the abdomen from a ruptured ectopic pregnancy. There may be symptoms from irritation of the digestive system which is concerned with the breakdown and absorption of food that is eaten. This manifests as diarrhoea, nausea and vomiting.

8. Urge to urinate often

9. Early pregnancy symptoms

Symptoms of slowly leaking ectopic pregnancy

1. Lower abdominal pain
2. Missed period (amenorrhoea)
3. Irregular and scanty vagina bleeding.
4. There might be spells of dizziness

Slowly leaking ectopic pregnancy is when the ectopic pregnancy has not ruptured and bleeding occurs gradually.

1. Lower abdominal pain
2. Missed period (amenorrhoea)

3. There might be no symptoms

When a woman with ectopic pregnancy presents in a health facility, she is examined for a diagnosis of ectopic pregnancy to be made.

1. She looks pale
2. The blood pressure is low (hypotension)
3. The heart beats fast to compensate for the massive blood loss (medically called tachycardia)
4. There is severe abdominal pain when the doctor tries to touch the abdomen to examine it.

Laboratory Tests for Ectopic Pregnancy

1. Blood Tests
   a. Haemoglobin level estimation to find out the blood level. Haemoglobin is the substance in the red blood cells whose work is to carry oxygen around the many organs of the body.
   b. Pregnancy test

2. Pelvic Ultrasound Scan
3. Laparoscopy: Laparoscopy can be used for both diagnosis and treatment of ectopic pregnancy.
4. Culdocentesis

Management of Ectopic Pregnancy

Improved technology allows the diagnosis of ectopic pregnancy to be made before the rupture of the fallopian tube occurs. This has made it possible for the treatment that will conserve the function and structure of the fallopian tube. In developed countries, treatment options have transformed from open surgeries (laparotomy) to surgeries to conserve the function and structure of the fallopian tube. The management of ectopic pregnancy has improved with an ultrasound scan, laparoscopy and measuring the level of

a hormone in the blood known as the beta subunit of human chorionic gonadotropin. In developed countries, close to ninety-five per cent of ectopic pregnancies are diagnosed before the rupture occurs; whereas in developing countries diagnosis occurs after rupture of the fallopian tube. If an ectopic pregnancy is not treated, the woman can die. The principles guiding the treatment of ectopic pregnancy is to preserve the life of the woman, end the pregnancy and give support to the woman by caring for her to restore her to her normal state, replace lost blood and provide psychological support. Managing ectopic pregnancy depends on the stage of the disease and state of health of the woman at the time diagnosis was made. The goal of treatment of ectopic pregnancy is to save and protect the affected fallopian tube.

The forms of treatment of ectopic pregnancy are:

1. Use of a drug known as methotrexate (medical treatment)
2. Surgery: The surgery performed for ectopic pregnancy may be salpingectomy or salpingectomy. Salpingectomy is the removal of the affected fallopian tube while the salpingotomy is opening the fallopian tube, removing the ectopic pregnancy, and then repairing it. In salpingotomy, the fallopian tube is saved and it can be performed by laparoscopy and laparotomy.

Use of Methotrexate for the Treatment of Ectopic Pregnancy

Medical treatment of ectopic pregnancy with the drug methotrexate needs careful follow-up to ascertain failure of treatment and the risk of rupture. Early treatment with this drug is cheaper since it avoids rupture of the fallopian tube, blood loss, surgery, and preserves the fertility of the woman. The drug methotrexate should not be bought over the counter but should always be prescribed by a medical doctor and dispensed by medical personnel. Methotrexate acts by destroying the pregnancy cells which is then absorbed by the body. Methotrexate is a drug used in the treatment of certain cancers.

Criteria for medical treatment of ectopic pregnancy:

1. There must be no symptoms of ruptured ectopic pregnancy and blood loss.
2. Absence of any liver disease and failure
3. Absence of kidney disease
4. The woman is ready for follow-up administration of the drug
5. The human chorionic gonadotropin in the blood will be less than five thousand mu/ml.

After taking methotrexate, the woman should not:

a. Take any drug containing folic acid as this can stop the action of methotrexate from working well.
b. Have sexual intercourse for about two weeks after taking the methotrexate.
c. Become pregnant until there is one regular menstrual period after the administration of methotrexate.
d. Drink alcohol or take a pain medicine known as non-steroidal anti-inflammatory drugs.

A type of blood test known as a serial measurement of the hormone human chorionic gonadotropin will be done during the follow-up visits after the administration of methotrexate.

Treatment of ectopic pregnancy by surgery includes two sets of doctors, the gynaecologist who is the surgeon and the anaesthetist whose duty is to make sure the woman is comfortable and has no pain during the surgery. The surgical method used is laparotomy or laparoscopy; this depends on the structure, in which the ectopic pregnancy is implanted, the reproductive wish of the woman, and available facilities and technology.

Laparoscopy for the Treatment of Ectopic Pregnancy

Laparoscopy allows for examination and treatment of ectopic pregnancy, it requires special equipment and skill. Laparoscopy is not performed for ruptured ectopic pregnancy or in

the presence of symptoms of blood loss. A small incision is made at the umbilical area (the belly button/navel) of about an inch where a tube linked to a camera and a screen is attached. The contents of the pelvis and the abdomen are viewed. If an ectopic pregnancy is present, another incision is made where an instrument is passed to remove and/or repair the affected fallopian tube. Laparoscopy causes less pain and the woman can go home the same day after treatment and resume her normal routine activities within a week.

Laparotomy for the Treatment of Ectopic Pregnancy

Laparotomy requires a larger incision on the abdomen compared to laparoscopy. Laparotomy allows for better visualization of the tissues and organs.

Management of Ruptured Ectopic Pregnancy

The woman is admitted to the hospital and resuscitated to prevent deterioration of her condition and death. This involves setting up a drip to expand the volume of the blood. She is laid flat on the bed. Blood samples are collected for laboratory tests and she is examined.

She is then transferred to the operating room where the surgery is performed. A drug known as anti-D rhogam is administered to women that are rhesus negative with ectopic pregnancy. A tube (pipe) is passed into the urinary opening (urethral opening) to monitor the amount of urine produced as this accesses the function of the kidney. In the operating room, oxygen is administered to the woman. Various types of equipment are connected to the woman's body to measure and monitor the heart rate, blood pressure, temperature and the electrical activity of the heart (electrocardiogram). The anaesthetist decides on the mode of anaesthesia to be administered. Pain medicine is administered during and after the surgery.

If the ectopic pregnancy occurs on the ovary, the ovary is removed (oophorectomy). If the ectopic pregnancy occurs in the abdomen, sometimes it may develop into a baby and the placenta implants on the intestines. Delivery of abdominal pregnancy is by surgery as the abdominal is not the pathway for the delivery of a baby. With the aid of an ultrasound scan

and examination of the woman, the time of maturity of the baby is assessed and the operation performed. The baby is delivered through the operation and the placenta is left in place as it will disintegrate with time.

Discharge from Hospital

During discharge from the hospital, the woman is advised on future pregnancies if she wishes to have more babies and the family planning methods available. Pain medicine (analgesics) and blood medicine (haematinics) are prescribed to replace the lost blood. A follow-up visit is scheduled and the woman is counselled to keep to the visits.

Prevention of Ectopic Pregnancy

Ectopic pregnancy can be prevented by early detection and treatment of sexually transmitted infections and other infections of the female reproductive tract. There is a need to teach and educate the populace on the importance of visiting the hospital early whenever pregnancy is noticed as it may be an ectopic pregnancy.

Future Fertility

The future fertility of the woman who has had an ectopic pregnancy is highest if she was treated with the drug methotrexate. It is lower when the fallopian tube is just opened and the ectopic pregnancy removed, the fallopian tube repaired and closed back. The fertility is lowest when the affected fallopian tube is removed.

Conditions that can mimic and look like ectopic pregnancy (differential diagnosis)

There are other disease conditions a woman may have that mimic ectopic pregnancy.

These are:

1. Pelvic inflammatory disease
2. Rupture of an ovarian cyst
3. Miscarriage (spontaneous abortion)
4. Torsion of an ovarian cyst

5. Appendicitis
6. Infection of the kidney (pyelonephritis)
7. Infection of the pancreas (pancreatitis), which is an organ in the body that lies below the liver.

Chapter 10

Common Cancers that Affect Women: Breast and Cervical Cancer

Cancer occurs when abnormal cells divide without control and sometimes can invade nearby tissues and organs. Cells are the individual units that make up the tissues of the body. Most types of cancer cells eventually form a lump or mass called tumour and tumours are named after the part of the body they originated from. Cancer cells may travel to other parts of the body where they grow and form new tumours that replace normal tissue. The division of normal cells is precisely controlled while in cancer it is not controlled as it is an abnormal division process. The cancer cells can destroy the normal functioning of the organs in the body such as the lungs, liver, and kidney.

Cancer is a global health problem. Early diagnosis and treatment of cancer are essential to improve the quality of life of the patient.

Causes and Risk Factors for Cancer

Cancers grow from single cells that divide in an unrestrained manner and sometimes may attack surrounding tissues. Genes that have undergone a change known as mutation which causes cancer are called oncogenes. It is believed that several mutations need to take place to result in cancer. Old cells that are not working well normally destroy themselves as new ones replace them. Cancer cells do not destroy themselves but continue to divide fast, making millions of cancer cells.

Some risk factors can be controlled while others cannot. Different cancers have different risk factors. Having a risk factor does not mean the person will have the disease. The risk factors that can be changed are referred to as modifiable risk factors and are usually linked to lifestyle choices. The two highest risk factors that cannot be changed are cancers that occur in a particular gender or age group. Certain viruses and bacteria can increase the risk of developing some types of cancers, for instance, human papillomavirus and cancer of the cervix.

Types of Cancer

There are two types of tumours namely benign and malignant tumours.

Benign Tumour

Benign tumours do not spread from the site of origin but can crowd the surrounding cells. Benign tumours are self-limiting in their growth that is they do not invade other tissues or organs of the body, although some benign tumours are capable of becoming malignant. They can grow large and exert pressure on healthy organs and tissues. Benign tumours usually can be removed by surgery.

Malignant Tumour

Malignant tumours can spread from the original site where they started to other parts of the body. These new tumours formed in other organs are referred to as secondary tumours while the tumour in the original site is known as the primary tumour. The spread of tumour cells from the site of their origin to other organs and tissues is known as metastasis. They interfere with neighbouring cells and can block the blood vessels, digestive system, glands and lungs.

Spread of Cancer

When a new tumour forms far from its original site, it causes changes in the structure and function of the organ it attacks. For example, if new tumour forms in the brain; headache, convulsion, blurred vision and tiredness may occur. If it forms in the chest or the organs

that control breathing (respiratory system); cough, vomiting of blood (haemoptysis), fast breathing (dyspnoea) and difficulty with breathing occurs. If it forms in the lymphatic system, swelling of the lymph nodes (lymphadenopathy) occurs. If it develops in the liver, the liver becomes enlarged (hepatomegaly) and yellowness of the eyes (jaundice) occurs. If it forms in the bones and skeleton, bone pain and the bones break easily following the application of a little force.

Effects of Cancer on the Body:

Healthy cells, tissues and organs are nourished from nutrients in food eaten. Cancer cells are growing cells but the difference between them and normal cells is that they are growing out of proportion. This makes the sufferer eat too much yet the person looks emaciated because the tumour is also being fed. The effects of cancer on the body are:

a. Pressure on the tissues and the organs
b. Stopping the normal function of the cells, tissues, and organs
c. Some tumours can form wounds (sore or ulcer) that do not heal.

Staging of Cancer

Staging is a way of describing cancer such as the depth of the tumour and where it has spread to. Staging is an important tool used by doctors to determine the progress of the disease. Staging is described by the TMN system that is the size of the tumour, whether cancer has spread to nearby lymph nodes and other organs such as the liver and lungs. The treatment of any cancer depends on its stage as there are many modalities for treating cancers. In simple terms, the stage describes the size of the tumour and determines whether it has spread from its primary site and how far it has spread. Some tumours grow slowly while others grow rapidly; the earlier a tumour is identified, the better the chances for a cure.

Screening of Cancer

Screening means examining a group of people to detect disease or to find people at an increased risk of developing the disease. Screening programmes enable early diagnosis, more effective treatment, and the possibility of a successful outcome.

Tumour Markers

Tumour markers are used to screen for a disease, diagnose a tumour, determine the progress (prognosis) of cancer, the response to treatment, and identify the recurrence of tumours. Not all cancer tumours have tumour markers. Cancers that commonly affect females are the cancer of the breast and cervix.

Breast Cancer

Breast cancer is one of the most common cancers that affect women and is the most likely reason women will die of cancer in most parts of the world. It is uncontrolled cell growth in the breast that attacks surrounding tissues and destroys them. Breast cancer grows from cells in the duct or the lobe of the breast. It mainly affects women but men can also develop breast cancer. Some breast lumps are "benign," meaning that they are not cancer. There are different types of breast cancer.

Risk Factors for Breast Cancer

The cause of breast cancer is not known but certain risk factors influence the risk of a woman developing the disease. Some are controllable or modifiable while others are not. The risk factors for breast cancer do not cause the disease but increase the chances of getting the disease. Some women have many risk factors but never get breast cancer while others do not have any risk factor apart from being a woman.

Uncontrollable Risk Factors that Cannot Be Changed for Breast Cancer

1. Being a woman
2. Getting older

3. Breast cancer in a first-degree relative which is mother, daughter, sister, aunt, or cousin.

4. Previous breast cancer

Modifiable and Controllable Risk Factors

1. Obesity and overweight

2. Drugs

(a) The use of oral contraceptives for five years or longer.

(b) Use of hormone replacement therapy (HRT) in women who have reached menopause

3. Having the first child after the age of thirty years.

4. Alcohol intake

5. Never having children (nulliparous)

6. Being exposed to large amounts of radiation such as x-rays

7. Never breastfed a child

8. High fat intake in the diet

Symptoms of Cancer of the Breast

1. Lump or mass in the breast. The lump may have a smooth or rough surface depending on the breast tumour- if it is benign or malignant. The mass may also be soft or hard. During pregnancy, most breast lumps increase in size.

2. Swelling of the breast may extend to the armpit and the hand

3. Changes in the size or shape of the breast. One breast may become slightly bigger than the other.

4. Pain in the breast

5. Sore on the breast or armpit that refuses to heal.

6. Changes in the breast

a. Change of the skin of the breast
b. Eczema on the breast and areola
c. Prominent blood vessels on the breast
d. Change in the colour and appearance of the areola
e. Dimpling, puckering or indentation in the breast
f. Formation of ridges or pitting of the breast that may look like orange peels. Medically this is known as peau d'orange, which is a French phrase.
g. Depression on any part of the breast

Changes in the Nipple

a. Change in the position of the nipple
b. Scales forming around the nipple
c. Sore on the nipple that does not heal
d. Pain in the nipple
e. Puckering, dimpling or retraction (the turning or drawing inward of the nipple)
f. Redness of the nipple
g. Nipple discharge which may be clear, coloured, or containing blood; breast milk discharging from the breast in a woman that is not pregnant or breastfeeding.
h. Change in the colour and appearance of the areola.

Other symptoms of breast cancer if the tumour spreads to other organs in the body are:

a. Bone pain if it spreads to the bones
b. Cough and difficulty with breathing if it spreads to the lungs
c. Yellow eyes (jaundice) if it spreads to the liver
d. Headaches, tiredness, and convulsion, if it spreads to the brain
e. Swelling of the arm if it spreads to the lymph nodes in the armpit.

The most common sites in the body where breast cancer spreads to are the lymph nodes in the armpit or above the collarbone.

Screening for Breast Cancer

The goal of screening for breast cancer is to detect them before they start causing problems. Breast cancer patients have a higher rate of survival if the cancer is detected early. Breast cancer screening can diagnose them at an early stage when they are too small to be noticed by the individual. Breast cancer screening can be done by breast self-examination, clinical breast examination and mammography.

Breast Self-Examination (BSE)

Breast self-examination is the monthly examination of the breast by a woman herself to check for lump and other changes. The risk of advanced breast cancer is reduced, it is inexpensive and simple. What is normal for the woman by the self-examination will help her to detect changes in the breast. Most breast lumps are found by the women themselves but not all lumps in the breast are cancers. The best time to conduct a breast self-examination is after the menstrual period when the breasts are not painful or swollen; it should always be done under good light and it involves feeling and looking at the breasts.

Step One

- Stand in front of the mirror
- Inspect each breast
- Place the hands on the hips
- Look at each breast separately
- Note the size, shape, colour, contour and the direction of the breast and the nipple
- Look for changes in the shape and size of the breast.
- Raise the hands above the head
- Look out for dimpling, puckering, redness, or scarring of the breasts. Also, note the size of the breasts and if anything is coming out of the nipples (nipple discharge).

Step Two

- Lie flat on the back

- To examine the left breast, place the left hand behind the head
- Use the pads of the middle three fingers, that is, the index, middle and ring fingers to feel the texture of the breast. The finger pads are the top third of each finger, not the tips
- Using the right hand starting from the underarm area · Move around the breast in an up and down direction
- Repeat the examination on the left breast putting the left arm under the head
- Check above and below the collarbone (clavicle) for any swelling or lumps
- Use circular motions of the pads of the fingers to feel the breast tissue using three different levels of pressure to feel the breast tissue, light, medium, and firm, slowly moving the fingers down until the ribcage is felt, and gradually closer towards the nipple
- Apply pressure and squeeze the nipple to see if there is any discharge

Breast self-examination is performed standing in front of the mirror, lying down or while taking a shower.

Clinical Breast Examination (CBE)

Clinical breast examination is carried out by medical personnel either a doctor or a practice nurse. Every woman between the ages of twenty to thirty-nine years should have a clinical breast examination (CBE) every three years, and those above forty years should have it done every year. The woman visits a health facility to have her breasts examined by medical personnel.

Screening Mammography

Mammography is a special type of X-ray of the breast that allows visualization of the internal structures of the breast with special equipment. It is used for both screening and making a diagnosis of breast cancer. A mammogram is the best means of making a

diagnosis of breast cancer as it can detect changes in the breast tissue before the breast lumps can be felt.

Management of Breast Cancer

Treatment of breast cancer depends on the stage of cancer, the size of the tumour, whether the tumour is benign or malignant, the state of the lymph nodes, whether it has spread to other parts of the body, and the general physical health of the woman. The primary goal of the treatment of breast cancer that has spread to other parts of the body is to improve the symptoms and quality of life of the patient. Early detection of breast cancer increases the woman's chances of survival and limits the development of complications. Management of breast cancer includes conducting laboratory tests and treatment.

Investigations

1. **Blood tests**

a. Estimation of haemoglobin to find out the blood level.
b. Blood tests to check the state and function of the kidneys, known as serum electrolytes, the urea and the creatinine.
c. A test to check the state of the liver, known as the liver function test

2. **Biopsy:** This is done to confirm if cancer is present. Part of the breast tissue or the breast is collected and examined under a microscope.

3. **X-rays**

(a) Mammography
(b) X-ray of the chest, if cancer has spread to the chest
(c) X-ray of the bones, if cancer has spread to the bones

4. **Electrocardiograph (ECG)** to find out the state of the heart.

5. Ultrasonography of the breast

6. Magnetic Resonance Imaging (MRI):

7. **Computed Tomography Scan (CT-Scan):** An X-ray machine is connected to a computer that takes a series of pictures of the chest area where the breast is located. These pictures will show cancer that has spread to other organs in the body such as the lungs and the liver.

Treatment of Breast Cancer

The health team that manages patients with breast cancer includes a surgeon, a doctor who is specially trained to perform surgeries; an oncologist, a doctor who specialises in the treatment of cancer; radiation oncologist, a doctor who specialises in the treatment of cancer using radiation therapy; oncology nurse and a social worker. A plastic or reconstruction surgeon may also be included. Treatment of breast cancer consists of the use of X-rays known as radiotherapy, drugs, and surgery.

Drugs for the treatment of cancer may be given before surgery to reduce the size of a large tumour (neoadjuvant chemotherapy) or after surgery to reduce the risk of recurrence (adjuvant chemotherapy). A combination of medications is often used. These drugs act by destroying the cancer cells. Drugs used in the treatment of cancer are known as cancer chemotherapy drugs they have side effects, some of which are fatigue, nausea, vomiting, diarrhoea, and loss of hair on the head. This is because of its toxic nature and nonspecific action, which means that all the cells are attacked, both cancer cells and healthy cells. Hormonal therapy involves the use of medicines that block or prevent the actions of hormones.

Surgery

Surgery for breast cancer depends on the stage of cancer. Surgery is the main option for women whose breast cancer has not spread to other parts of the body. It is also an option for the treatment of the most advanced stages of the disease. Breast-conserving surgery or lumpectomy involves the removal of the area affected by cancer, the surrounding tissue

and in some cases, the lymph node while aiming to maintain a normal appearance of the breast after surgery. In a lumpectomy, the breast is conserved, and only the tumour is removed. Mastectomy is the removal of the entire breast with or without the lymph nodes. It can be a simple mastectomy, which is the removal of the entire tumour in the breast or removal of the whole breast with or without the lymph nodes in the armpit. Partial mastectomy is a surgery where a larger portion of the breast tissue is removed compared to lumpectomy. Surgery can be followed or preceded by radiotherapy, administration of drugs, or both. Breast reconstruction surgery may be conducted after the removal of the breast.

Radiation Therapy

This involves the use of high energy rays to kill breast cancer cells. Radiation commonly follows surgery for breast cancer to try to rid the body of any other cancer cells. Treatment with radiation is often used in addition to surgery and cancer chemotherapy (treatment of cancer with the use of drugs) to reduce the chances of cancer recurring. It can be given after surgery known as adjuvant treatment or in conjunction with chemotherapy before surgery known as neoadjuvant treatment to shrink the tumour. Radiotherapy can also be used without surgery in women with advanced breast cancer that has spread to other organs and tissues in the body to help alleviate symptoms. Radiation also destroys healthy cells.

Adjuvant treatment

Adjuvant treatment is the treatment given in addition to surgery to reduce the risk of recurrence of breast cancer.

Paget's disease of the Breast

Paget's disease of the breast is a rare type of breast cancer in which the symptoms first appear on the nipple.

Symptoms of Paget's disease of the Breast

1. Itching, redness, scales, and rashes appear on the nipple and spreads to the areola. It looks like eczema a skin condition in which areas of the skin become red, rough, and sore. Paget's disease of the breast affects the nipple from the onset of the disease, while eczema rarely affects the nipple. It usually affects one breast while most skin diseases may affect both breasts at the same time.

2. Bleeding from the nipple and areola.

3. The nipple may appear flattened, that is, the same level as the areola. Paget's disease of the breast is treated surgically by removing the nipple and areola.

Psychological Impact of Breast Cancer

Being diagnosed with breast cancer in most women has psychological effects. These include depression, anxiety, fear, changes in the pattern of lifestyle because of the discomfort and pain, marital problems, drop in secular and social activities, panic, guilt, and disappointment. Recurrence of breast cancer can lead to loss of hope, denial, and grief.

Prevention of Breast Cancer

Breast cancer cannot be stopped but research shows that fat in a diet should be at most twenty per cent to gain meaningful protection against breast cancer. Fat cells make oestrogens which help breast cancer. High amounts of fibre in the diet protects against breast cancer.

Cancer of the Cervix (Cervical Cancer)

Cancer of the cervix is a public health issue and it is a significant cause of death in women worldwide. Eighty per cent of the women that die from cancer of the cervix live in low and middle-income countries. Cancer of the cervix is the second most common cancer affecting women after breast cancer and the commonest cancer of the female reproductive tract. It can occur at any age after the onset of menstruation and after menopause when

menstruation ceases. Cervical cancer is the abnormal growth of the cells of the cervix. Over time, cancer of the cervix which initially is confined to the cervix can invade surrounding tissues and organs. Cancer of the cervix is caused by a virus that is sexually transmitted known as Human Papilloma Virus (HPV).

Risk Factors for Cervical Cancer

Factors that can put a woman at an increased risk of developing cervical cancer are:

1. Sexual intercourse at an early age
2. Having many sexual partners
3. A low socioeconomic status exposes women to having many sexual partners, with no access to proper healthcare and inaccessibility to the Human Papillomavirus vaccine.
4. Exposure to Human Papillomavirus
5. High risk male sexual partners.
6. Immunosuppression means the body cannot fight infection.
7. Previous treatment for cancer of the cervix.

Symptoms of Cervical Cancer

Cervical cancer can be a threat to life as it can attack the surrounding tissues and organs, thereby spreading to other parts of the body. Cervical cancer, at first, may have no symptoms.

Some of the symptoms of cancer of the cervix are:

1. Abnormal vaginal discharge that may be persistent, smelling, and stained with blood.

2. Abnormal vaginal bleeding:

a. Between periods (intermenstrual bleeding)

b. After intercourse (post-coital bleeding)

c. After menopause (post-menopausal haemorrhage)

d. Maybe constant

3. Pain in the pelvis

4. Painful intercourse

5. Back pain

6. Nausea

7. Swollen legs

8. In advanced cancer of the cervix, leakage of urine (urinary incontinence) or faeces (faecal incontinence) may take place from an abnormal connection known as fistula between the bladder and the womb or the womb and the rectum, where faeces stays in the body before it is passed out.

Investigations

Many women with cancer of the cervix might not have any symptoms but may be examined in cervical cancer screening programmes to find out the effects of cervical cancer on the body.

The general investigations are:

1. A blood test to check for the blood level.
2. Chest X-ray to check for the effects on the chest, such as the heart and the lungs.

Specific investigations for Cervical Cancer

- **Pap Smear:** This is a procedure in which cells from the cervix are scraped and examined under the microscope. Pap smear is used for investigation and screening of cancer of the cervix. A Pap smear also shows other conditions affecting the cervix such as infection and inflammation.

- **Biopsy:** This involves removing a small tissue of the cervix, and it is then examined under the microscope to look at the state of the cells of the cervix.

Treatment of Cervical Cancer

The choice of treatment depends on the size of the tumour, whether cancer has spread to other organs in the body, and if the woman wishes to have more children. The treatment options are:

1. Use of drugs to kill and stop the growth of cancer cells.

2. **Surgery:** This is reserved for the early stage, and the aim is to remove the cancer cells, which include removal of the cervix, the womb, and any surrounding tissue that is affected.

3. **Radiation:** Special are used to kill the cancer cells.

A combination of any of the treatment options is used. Follow-up treatment is necessary, which includes a physical examination, Pap smear, blood tests, and chest X-ray. The outcome of treatment (prognosis) is determined by the size of the tumour, how far cancer has attacked and invaded other body tissues and invasion of the lymph nodes.

Prevention of Cervical Cancer

1. Avoid exposure to the human papillomavirus
2. Regular screening for cervical cancer
3. Vaccination

Screening for Cervical Cancer

Cervical cancer screening is designed to look out for changes in the cervix and to diagnose the disease before it spreads to other parts of the body. Cervical cancer screening is not a

test to diagnose cervical cancer rather it is used to check the health of the cervix. Screening for cervical cancer includes Pap smear and test for human papillomavirus.

Vaccination against Human Papilloma Virus

Human papillomavirus is one of the most common sexually transmitted infections. There are different types of human papillomavirus that cause cancer of the cervix. The vaccine against human papillomavirus produces a substance known as antibodies in the body once it is administered, so whenever the individual is exposed to the virus, the antibodies already developed fight against it. The vaccine for cervical cancer is indicated for young adolescent girls before exposure to sexual activity that is before they are exposed to the virus. The side effects of the vaccine are usually mild. This includes pain at the site where the vaccine was injected, fever, dizziness, weakness, and nausea. The vaccine can also be given to women who have been exposed to sexual activity, but the best result and protection is before exposure to sexual intercourse. The vaccine also protects against genital warts, which is also caused by the human papillomavirus.

Chapter 11

Miscarriage

Miscarriage medically called spontaneous abortion is the termination of pregnancy before the baby in the womb (known medically as a foetus) can survive outside the womb. There are two types of abortions namely spontaneous abortion in which the woman wishes to have the baby and induced abortion where the woman does the termination of pregnancy herself because she does not wish to have the baby. There are different types of miscarriages.

Causes of Miscarriage

The causes of miscarriage can be from the woman or the unborn baby.

Causes from the Unborn Baby

1. Abnormality in the genetic constitution of the unborn baby such as Down syndrome and Turner's syndrome.
2. Abnormality in the structure of the unborn baby such as a baby without a head (anencephaly).
3. Pregnancy with more than one baby, such as twins, triplets, quadruplets (multiple pregnancies).

Causes from the Woman

1. Diseases of some organs in the body known as endocrine abnormalities such as diabetes and increased thyroid hormone (hyperthyroidism).

2. Abnormality in the structure of the womb.
3. Severe disease in the mother, such as fever from malaria, tuberculosis, and sickle cell disease.
4. Malnutrition
5. Disease is known as rhesus isoimmunisation.
6. Some sexually transmitted infections, such as syphilis.
7. Poisons

8. Trauma and accident

(a) Fall

(b) Psychological shock due to disaster or bad news

(c) Surgeries done in early pregnancy

(d) Emotional disturbance such as fright or bereavement

9. Cigarette smoking

Types of Miscarriage

- **Threatened Abortion**:

There is vaginal bleeding and the unborn baby is alive but the neck of the womb (cervix) is closed with mild or no abdominal pain. The common causes of threatened abortion are fever from any cause such as malaria in the tropics, urinary tract infection, and trauma. A pregnancy test is carried out to confirm the pregnancy and an ultrasound scan to confirm that the unborn baby is alive. The body temperature is brought down if there is fever, malaria is treated if present, any infection is treated, and blood medicine is administered.

- **Inevitable Abortion:**

In inevitable abortion, the pregnancy is lost as the process cannot be stopped. This is because the neck of the womb is open and the unborn baby will be expelled out of the womb. There are two types of inevitable abortions, namely incomplete and complete

abortions. In incomplete abortion the neck of the womb is open but part of the unborn baby has been expelled out of the womb while part of it is still inside the womb. When a complete abortion occurs, however, all the parts of the unborn baby have been expelled out of the womb, and the neck of the womb is closed. The diagnoses of complete and incomplete abortions are made by what the woman complains to the doctor, the physical examination done by the doctor and an ultrasound scan. The treatment administered depends on the type of miscarriage. The woman is advised not to get pregnant for the next three to four months as there is a high chance of another inevitable abortion taking place.

- **Missed Abortion:**

This is when the unborn baby (foetus) dies before twenty-four weeks (six months) of pregnancy and it is not expelled from the womb. There are no symptoms of miscarriage or pain. The woman manifests symptoms of pregnancy loss such as a reduction in the size of the breast, no vomiting, and no feeling of movement of the baby in the womb. Occasionally there may be vaginal spotting and brownish vaginal discharge. The neck of the womb is closed. Diagnosis of missed abortion is made when a pregnancy test is negative and an ultrasound scan reveals a dead baby in the womb. The treatment of missed abortion is an evacuation of the contents of the womb or induction of labour depending on the age of the pregnancy.

- **Recurrent or Habitual Abortion:**

Recurrent or habitual abortion occurs when three or more miscarriages take place consecutively in the same woman. The causes of recurrent or habitual abortion are trauma to the neck of the womb from repeated dilatation and curettage (D and C), operation on the neck of the womb, cervical incompetence, and some other disease conditions. Sometimes the cause of recurrent or habitual abortion is not known. Cervical incompetence occurs when the neck of the womb (cervix) is constantly open because it is weak hence the womb is unable to keep the unborn baby until delivery. Several tests are performed to find out the cause of the recurrent miscarriage. If it is because of cervical

incompetence, a stitch known as cervical cerclage is inserted around the neck of the womb at twelve to fourteen weeks (three months) of the pregnancy to tighten it, thus helping the baby to stay in the womb and it is not expelled. The stitch inserted for the incompetent cervix is removed at thirty-eight weeks (nine months) because from thirty-seven weeks; labour can take place. Before this time, the stitch is removed if there is bleeding during the pregnancy, if the water that keeps the unborn baby in the womb leaks out (drainage of liquor), if there is a regular strong contraction that is labour (even if it is premature labour), a congenital deformity of the baby, or if the baby dies in the womb (intrauterine foetal death). If labour starts with the stitch in place, the neck of the womb can tear.

- **Therapeutic Abortion**

This is planned termination of pregnancy in a hospital if there is a deformity in the unborn baby or to protect the health of the woman. Diseases in the woman that may require therapeutic abortion are cancer, severe heart disease as the stress of labour can be detrimental to the heart of the woman, high blood pressure (hypertension), and severe kidney disease such as chronic kidney disease.

- **Induced Abortion**

This is an intentional termination of pregnancy using various methods such as drugs, mechanical devices, manipulations, or instrumentations. This has its problems especially when it is performed by unskilled personnel (quacks) and in dirty environments. Sometimes death occurs from severe generalised infections and torrential bleeding. Some future problems of induced abortion are severe pelvic pain, obstruction in the intestine (intestinal obstruction) and ectopic pregnancy.

Chapter 12

Family Planning

Family planning involves methods for preventing pregnancy to control the number of children one wishes to have and when to have them. Couples need to plan to have the number of children their resources can take care of. Family planning is essential for child spacing.

There are several methods of family planning which includes:

1. Natural methods
2. Barrier methods
3. Chemical methods
4. Use of hormones
5. Irreversible or surgical methods

1. **Natural Methods:** These are methods where nothing artificial is introduced into the body. There are different types of natural methods. They are:

a. **Abstinence:** Abstinence is the avoidance of intercourse therefore pregnancy cannot occur.

b. **Exclusive Breastfeeding:** In this method, a woman who has just been delivered a baby feeds her baby with only breast milk for the first six months of life, no water or infant formula (animal milk/baby milk) is given to the baby.

c. **Coitus lnterruptus:** Coitus interruptus literary means interrupting intercourse, the man withdraws the penis from the vagina before ejaculation which is the deposition of semen in the vagina. Coitus interruptus is not a reliable method of family planning as the fluid released before ejaculation known as pre-ejaculatory fluid contains sperms that can result in pregnancy. Ejaculation on the external structures of the female genital tract can result in pregnancy.

d. **Rhythm Method:** In the rhythm method, intercourse is avoided during the days of the month when the woman is fertile that is possible days around which ovulation may occur. The woman checks her body for about six to eight months to find out around which time of the month ovulation occurs. The menstrual periods must be regular over the calculated period for this method to be used. The longest and shortest menstrual cycles are calculated. For instance, if the menstrual periods are regular in a twenty-eight day's menstrual cycle, ovulation occurs around the thirteenth to fifteenth day, precisely ovulation occurs fourteen days to menstruation. Two other methods used in speculating when ovulation has occurred is by checking the body temperature daily as there is one degree (1◦c) rise in body temperature on the day of ovulation and checking the consistency of the vagina discharge known as the 'Billings Method.' The mucous in the vagina increases and becomes slimy during ovulation. Intercourse is avoided until the fourth day after the maximum vagina mucous secretion. This is not a reliable method as avoidance of intercourse during the fertile period is not guaranteed.

The success and effectiveness of the natural methods of family planning depend on the accuracies of the method used in identifying the woman's active fertile days, the couples

ability to correctly identify the fertile time, the couples ability to follow the rules of the method being used and the ability to abstain from intercourse during the fertile days.

2**. Barrier Methods:** This method creates a barrier between the semen and the egg (ovum) of the woman.

a. **Condom:** This is a rubber sheet worn by either the man or woman during intercourse. It is more effective when used with a chemical known as spermicide that kills the sperm. The condom must be worn correctly and removed immediately after ejaculation. Sometimes when the male condom is used, it slips into the body of the woman resulting in what is called a 'missing condom,' where it has to be removed by a health professional. Some male condoms have a reservoir at the tip for semen. Besides preventing pregnancy, condoms have the added advantage of preventing sexually transmitted infections. They are cheap and readily available, a new one should be used for every act of intercourse. The disadvantage of condoms is an allergy that is the body reacts to the substance used in the manufacture of condoms which is usually latex.

b. **Diaphragm:** This is a barrier family planning method used by women. It is a covering made for the neck of the womb (cervix). It is not used alone but with a spermicide which is a chemical that kills sperm. The diaphragm is inserted into the vagina by pushing its rim downward and towards the back wall of the vagina. The diaphragm is reusable; it is kept in place for about six hours after intercourse before it is removed, washed, and left to dry. There may be symptoms of a severe infection known as toxic shock syndrome if it is left in place for too long or forgotten in the vagina. The spermicide used with the diaphragm kills any sperm that passes through the rim of the diaphragm.

Who cannot use the diaphragm (contraindications)

The diaphragm may not be used if there is:

i. Allergy to latex or spermicide

ii. Pain in the vagina

iii. Pain in the genital area and pelvis

iii. Abnormal structure of the female reproductive tract

Adverse effects of the diaphragm

i. Irritation

ii. Vaginal discharge

iii. Allergy reaction

iv. Discomfort in the genital area and pelvis

v. Toxic shock syndrome.

c. Cervical Cap: This is similar to the diaphragm, but is smaller and fits to cover the neck of the womb (cervix).

3. Chemical Method: These are chemicals placed in the vagina before intercourse to kill the sperm, examples are spermicides and contraceptive sponge. Spermicides come in the form of creams, gels, foaming tablets and suppositories. Each dose of spermicide must be placed before each act of intercourse. The spermicides are used alongside the barrier methods to be effective. The contraceptive sponge acts as a barrier as it traps and kills spermatozoa. The side effect of the spermicide and contraceptive sponge is irritation and allergic reaction to the substance used in making it. When it is used, douching should be avoided for at least six hours after intercourse.

4. Hormonal Methods: These methods involve the use of hormones. They act by preventing ovulation and thickening the mucous produced by the neck of the womb (cervical mucus) preventing the movement of spermatozoa to the egg and preventing the fertilised egg from attaching in the womb. Some of the side effects of the hormonal methods are abdominal pain, chest pain, headache, dizziness, weakness, numbness, eye problem, and severe leg pain.

a. Oral Contraceptives: Oral contraceptives are tablets that are taken daily to prevent pregnancy. They work by thickening the mucous from the neck of the womb that leads to the prevention of the movement of spermatozoa to fertilise the egg, distortion (atrophy) of the lining of the womb to prevent attachment of a fertilized egg and prevention of ovulation. Ovulation may not be prevented in the first month of the use of oral contraceptives. Oral contraceptives may not be effective if the following drugs are taken: drugs used in the treatment of convulsion (anti-convulsants), anti-fungal agents, and some group of antibiotics especially the ones known as aminoglycosides. This is because these drugs reduce the absorption of the oral contraceptive from the digestive system. When it is missed for one or two days, it is doubled the next day. When the tablet is missed for three or more days, other methods are used and a new pack commenced in the next monthly cycle. Before and during the period of taking oral contraceptives, blood pressure checks, screening for cervical and breast cancer should be done regularly.

Who cannot use Oral Contraceptives

In the presence of the following disease conditions, oral contraceptives should not be used:

i. Infection of the blood passage (thrombophlebitis)
ii. Clotting of the blood known as a thromboembolism
iii. A disease of the blood passage in the heart (coronary heart disease)
iv. Ischaemic heart disease
v. Suspected breast cancer
vi. Pregnancy
vii. Cancer of the liver
viii. The deranged (impaired) function of the liver, especially if the eyes are yellow (jaundice)
ix. Hypertension
x. Previous trophoblastic disease (molar pregnancy)
xi. Abnormal vaginal bleeding

Who cannot use oral contraceptives except with caution

i. Family history of disease of the blood passage (blood vessels), or the heart.

ii. Diabetes

iii. Obesity

iv. A severe headache known as migraine

v. Prolonged reduced physical activity (immobilisation)

vi. Smoking

vii. A disease of the gall bladder

viii. Epilepsy

ix. Uterine fibroid

Adverse (unwanted) effects of oral contraceptives

i. Nausea and vomiting

ii. Passing of gas (flatulence)

iii. Stroke

iv. High blood pressure (hypertension)

v. Vaginal bleeding

vi. Irregular menstruation

vii. Withdrawal bleeding or vaginal bleeding when the oral contraceptive is stopped

viii. Depression

ix. Weight gain

When oral contraceptives must be stopped

The oral contraceptives must be stopped if abdominal pain, shortness of breath, headaches, eye problems, or severe pains in the legs take place.

b. Injectable: These hormones are injected into the body to prevent pregnancy. They are taken every month, every two months or every three months, depending on the type. They are more convenient than the oral contraceptives that are swallowed every day. The side

effects of the injectable are similar to those of the oral contraceptives; fertility returns about six months after the woman stops using it.

c. **Intrauterine Contraceptive Device (IUCD):** The intrauterine contraceptive device, which is commonly called a coil, is placed in the womb where it acts by preventing the attachment of a fertilised egg in the womb. It also affects the movement of sperm through the neck of the womb (cervix). This is a highly effective method for family planning but still has its problems.

Who cannot use Intrauterine Uterine Contraceptive Device (IUCD)

i. Active infection of the female genital tract, for example, pelvic inflammatory disease

ii. Pregnancy

iii. Previous ectopic pregnancy

Adverse effects of Intrauterine Contraceptive Device (IUCD)

i. Infection of the female genital tract, such as pelvic inflammatory disease

ii. ii. Pain in the female genital tract

iii. Abnormal vaginal bleeding

iv. Painful menstruation

v. Ectopic pregnancy

vi. Increased bleeding during menstruation (menorrhagia)

vii. Expulsion of the device

viii. The device can leave the womb where it is supposed to be and enter other organs by passing through the wall of the womb; this is called 'Missing Intrauterine Contraceptive Device.' An X-ray is done to find out where the IUCD has migrated to, that is, its new location. It is removed through pinhole surgery (laparoscopy). The factors that influence the risk of infection after placing the intrauterine contraceptive device in the womb are the type of device used, exposure to sexually transmitted infections, and the duration the device has been in place.

d. Implants: These are objects, about the size of a matchstick, that are placed under the skin in the arm and they contain hormones that are released slowly over a long period at a steady rate. It is ideal for women who do not want to get pregnant for a long time and those that have completed their family size; it is not used for ladies who have never had a child. There are different types of implants, namely, Implanon and Jadelle. Jadelle consists of two rods made of silicone; it is placed through a minor surgery under the arm and is removed after the intended number of years, if the woman gets pregnant or if any side effect occurs. The implant is inserted when the woman is not pregnant and not menstruating.

Adverse effects of the implant are:

A. At the site of its insertion

i. Pain

ii. Bleeding

iii. Infection

iv. Swelling over the site where the implant was inserted, such as keloid.

B. General side effects

i. Weight gain

ii. Headache

iii. Loss of hair (alopecia)

C. High blood pressure (hypertension)

D. Problems with menstruation

i. Absence of menstruation (amenorrhoea)

ii. Bleeding between periods (intra-menstrual bleeding)

iii. Excessive menstrual bleeding (menorrhagia)

Who Cannot Use an Implant

In the presence of the following conditions, an implant cannot be used:

i. Kidney disease

ii. Liver disease

iii. Abnormal vagina bleeding

iv. Breast cancer

Irreversible or Surgical Methods:

These are methods where fertility cannot be restored or reversed when it is used. Pinhole surgery (laparoscopy) is performed, and clips used to tie the fallopian tubes (tubal ligation). The adverse effects of this method are psychological regret after the method has been done and ectopic pregnancy. This method acts by stopping the eggs from being fertilised by blocking the fallopian tubes. The method is very effective, but it can also fail.

Emergency Contraception

Emergency contraception is used to prevent pregnancy after intercourse without any form of protection in cases of rape, refugees, as well as when a condom bursts. It is used at different times during the menstrual cycle. It works by delaying or preventing ovulation and fertilisation, interfering with the movement of spermatozoa, and stopping the attachment of the fertilised egg.

Chapter 13

Infertility

Infertility is the inability of a couple to achieve pregnancy despite having regular unprotected intercourse for one year. Globally, it affects ten per cent of couples. There are two types of infertility namely primary and secondary infertility. Primary infertility is when the couple has never achieved a pregnancy while secondary infertility is when the couple had previously had a pregnancy whether the baby was delivered or it resulted in a miscarriage. In thirty per cent of cases, the problem is from the man; in another thirty per cent of cases, the problem is from the woman, while in forty per cent of cases the cause is not known which means that there is no problem with the woman or the man. For pregnancy to take place, the egg released from the ovary travels to the fallopian tube where it is fertilised by the spermatozoa of the man. If there is a problem or malformation in any of the processes involved, the result is infertility. There are many causes of infertility in women, which can be problems in the ovary, the fallopian tube, the womb, or the neck of the womb. Infertility can also result from previous sexually transmitted infections that are not treated and infections of the female genital tract such as pelvic inflammatory disease. Some infections in childhood such as mumps and measles can result in infertility in adulthood. Laboratory tests are performed to confirm if the woman is ovulating; if the structures of the female genital tract such as the ovaries, the fallopian tubes, and the womb are present; and if the womb and the fallopian tubes are open to allow the movement of the egg from the ovary to the fallopian tube; and if the levels of the hormones in the body are within the normal level that is the correct amount is present in the body not too high and not too low.

Treatment of Infertility

The Treatment of infertility depends on what is causing it. If it is an infection, antibiotics are administered or surgery is performed to repair any damage to the ovaries, the fallopian tubes, and the womb. Most times when the cause of infertility is not known, assisted reproduction is advised.

Assisted Reproductive Technology (ART)

There are different methods of assisted reproduction to help infertile couples achieve pregnancies. Depending on the method used sometimes sperms or eggs are donated by another individual to the infertile couple. The success rate of assisted reproduction depends on many factors.

1. In-vitro fertilisation
2. Gamete intrafallopian transfer
3. **Intrauterine insemination:** ln this method, the semen is collected from the husband or a spouse (donor semen) and artificially transferred into the womb.
4. Surrogate mothering with either the woman's eggs or eggs donated by another lady. In this method, a different woman from the supposed biological mother carries the pregnancy who may be a relative of the woman that is her sister, mother, aunt, cousin, or someone else.
5. Zygote intrafallopian transfer

Chapter 14

Pelvic Inflammatory Disease

Pelvic Inflammatory Disease (PID) is an infection that affects the womb, the fallopian tubes, and other surrounding organs of the reproductive system; it does not include the vulva and the vagina. It is a common cause of pelvic pain in sexually active women since ninety per cent of the infections that cause pelvic inflammatory disease are sexually contracted. It is a severe complication of sexually transmitted infections. Pelvic inflammatory disease can be acute or chronic. The most common cause of the pelvic inflammatory disease is gonorrhoea. Early diagnosis and treatment of pelvic inflammatory disease is vital in preventing its long term problems

Risk Factors for Pelvic Inflammatory Disease

1. Multiple sexual partners that are having more than one sexual partner at the same time.
2. Previous pelvic inflammatory disease
3. Insertion of instruments and objects into the womb
4. Sexually transmitted infections
5. Douching
6. Use of Intra-Uterine Contraceptive Device (IUCD).

Causes of Pelvic Inflammatory Disease

Pelvic Inflammatory Disease is caused by microorganisms that spread from the neck of the womb (cervix) into the womb, fallopian tubes and ovaries. A substance known as exudate is formed in the womb due to the infection, this exudate accumulates in the fallopian tube causing it to swell and becomes red. If this is not treated, the infection spreads to nearby structures in the abdomen. Sometimes, more than one microorganism causes pelvic inflammatory disease.

The microorganisms that cause Pelvic Inflammatory Disease are:

1. Sexually transmitted infections, such as chlamydia and gonorrhoea that cause pelvic inflammatory disease in a large number of women.
2. Infection of the female genital tract after delivery, miscarriage, or termination of pregnancy.
3. Introduction of instruments into the womb for procedures, such as insertion of the intrauterine contraceptive device (coil) used for family planning and other procedures, such as hysterosalpingography (x-ray of the womb).
4. Following pelvic surgery
5. Pelvic inflammatory infections can also be caused by tuberculosis

Symptoms of Pelvic Inflammatory Disease

There may be no symptoms or the symptoms may not be specific to the female genital tract. The symptoms may range from mild symptoms to those that need hospital admission.

The symptoms of pelvic inflammatory disease are:

1. Fever
2. Abnormal vaginal discharge
3. Lower abdominal pain
4. Vaginal bleeding which is not menstruation period
5. Feeling unwell (malaise)

6. Painful menstruation
7. Vomiting and nausea
8. Pain during intercourse

Chronic Pelvic Inflammatory Disease

Chronic pelvic inflammatory disease is a pelvic inflammatory disease that occurs for more than three months. The fallopian tubes become swollen and filled with pus or any other fluid, lose their shape and stick abnormally around the ovary. The function of the fallopian tube in transporting eggs and sperm is lost. Early treatment of pelvic inflammatory disease prevents chronic pelvic inflammatory disease.

Laboratory Tests

1. Blood tests to check the blood level and the white blood cells whose role is to fight infections in the body.
2. Tests for sexually transmitted infections especially gonorrhoea, chlamydia, and Human Immunodeficiency Virus (HIV).
3. Ultrasound scan of the abdomen and the pelvis.
4. Pregnancy test.
5. Samples are taken from the vagina and the neck of the womb (cervix).

Treatment of Pelvic Inflammatory Disease

Treatment of pelvic inflammatory disease reduces the chances of the development of complications. Treatment involves painkillers (analgesics), antibiotics, drugs that fight inflammation (anti-inflammatory drugs), and blood medicine (haematinics). Laparoscopy is done both as an investigation (test) and for treatment. The female reproductive organs are viewed directly on the computer to check if they are swollen; if there is an abscess, it is drained (sucked out). Laparoscopy allows for accurate examination of internal female reproductive organs and abscess formation in the ovaries or the fallopian tubes. Any abnormal substance (exudates) seen is tested in the laboratory. Chronic pain in the pelvis may require an operation to remove the womb, the ovaries and the fallopian tubes.

Complications of Pelvic Inflammatory Disease

1. Abscess formation
2. Formation of adhesions means one organ sticks to another.
3. Painful menstruation
4. Painful intercourse
5. Complications of pregnancy
6. Persistent pain in the pelvis
7. Ectopic pregnancy: Scar formation can prevent a fertilised egg from moving into the womb, thus allowing the fertilized egg to grow in the fallopian tube, the fallopian tube ruptures leading to life-threatening bleeding.
8. Infertility
9. Blockage of the fallopian tube.
10. Infection of the liver

Other conditions whose symptoms are similar to pelvic inflammatory disease are appendicitis, diverticulitis, ectopic pregnancy, and twisting of the stalk of an ovarian cyst.

Prevention of Pelvic Inflammatory Disease

1. Avoid contracting sexually transmitted infections.
2. Sexually transmitted infections should be treated promptly.
3. Whenever a diagnosis of pelvic inflammatory disease is made, treatment should be adhered to strictly.

Chapter 15

Uterine Prolapse

Uterine prolapse is a condition in which the womb falls out of its position. In some cases, the womb may fall out of place with some or all of its structures visible at the opening of the vagina carrying part of the wall of the vagina and some surrounding tissues with it. In severe cases, the urine pipe (urethra) and part of the digestive system where faeces stays before it is passed out (rectum) can be affected. The womb is typically held in place by some group of muscles. When the structures holding the womb become weak, it begins to sag.

Risks Factors of Uterine Prolapse

1. Loss of tone of the muscles because of ageing.
2. Menopause
3. Increased pressure in the abdomen (intra-abdominal pressure) because of severe cough, tumour, and fluid in the abdomen (ascites), severe constipation, and lifting of heavyweights.
4. Giving birth to a large baby
5. Giving birth to many children (high parity)
6. Frequent straining when passing faeces
7. Obesity

Symptoms of Uterine Prolapse

There may be no symptoms if the condition is mild. However, the symptoms of uterine prolapse are:

1. Feeling of a dragging effect or something falling out of the vagina which in severe cases can be seen at the vaginal opening. This symptom is worse when standing and walking because of the pressure on the muscles of the pelvis.
2. A feeling of sitting on a ball
3. A sensation of heaviness in the pelvis
4. Low back pain
5. Vaginal discharge
6. Frequent infection of the urinary passage (urinary tract infection).
7. A tendency to urinate more often than usual (urinary frequency)
8. Leakage of urine worsened by coughing, sneezing, and lifting of heavy objects (stress incontinence).
9. Painful intercourse
10. The woman may have difficulty having intercourse (apareunia)
11. Constipation and difficulty in passing stool.
12. Decreased libido
13. Difficulty in walking and urinating because of the dragging effect in the vagina especially when a wound (sore, ulcer) has formed on the exposed part of the womb rubbing against the woman's undergarments.

Management of Uterine Prolapse

Treatment of uterine prolapse depends on:

1. The extent to the womb that is out of place
2. Presence of wound on the womb
3. The desire to have more children
4. The woman's age
5. Severity of symptoms

6. The woman's general health
7. The desire to preserve her womb.

The definitive treatment of uterine prolapse is through surgery either to put the womb back into its normal place or to remove the womb (hysterectomy). If the woman wishes to keep her womb and her general health is not fit to have an operation (surgery), pessaries that look like rings are placed in the vagina to keep the womb in place.

Complications of Uterine Prolapse

1. If left untreated there can be interference with intercourse, urinating and defeacating.
2. Infection
3. Infertility

Prevention of Uterine Prolapse

1. Avoid obesity
2. Treat severe cough
3. Injuries that occur in the genital tract during delivery should be treated adequately
4. Bearing down during delivery should only take place when asked to do so by the healthcare provider such as the midwife or the doctor.
5. Avoid constipation

Chapter 16

Sexual Assault and Rape

Sexual abuse and rape are the fastest growing and under-reported crimes in most parts of the world today because of the societal factors associated with it. Sexual assault is sexual contact without the consent of the person and it includes molestation and rape. Rape is the forceful penetration of the vagina, anus, or mouth of an unwilling and non-consensual female with the penis or other objects. The word rape is derived from the Latin verb '*rap era*' that means to seize or take by force. There are various sexual acts and behaviours associated with rape which includes unwanted sexual touching. Most of the victims of rape know their attacker. Rape has severe physical and psychological effects on the victim and a woman places herself at the risk of being raped by being in a lonely and dark place with the opposite sex. There are many myths about rape that are not true.

Some of the myths associated with rape are:

1. Women are the cause of rape: a woman should never blame herself if she has been raped.
2. Only girls get raped: An adult female can be raped as women are victims of rape in various parts of the world.
3. The mother of a girl that was raped should be blamed for the incident: A mother should never blame herself if her daughter has been raped.
4. A woman places herself at risk of being raped by wearing short, transparent, or tight-fitting dresses.
5. Rape occurs only at night: Rape can happen at any time of the day.

Health Effects of Rape

There are several consequences of rape on the health of the woman. These include physical injuries inflicted by the attacker on the body of the victim during her struggle with the attacker to prevent being restrained. Injuries can be inflicted with fingernails, sharp objects like a knife, axe, etc. The victim can be inflicted on her external genitals and there is the possibility of rupture of the vagina or the anus if objects are forced into them.

Treatment of Rape Victims

Management of rape involves teamwork as it engages the health team, the family and the friends of the victim. It includes ensuring the privacy of the victim and making her feel comfortable, especially if she is a minor. Any physical injury is taken as evidence since rape has legal implications. Scrapings from fingernail scratches and the hair of the attacker got by combing the pubic hair of the victim are used for DNA examination. Secretions from the attacker may contain blood that can also be used for DNA examination to identify the victim. If objects have stuck into the vagina or the anus, it is treated as a medical emergency.

Treatment of serious injuries takes precedence over evidence collection. Antibiotics are administered against sexually transmitted infections. Pregnancy tests and tests for sexually transmitted infections are conducted. Emergency contraception (postcoital contraception) is done if the victim was not pregnant before she was raped. If pregnancy occurs after all these measures, the victim is advised on the available options which include keeping the pregnancy, giving up the child for adoption after delivery or having a termination of the pregnancy (induced abortion).

Long Term Impacts of Rape

Depending on the age of the victim and the circumstance surrounding the rape incident, it can have long term consequences that will affect the health of the victim negatively.

These include:

1. Depression because of loss of hope and self-esteem
2. Sleeplessness and nightmares
3. A tendency to commit suicide
4. Fear of the male sex
5. Psychological breakdown
6. Emotional and social effects resulting in a condition known as a post-traumatic stress disorder
7. Stigmatisation in society
8. Discrimination by peers, colleagues, friends, and family members.
9. Fear of the male sex later in life

Chapter 17

Menopause

Menopause is a period in a woman's life when menstruation stops permanently takes place following the loss of activity of the ovaries. Menopause is derived from the Greek words 'menos' which means monthly and 'pauses,' which means to end. It is the end of the fertility and the reproductive life of a woman as the woman will no longer be able to make babies. Menopause occurs after one year of the absence of the monthly period (amenorrhea) in a woman who is about forty-five years or older. It is a period of transition from fertility to infertility which is a normal process in the way the reproductive system functions and not a disease. Menopause is sometimes called climacteric. Climacteric means range or ladder in Greek. The premenopausal change is the years preceding menopause, this includes the change in the menstrual flow before the menstruation finally stops. It is marked by irregular monthly periods, scanty periods or heavy periods. The attitude of the woman to menopause is influenced by social, cultural, economic and environmental factors.

How Menopause Occurs

In menopause, there is a reduction in the hormones produced by the ovaries known as oestrogens circulating in the body. Menopause is not dependent on the age menstruation commenced (medically known as menarche), weight, race or the number of children the woman has (parity). The only factor associated with menopause taking place before the expected age is smoking.

Changes in the Body Associated with Menopause

Menopause is associated with a wide range of changes in the structure and function of the body, especially in the female genital tract.

Menopause is also associated with psychological problems.

1. Psychological changes

- Mood swings
- Anxiety
- Forgetfulness and memory loss
- Lack of concentration
- Depression
- Loss of self-confidence
- Night sweats
- Irritability

2. Changes in the genitals

- Shrinking of the structures in the external genitalia known as labia
- Thinning of the skin of the vagina and the vulva
- The vagina becomes narrow
- A group of structures known as the pelvic floor becomes weak and slack
- The possibility of the womb falling out in a condition known as uterovaginal prolapse becomes common

3. Psychosexual problems

- Reduced libido
- Painful intercourse because of reduced lubrication and dryness of the vagina
- Reduced sexual arousal
- Difficulty in reaching orgasm (anorgasmia)

4. Changes in the skeleton and muscles

- Risk of osteoporosis
- Increased tendency of fractures in the wrist, hip and vertebrae

5. Changes in the urinary passage

- Thinning of the urine pipe (urethra)
- Risk of painful urination (dysuria)
- Frequent infection of the urine pipe (urinary tract infection)

6. Others

- Loss of fullness of the breasts
- Loss of elasticity of the skin with the development of wrinkles
- Tiredness
- Inability to sleep (insomnia)

Symptoms of Menopause

There are some problems associated with menopause, such as:

1. **Hot flashes**:

The mechanism by which hot flashes occur is not known, it usually takes place a year before menopause and it is associated with sweating, flushing of the skin and feeling of the heartbeat (palpitation).

2. Problems in the system of the body concerned with the distribution of blood (cardiovascular system):

The cardiovascular system is the part of the body that is concerned with how the heart pumps blood around the body. During menopause, women are prone to some diseases of the heart and blood vessels such as coronary heart disease, myocardial infarction, etc.

Management of Menopause

1. Educating women about menopause and reassuring them when symptoms and changes associated with menopause occurs.
2. Emotional support
3. Replacing the hormones that are no longer produced, is known as hormone replacement therapy.

Osteoporosis

Osteoporosis is a condition in which there is a reduction in bone mass, resulting in a reduction in the strength of the bone making it easy for the bone to break (fracture). Osteoporosis occurs commonly in women that have reached menopause than in men. The bone becomes fragile and breaks easily when a small force is applied to it even from slight falls. The symptoms of osteoporosis are back pain, tooth loss, decreased height and fracture of the bones.

The risk factors of osteoporosis are:

- Family history of osteoporosis
- Early menopause
- Reduced physical activity which is the sedentary lifestyle
- Excessive use of alcohol and tobacco
- Low intake of a mineral known as calcium in the diet

Osteoporosis is treated by:

- Hormone replacement therapy
- Supplementation of calcium and vitamin D in the diet
- Change of lifestyle

Hormone Replacement Therapy

Hormone replacement therapy is the replacement of some of the hormones concerned with reproduction namely oestrogen and progesterone. It stops osteoporosis and fractures.

Hormone replacement therapy can also be done if menopause occurs before the expected time (premature menopause) or if the symptoms of menopause are severe.

Situations in which Hormone Replacement Therapy cannot be administered

- High blood pressure (hypertension)
- A disease of the heart known as coronary heart disease
- The presence of a disease of the blood known as a thromboembolism
- Cancers such as cancer of the breast, cervix, and womb (endometrial cancer). The X-ray of the breast (mammography) must be carried out before commencing hormone replacement therapy.
- Sensitivity to oestrogens
- Vaginal bleeding occurring after attaining menopause
- Liver disease
- Pregnancy
- A disease of the gall bladder
- Uterine fibroid
- A severe headache is known as a migraine
- Breast cancer

Side effects and unwanted effects of hormone Replacement Therapy

Administration and use of hormone replacement therapy can result in the following:

- Breast cancer
- Vaginal bleeding
- Premenstrual syndrome
- Cancer of the large intestine (colon)
- Heart attack
- Stroke
- A blood clot within the blood vessels (thromboembolism)
- Hypertension
- Cancer of the womb (endometrial cancer)
- A disease of the gall bladder

Premature Menopause

Premature menopause is when menstruation stops before the age of forty-five years, which means a woman reaches menopause before the expected age. It is caused by genetic factors such as a family history of premature menopause, smoking, precocious puberty, infection of the female reproductive tract (pelvic inflammatory disease) and sexually transmitted infections.

Artificial Menopause

Artificial menopause is the cessation of menstruation before the expected time due to a medical procedure or surgery. The causes of artificial menopause are surgical removal of both ovaries in an operation known as oophorectomy, the application of X-rays (radiation) to the ovaries and some drugs used in the treatment of cancer known as cancer chemotherapy.

Chapter 18

Conclusion

Women's health is important as women are the caregivers in the home, she is the mother and wife caring for her husband and children. In some cultures, women cannot decide about their health as they cannot seek medical care except after approval from their husbands and in-laws. Often women are likely to put the needs of their families before their own. The health of women differs from that of men because of the peculiarity of the reproductive system. The female genital tract includes the vulva, the ovaries, the fallopian tubes, the womb, and the vagina. The womb undergoes several changes throughout life from childhood to puberty to adulthood and finally menopause. Treatment of deformities of the female reproductive system depends on the defect as well as the organ affected. Some are left untreated especially if it is not causing any problem. The natural growth of the female reproductive tract includes a series of events that bring about changes in the appearance of the external structures of the female reproductive tract.

The causes of abdominal pain in women are pelvic inflammatory disease, ruptured ovarian cyst, bladder infection (cystitis), and ectopic pregnancy. Others are pain during ovulation, menstrual pain and endometriosis. Some conditions that can cause abdominal pain can also occur in men such as acute appendicitis. Trauma to the female genital tract can result from accidents, rape, objects inserted into the vagina, and induced abortion. If trauma occurs and there is bleeding, pressure should be applied to stop the bleeding.

Female circumcision is also known as female genital mutilation is performed in some parts of the world where part or all of the hood of the clitoris is removed as it is believed to ensure the chastity of girls, this is thought to be a rite of passage to womanhood in these cultures. The clitoris is sensitive when touched during sexual stimulation, and is part of the external structures of the female reproductive tract. It is believed that removing it reduces immorality and limits promiscuous behaviour. Sometimes it may include removing the entire clitoris and the labia minora leaving a small hole for urination and menstrual flow.

During puberty, there is rapid growth in stature and reproductive organs. The physical changes that occur during puberty in girls are an expansion of the hips, growth of the breasts, hair growth in the armpits and the pubic area, and lastly menstruation. Puberty is associated with emotional changes. A woman can experience many physical and emotional changes during her menstrual cycle. Vaginal bleeding that is not menstruation is a cause for concern. Menstruation through a natural process has its problems. In some women ovulation is associated with pain known as mittelschmerz, in some others, menstruation is painful (dysmenorrhoea). Different items are used to collect the menstrual blood such as pieces of clothes, sanitary pad, tampon, menstrual cup and toilet paper. In some cultures, menstrual blood is believed to be dirty and harmful resulting in the menstruating women or girls being restricted from participating in some activities for fear that they may contaminate others and items they touch. Health education is important for ending harmful traditional practices and the shame connected with menstruation. Some women have premenstrual syndrome which is a group of symptoms experienced before menstruation starts caused by the changes in the levels of the hormones controlling menstruation.

Different diseases affect the female genital tract such as infections, swellings, cancers and diseases from other organs and systems in the body. Some problems of the womb are uterine fibroids, endometriosis, adenomyosis, uterine prolapse (the womb falling out), heavy or irregular menstrual bleeding, and cancer. Uterine fibroids are the most common

tumours that affect the womb. It disrupts the function and the structure of the womb leading to too much bleeding, low blood level, miscarriage, discomfort, delivery before time (preterm labour) and problems with urination. Some of the infections that affect the female reproductive tract are contracted by sexual contact. Sexually transmitted infections are a significant cause of illness, infertility, disability, death and psychological problems. The pelvic inflammatory disease affects the female reproductive tract causing fever, abdominal pain, vaginal bleeding and discharge. Delayed treatment of pelvic inflammatory disease leads to an increased risk of ectopic pregnancy, infertility; the tissues and the organs sticking to each other (adhesions); formation of abscess and painful intercourse. An ectopic pregnancy occurs when a fertilised egg attaches anywhere apart from the cavity of the womb that is naturally made to carry a baby. It is a major cause of illness and death in women worldwide. As the pregnancy grows, it eventually bursts the organ containing it can causing severe bleeding. Areas, where an ectopic pregnancy occurs, do not have enough space or tissue as the womb for nurturing a pregnancy.

Cancer can occur in any part of the body and it involves the abnormal multiplication and spread of cells in the body. Cancer cells can move from one part of the body where they began and invade other tissues to form tumours at other sites inside the body. Breast cancer is the most common cancer in women. Cervical cancer is the most common cancer of the female reproductive tract and the second most common cancer in women worldwide. Early detection is the best protection against both cancers. The most significant risks for breast cancer are an increase in age, being a woman and a family history of breast cancer.

As the woman grows and advances in age, menstruation stops which simply means she can no longer make babies. The elderly woman has some challenges as some of them are being exposed to various forms of abuse such as physical, emotional, psychological, and financial abuse. Some of them are neglected and abandoned especially those that cannot carry out their daily personal hygiene and household chores themselves.

Sometimes gender-based violence threatens the health of women and girls. A vast majority of women working in informal arrangements are not covered by protective rules social services and therefore they have limited access to HIV prevention, treatment; healthcare and support services. Violence against women affects the health, physical, emotional and mental state of the woman; the unborn baby is affected if the woman is pregnant. The physical effects are burns, abrasions, cuts, bites, broken bones and teeth. Physical injuries can lead to injuries of the head, the eyes, the chest, pain in the affected part of the body and even death. The mental problems include depression, sleeping problems, eating problems, stress, anxiety and suicide tries. The effects on the mother during pregnancy are poor nutrition, miscarriage, giving birth too early (premature) and giving birth to a dead child (stillbirth). Health education on issues about reproductive health should be included early enough into the school curriculum especially in developing countries to prepare girls for puberty. As the girl grows into womanhood and adulthood, there are many changes in the appearance of the female genital tract. Women play an important role in society and therefore need to be in good health always.

Glossary of Medical Terms in the Context Used In This Book

♦ **Adhesions:** Formation of scars on tissues and organs in the body that causes the surfaces of tissues to stick together

♦ **Anaemia**: A reduction in the number of red blood cells which carry oxygen in the body. Anaemia is characterised by weakness.

♦ **Bartholin's Glands**: These structures lie on either side of the opening of the vagina. They produce a substance that provides lubrication during intercourse.

♦ **Benign:** It is a type of growth that does not spread to other parts of the body and not likely to cause death but it can compress nearby tissues and organs.

♦ **Biopsy:** This involves collecting cells or tissues of the body for examination by a doctor known as the pathologist. The pathologist may look at the tissue under a microscope or perform other tests on the cells or tissues.

♦ **Broad Ligament**: Two structures that look like wings that extend from the side of the womb to the pelvic walls and divide the pelvic cavity into two parts, the anterior and posterior compartments.

♦ **Cancer**: A term for diseases in which abnormal cells divide without control and attack nearby tissues. Cancer cells can spread to other parts of the body from where they developed.

♦ **Cervix:** The lower narrow end of the womb that connects the cavity of the womb to the vagina. The cervix is also known as the neck of the womb.

♦ **Clitoris**: A short erectile organ at the top of the vestibule whose function is sexual excitement.

♦ **Cyst:** A sac or pouch filled with fluid or other material

♦ **Dilatation and Curettage**: A surgical procedure during which the neck of the womb (cervix) is opened (dilated) with the aid of instruments and the lining of the womb is scrapped. The tissue that is scraped off from the womb may be examined under the microscope.

♦ **Ectopic Pregnancy:** A pregnancy that attaches (implants) outside the womb usually in the fallopian tube. The fallopian tube may rupture and bleed as the pregnancy grows; this is a medical emergency.

♦ **Endometrial Biopsy**: Removal of a small piece of tissue from the lining of the womb (endometrium) for examination under the microscope. The result will tell the state of the womb that is the stage of the menstrual cycle, the presence of disease or inflammation.

♦ **Oestrogen**: This is a female sex hormone produced by the ovaries.

♦ **Fimbriae**: These are structures that look like fingers and found at the ends of the fallopian tubes.

♦ **Follicle:** A pouch-like depression or cavity.

♦ **Follicle Stimulating Hormone (FSH)**: A hormone made by the anterior pituitary gland in the brain during the first part of the menstrual cycle. It stimulates the growth of the Graafian follicle.

♦ **Graafian follicle**: A mature, fully grown ovarian cyst controlling the ripe ovum (egg).

♦ **Hormone:** This is a substance that is produced in one part of the body, carried by the blood to other organs or tissues where its action takes place.

♦ **Luteinising Hormone**: A hormone made by the anterior pituitary gland in the brain that stimulates ovulation and the growth of the corpus luteum.

♦ **Mucous**: A thick, slippery substance or fluid made by the lining (membranes) of certain organs of the body such as the nose, mouth, throat and vagina.

♦ **Oocyte**: A developing egg in the ovary.

♦ **Ovum**: The female reproductive cell.

♦ **Perineum:** This is the area between the vagina opening (Introitus) and the anus.

♦ **Reproduction:** The process by which an offspring or a child is formed.

♦ **Risk Factor:** Anything that increases a person's chance of getting a disease.

♦ **Screening**: The proactive application of a diagnostic test by a programme of testing by targeting the population to identify people who are at risk of developing a disease, and checking for disease when there are no symptoms.

♦ **Urethra**: A small structure that looks like a tube that drains urine from the bladder.

♦ **Urethral Meatus**: The structure through which urine is passed to the exterior

- **Vagina Introitus**: Vagina opening.

- **Vestibule**: The vestibule includes the clitoris, the urine pipe opening, and the vagina opening.

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What You Need To Know About Women's Health is an easy-to-use voluminous health check instruction book on women's health that encapsulates the peculiar nature of women and the girl-child and the many needs and changes that takes places in their reproductive system in their journey through life; the need for sex education of the average Nigerian woman and the girl-child, who neither is nor aims to be expert in health matters; as well as suggests different methods of family planning that agree with every woman and the girl-child in their search for good health.

In this compelling book that deals with everything the woman and the girl-child need to know about their health, **Dabota Yvonne Buowari**, a medical doctor and member of the Medical Women's International Association, shows the expertness of her profession by bringing to women and the girl-child, thorny health issues they go through from day-to-day and how to overcome them and live a healthy, productive, long-lasting life to the glory of God Almighty. The book's qualities are many: the style is good, the English are simple, and the author is sound, articulate and resourceful. It is a must-read for every woman and the girl-child.

If anyone needs proof of Dabota Yvonne Buowari's genius as a writer, this medical book is it. Oh, nice one, Dabota!

Gentle Finapiri

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Dabota Yvonne Buowari is a Nigerian trained medical doctor who graduated from the University of Port Harcourt with an interest in anaesthesia, emergency medicine, women's health and geriatrics. She is an active member of the Medical Women's International Association, Medical Women's Association of Nigeria, and Research Collaboration Network of the Nigerian Association of Resident Doctors. In 2021, she received an award from the Academy of Women in Academic Emergency Medicine and Researcher of the year award from the Society of Lifestyle Medicine of Nigeria. She is an author, poet and historian. This is her second book in the 'What You Need to Know Series', the first being 'What You Need to Know About Diabetes'.