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Physiology Assignment.

1.Briefly discuss the cyclic changes in the following:

a)Vagina:

This is a short tubular organ. It is lined by mucus membrane, which is formed by stratified epithelial cells.

i)Proliferative phase: epithelial cells of vagina are confined, changes from cuboidal to stratified type. The stratified is more resistant to trauma and infection. Estrogen is responsible for that.

ii) Secretory phase: vaginal epithelium proliferates due to actions of progesterone. It is also infiltrated with leukocyte. These two changes increases the resistance of vagina for infection .

B)Cervix:

The mucous membrane of the cervix shows cyclic change during different phases of menstrual cycle. These includes;

i) Proliferative phase: during this phase,the mucus membrane of the cervix becomes thinner and more alkaline due to the influence of estrogen. It helps in the survival and motility of spermatozoa.

ii) Secretory phase: during this phase, the mucous membrane of cervix becomes more thick and adhesive because of action of progesterone.

2.Explicate on Menstrual cycle.

Menstruation is a woman’s monthly bleeding, often called your “period.” When you menstruate, your body discards the monthly buildup of the lining of your uterus (womb). Menstrual blood and tissue flow from your uterus through the small opening in your cervix and pass out of your body through your vagina.

Menstrual cycle is defined as cyclic events that take place in a rhythmic fashion during the reproductive period of a woman’s life. Menstrual cycle starts at the age of 12 to 15 years, which marks the onset of puberty. The commencement of menstrual cycle is called menarche. Menstrual cycle ceases at the age of 45 to 50 years. Permanent cessation of menstrual cycle in old age is called menopause.

Duration of menstrual cycle is usually 28 days. But, under physiological conditions, it may vary between 20 and 40 days.During each menstrual cycle, series of changes occur in ovary and accessory sex organs.

These changes are divided into 4 groups: 1. Ovarian changes.

2. Uterine changes.

3. Vaginal changes

4. Changes in cervix.

Stages of menstrual cycle.

\* menstrual phase

\* follicular phase

\* ovulation phase

\* luteal phase

The length of each phase can differ from woman to woman, and it can change over time.

Menstrual phase

The menstrual phase is the first stage of the menstrual cycle. It’s also when you get your period.

This phase starts when an egg from the previous cycle isn’t fertilized. Because pregnancy hasn’t taken place, levels of the hormones estrogen and progesterone drop.

The thickened lining of your uterus, which would support a pregnancy, is no longer needed, so it sheds through your vagina. During your period, you release a combination of blood, mucus, and tissue from your uterus.

You may have period symptoms like these:

\* cramps

\* tender breasts

\* bloating

\* mood swings

\* irritability

\* tiredness etc

Follicular phase

The follicular phase starts on the first day of your period and ends when you ovulate.

It starts when the hypothalamus sends a signal to your pituitary gland to release follicle-stimulating hormone(FSH).This hormone stimulates your ovaries to produce around 5 to 20 small sacs called follicles. Each follicle contains an immature egg.

Only the healthiest egg will eventually mature. (On rare occasions, a woman may have two eggs mature.) The rest of the follicles will be reabsorbed into your body.

The maturing follicle sets off a surge in estrogen that thickens the lining of your uterus. This creates a nutrient-rich environment for an embryo to grow.

Ovulation phase

Ovulation is the process by which the graafian follicle ruptures with consequent discharge of ovum into the abdominal cavity. It is influenced by LH. Ovulation occurs on 14th day of menstrual cycle in a normal cycle of 28 days. The ovum enters the fallopian tube.

Process of Ovulation

Mechanism of ovulation is not known clearly. Process of ovulation is explained in the next Chapter.

Stages of ovulation

1. Rupture of graafian follicles takes place at the stigma

2. Follicular fluid oozes out.

3. Germ hillock is freed

4.Ovum is expelled out into the abdominal cavity along with some amount of fluid abs granulosa cells .

5.From Abdominal cavity,the ovum enters the Fallopian tube through the fimbriated end.

Ovum becomes haploid before or during ovulation by the formation of polar bodies. After ovulation, the ovum is viable only for 24 to 48 hours. So it must be fertilized within that time.

Fertilized ovum is called zygote. Zygote moves from fallopian tube and reaches the uterus on 3rd day after ovulation. It is implanted in the uterine wall on 6th or 7th day. If fertilization does not occur, ovum degenerates. Generally, only one ovum is released from one of the ovaries.

 Luteal phase

After the follicle releases its egg, it changes into the corpus luteum.This structure releases hormones, mainly progesterone and some estrogen. The rise in hormones keeps your uterine lining thick and ready for a fertilized egg to implant.

If you do get pregnant, your body will produce human chorionic gonadotropin (hCG). This is the hormone pregnancy tests detect. It helps maintain the corpus luteum and keeps the uterine lining thick.

If you don’t get pregnant, the corpus luteum will shrink away and be resorbed. This leads to decreased levels of estrogen and progesterone, which causes the onset of your period. The uterine lining will shed during your period.

During this phase, if you don’t get pregnant, you may experience symptoms of premenstrual syndrome(PMS). These include:

\* bloating

\* breast swelling, pain, or tenderness

\* mood changes

\* headache

\* weight gain

\* changes in sexual desire

\* food cravings

\* trouble sleeping

The luteal phase lasts for 11 to 17 days.

They are different things that can alter a woman’s menstrual cycle:

\* Birth control: The birth control pill may make your periods shorter and lighter. While on some pills, you won’t get a period at all.

\* Pregnancy: Your periods should stop during pregnancy. Missed periods are one of the most obvious first signs that you’re pregnant.

\* Uterine fibroids: These noncancerous growths in your uterus can make your periods longer and heavier than usual.

\* Eating disorders: Anorexia, bulimia, and other eating disorders can disrupt your menstrual cycle and make your periods stop.

REGULATION OF MENSTRUAL CYCLE

Regulation of menstrual cycle is a complex process that is carried out by a well organized regulatory system. The regulatory system is a highly integrated system, which includes hypothalamus, anterior pituitary and ovary with its growing follicle. In the whole scenario, the growing follicle has a vital role to play.

 MENSTRUAL SYMPTOMS

Menstrual symptoms are the unpleasant symptoms with discomfort, which appear in many women during menstruation. These symptoms are due to hormonal withdrawal, leading to cramps in uterine muscle before or during menstruation.

Common Menstrual Symptoms

1. Abdominal pain

2. Dysmenorrhea (menstrual pain).

3. Headache.

4. Occasional nausea and vomiting.

5. Irritability.

6. Depression.

7. Migraine.

PREMENSTRUAL SYNDROME.

Premenstrual syndrome (PMS) is the symptom of stress that appears before the onset of menstruation. It is also called premenstrual stress syndrome, premenstrual stress or premenstrual tension. It lasts for about 4 to 5 days prior to menstruation. Symptoms appear due to salt and water retention caused by estrogen.

Common Features

1. Mood swings

2. Anxiety

3. Irritability

4. Emotional instability 5. Headache

6. Depression

7. Constipation

8. Abdominal cramping

9. Bloating (abdominal swelling).

 ABNORMAL MENSTRUATION

1. Amenorrhea: Absence of menstruation.

2. Hypomenorrhea: Decreased menstrual bleeding.

3. Menorrhagia: Excess menstrual bleeding.

4.Oligomenorrhea:Decreased frequency of menstruation.

5. Polymenorrhea:Increased frequency of menstruation.

6. Dysmenorrhea: Menstruation with pain.

7. Metrorrhagia: Uterine bleeding in between menstruations.