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QUESTIONS.

Briefly discuss the CYCLIC CHANGES in any two of the following:

a) CERVIX (b) VAGINA (c) BREASTS

Explicate any one of the following:

1) Menstrual cycle

2) Hormonal regulation of the menstrual cycle

Cyclic changes in Breast

Each month, women go through changes in the hormones that make up the normal menstrual cycle. The hormone estrogen is produced by the ovaries in the first half of the menstrual cycle. It stimulates the growth of milk ducts in the breasts. The increasing level of estrogen leads to ovulation halfway through the cycle. Next, the hormone progesterone takes over in the second half of the cycle. It stimulates the formation of the milk glands. These hormones are believed to be responsible for the cyclical changes that many women feel in their breasts just before menstruation. These include swelling, pain, and soreness.

During menstruation, many women also have changes in breast texture. Their breasts may feel very lumpy. This is because the glands in the breast are enlarging to get ready for a possible pregnancy. If pregnancy does not happen, the breasts go back to normal size. Once menstruation starts, the cycle begins again.

Cyclic changes in Cervix

Cervical mucus at midcycle is increased in amount, acellularity, water content, and fluidity. Furthermore, cervical mucus at this time is well supplied with carbohydrate and presumably amino acids. From a teleologic standpoint, we may conclude that because of these characteristics the sperm, on deposition in the vagina; find an environment propitious for their nutrition and migration through the cervical canal.

MENSTRUAL CYCLE

Menstruation (also termed period or bleeding) is the process in a woman of discharging (through the vagina) blood and other materials from the lining of the uterus at about one monthly interval from puberty until menopause (ceasing of regular menstrual cycles), except during pregnancy. This discharging process lasts about 3-5 days.

The signs and symptoms may include;

- Headache
- Bloating
- Acne
- Pains in the low abdomen
- Tiredness
- Mood changings
- Food cravings
- Breast soreness and diarrhea

When does menstruation begin? When does it end?

Menstrual blood is predominantly arterial, with only 25% of the blood being of venous origin. It contains tissue debris, prostaglandins, and relatively large amounts of fibrinolysin from endometrial tissue. The fibrinolysin lyses clots, so that menstrual blood does not normally contain clots unless the flow is excessive. The usual duration of the menstrual flow is 3 to 5 days. Flow as short as 1 day and as long as 8 days can occur in normal women. The amount of blood lost may range normally from slight spotting to 80 mL; the average amount lost is 30 ml. Loss of more than 80 mL is abnormal. The amount of flow can be affected by the thickness of the endometrium, medication, and diseases that affect the clotting mechanism. The normal menstrual cycle is between 20-35 days averagely 28days. First Menses occurs at puberty and is called Menarche and ceases at menopause. Menstrual cycle could be ovulatory or anovulatory.

The menstrual cycle has three phases:

1. **Follicular Phase (Days 1-14):** This phase of the menstrual cycle occurs from approximately day 1-14. Day 1 is the first day of bright red bleeding, and the end of this phase is marked by ovulation. While menstrual bleeding does happen in the early part of this phase, the ovaries are simultaneously preparing to ovulate again. The pituitary gland (located at the base of the brain) releases a hormone called FSH – follicle stimulating hormone. This hormone causes several ‘follicles’ to rise on the surface of the ovary. These fluid filled “bumps” each contain an egg. Eventually, one of these follicles becomes dominant and within it develops a single mature egg; the other follicles shrink back. If more than one follicle reaches maturity, this can lead to twins or more. The maturing follicle produces the hormone estrogen, which increases over the follicular phase and peaks in the day or two prior to ovulation. The lining of the uterus (endometrium) becomes thicker and more enriched with blood in the second part of this phase (after menstruation is over), in response to increasing levels of estrogen. High levels of estrogen stimulate the production of gonadotropin-releasing hormone (GnRH), which in turn stimulates the pituitary gland to secrete luteinizing hormone (LH). On about day 12, surges in LH and FSH cause the egg to be released from the follicle. The surge in LH also causes a brief surge in testosterone, which increases sex drive, right at the most fertile time of the cycle.

2. **Ovulatory Phase (Day 14):** The release of the mature egg happens on about day 14 as a result of a surge in LH and FSH over the previous day. After release, the egg enters the fallopian tube where fertilization may take place, if sperm are present. If the egg is not fertilized, it disintegrates after about 24 hours. Once the egg is released, the follicle seals over and this is called the corpus luteum.

3. **Luteal Phase (Days 14-28):** After the release of the egg, levels of FSH and LH decrease. The corpus luteum produces progesterone. If fertilization has occurred, the corpus luteum continues to produce progesterone which prevents the endometrial lining from being shed. If fertilization has not occurred, the corpus luteum disintegrates which causes progesterone levels to drop and signals the endometrial lining to begin shedding.

Normal Bleeding

There is a range of normal bleeding – some women have short, light periods and others have longer, heavy periods. Your period may also change over time.

Normal menstrual bleeding has the following features:

- Your period lasts for 3-8 days
- Your period comes again every 21-35 days (measured from the first day of one period to the first day of the next)
- The total blood loss over the course of the period is around 2-3 tablespoons but secretions of other fluids can make it seem more