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1.) THE CYCLIC CHANGES OF THE CERVIX

The cervix, which structurally and functionally separates the vagina from the uterus, it is composed of a sphincter muscle, and although the anatomy of the cervix varies in different mammals , in most the lumen is interrupted by transverse interlocking ridges termed annular rings. These ridges are responsible for the characteristic appearance of the cervix in cross section and are developed to differing degrees of prominence according to species. The cervix undergoes cyclic changes in volume with maximum width at midcycle.

The lumen of the cervix is lined by a tall- columnar epithelium, mucus- secreting goblet cells are present in the mucosa, which is intricately folded and branched and thus has an enormous secretory surface. The secretion of the cervical goblet cells, together with a minor contribution from the uterus, constitutes the cervical muscle. The myometrium of the cervix is very rich in dense fibrous tissue, has a large number of smooth muscle cells, and includes much collagenous and elastic material.

Most cervical glands are localized inside the cervical canal, but there also exist a number of glands on the portio vaginalis in some women due to congenital or acquired

factors or a combination. The number of glands on the portio varies from zero to several tenths of the whole number has taken.

The cervix demonstrates a considerable amount of anatomic (and physiologic) variation throughout the **menstrual cycle**. This is required to either promote or prevent the passage of **spermatozoa** and also to facilitate endometrial shedding. Cyclical changes of the diameter of the internal cervical is have been characterised. In Asplund's classic series of radiographic studies, a modified hysterographic technique was used to record its variation throughout the phases of the menstrual cycle. It was observed that in the menstrual and proliferative phases the cervical canal was at its widest, and the cervical mucosa more serrated, when compared to the secretory phase. This has been subsequently supported and further quantified in magnetic resonance imaging (MRI) studies in which the mean width of the cervical canal was 4.5 mm in the follicular phase and 3.8 mm in the secretory phase of the menstrual cycle. This study also demonstrated that the overall width and length of the cervix were greatest in the follicular phase of the menstrual cycle. In a separate radiographic study that sought to determine the site of the isthmus, it was observed that the internal is appeared tightly closed during the luteal phase of the ovarian cycle and appeared to relax before the onset of menstruation. Using a technique termed ‘direct hysterography,’ the author observed that lipiodol injected into the uterine cavity was retained between one to three hours in the follicular phase, between four to eight hours in the luteal phase, and less than 30 min two days prior to menstruation. These results indicate that the cervix is able to narrow and widen at the junction between the corpus and the cervix.

THE CYCLIC CHANGES OF THE BREASTS

During menstrual cycle, each month women go through changes in the hormones that makes up the normal menstrual cycle. **The hormone estrogens** 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 to ovulation halfway through the cycle. Next the **hormone progesterone** takes over in the second half of the cycle. It stimulates the formation of milk glands. **These hormones are believed to be responsible for the cyclical change that many women feel in their breasts just before menstruation i.e. (swelling, pains and soreness) and also changes in breasts 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 not, it goes back to its normal size.

During pregnancy and milk production.

Breast are one of the early signs of pregnancy. This result of the **hormone progesterone**. The dark areas of skin around the nipples (the areolas) begins to swell. This is followed by the rapid swelling of the breasts themselves. Most pregnant women feel soreness down the sides of the breasts, and nipple tingling or soreness. **This is because of the growth of the milk duck system and the formation of many more lobules**. By the fifth or sixth month of pregnancy, the breasts are fully capable of producing milk**.** Estrogen controls the growth of the duct, and progesterone controls the glandular buds. Many other hormones also play vital roles in milk production. These include follicle-stimulating hormone (FSH), luteinizing hormone (LH), prolactin, and human placental lactogen (HPL).

During menopause

By the time a woman reaches her 40s and early 50s, perimenopause is starting or is well underway. At this time, the levels of estrogen and progesterone begins to change. estrogen and progesterone begin to change. Estrogen level begins to dramatically decrease. This leads to many symptoms commonly linked to menopause. Without estrogen, the breast's connective tissue becomes dehydrated and its no longer elastic .the breasts tissue, which was prepared to make milk, shrinks and loses shape. This lead to the saggy breast associated with women of this age.

2.) THE MENTRUAL CYCLE

The menstrual cycle is the monthly series of changes a woman's body goes through in preparation for the possibility of pregnancy. Each month, one of the ovaries releases an egg, a process called **ovulation.** At the same time, hormonal changes prepare the uterus for pregnancy. If ovulation takes place and the egg isn't fertilized, the lining of the uterus sheds through the vaginal. This is a menstrual period.

The menstrual cycle, which is counted from the first day of one period to the first day of the next, isn't the same for every woman. Menstrual flow might occur every 21 to 35 days and last two to seven days. For the first few years after menstruation begins, long cycle is common. However, menstrual cycle tends to shorten and become more regular as you age. Your menstrual cycle might be regular- about the same length every month- or somewhat irregular, and your period might be light or heavy, painful or pain-free, long or short, and still be considered normal. Within a broad range.

WHAT HAPPENS DURING THE 28 DAYS MENSTRUAL CYCLE

DAY ONE

Starts with the first day of your period. The blood and tissue lining the uterus brakes down and leaves the body. This is your period, for many women, bleeding lasts for 4 to 8 days. Hormone level are low. Low level of the hormone estrogen can make you feel depressed or irritable.

DAY ONE TO FIVE

During day 1 TO 5 of the cycle, fluid filled pockets called follicles develop on the ovaries. Each follicle contains an egg.

DAY FIVE TO EIGHT

Between day 5 and 7, just one follicle continues growing while the other stop growing and are absorbed back into the ovary. Levels of the hormone estrogen from the ovaries continues rising. By Day 8 the follicle puts out increasing levels of estrogen and grows large. Usually by Day 8 period bleeding has stopped. Higher estrogen levels from the follicle make the lining of the uterus grow and thicken.

DAY FOURTEEN

Few days before day 14, your estrogen levels peak and causes the mature follicle to burst and release an egg from the ovary, called ovulation, on day 14. A woman is most likely to get pregnant if she has sex on the day of ovulation or during the three days before ovulation. Few days before ovulation, your estrogen levels are at their highest. You may feel best around this time, emotionally and physically.

DAY FIFTEEN TO TWENTY-FOUR

Over the next week, the fallopian tubes help the newly released egg travel away from the ovary down to the uterus. The ruptured follicle on the ovary makes more of the hormone progesterone which also helps the uterine lining thicken even more. If a sperm joins with the

egg in the fallopian tube, the fertilized egg will continue down the fallopian tube and attach to the lining of the uterus. Pregnancy begins once a fertilized egg attaches to the womb.

DAY TWENTY-FOUR TO TWENTY-FOUR

If the egg is not fertilized, it breaks apart. Around day 24, your estrogen and progesterone level drop if you are not pregnant. This rapid change in levels of estrogen and progesterone can cause your moods to change, in the final step of the menstrual cycle, the unfertilized egg leaves the body along with the uterine lining, beginning on Day 1 of your next period and menstrual cycle.