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**Lecture title:** The female genital system

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**Summary: Freemartin:**

The bovine freemartin is a genetic female born twin with a normal male. It has exchanged whole blood. The structural modifications of female genital system are supposed to result from the influence of androgen hormones produced by the male fetus.

The gonads are undifferentiated. Ovaries are small, the mullerian duct is not differentiated fully, the uterus is small and incomplete, the vagina is fairly developed and the cervix is usually absent. As well as gonads of male system which is also undifferentiated in the structure.

**White heifer disease:**

generally abnormal female reproductive system like uterus unicorns, abnormal horn as a flat muscular band, the condition more commonly occurs in short horn cow.

**Ovary:**



**The functional activity of the ovary is under the control of the anterior pituitary gland through the two hormones, follicle stimulating hormones (FSH) and the luteinizing hormone (LH). Hence any pituitary endocrine disturbance affecting the gonadotropin levels affects the ovaries**

### **Ovarian cyst:**

**The ovaries contain one or more cysts of varying size. Though met with in all animals, cysts of the ovary are more frequent in the cows, sows and mares.**

**The cause of ovarian cyst is considered to be failure of release of LH or failure of release of LH in sufficient quantities to cause ovulation. Or it may also due to imbalance of FSH and LH**

### **Types:**

**1- Follicular cysts: in this condition, the graffian follicle does not rupture as it should normally and so liquor folliculi accumulates and so the cysts enlarge up to as much as 11cm in diameter, the granulosa cells which are normally of several layers degenerate leaving only a single layer of granula cells appearing as a string of pearls**

### **2- lutein cyst:**

**Normally after ovulation, corpus luteum forms from the proliferation and luteinization of the cells of theca interna and the follicular epithelial cells**



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**A small central cavity is present, but in lutein cysts, there is abnormal accumulation of fluid in this cavity. These are more common in cows and sows than in other animals**

**The cause is probably non-release of adequate quantities of luteinising hormone**

**Microscopically:**

**The cyst wall comprises of three layers surrounding the central cavity containing homogenous content. The inner layer consists of a thin band of loose c.t separating the adjacent luteal tissue from cystic contents. The middle layer has varying thickness of lutein tissue. The outer layer consists of concentrically arranged dense bands of connective tissue merging with ovarian stroma.**

**Macroscopically:**

**The ovary is large, round, oval and shape. The corpus luteum is not discernible on the surface of normal one. The cysts have a narrow internal lining of yellowish-brown luteal tissue and contents are opalescent, light yellow and gelatinous.**