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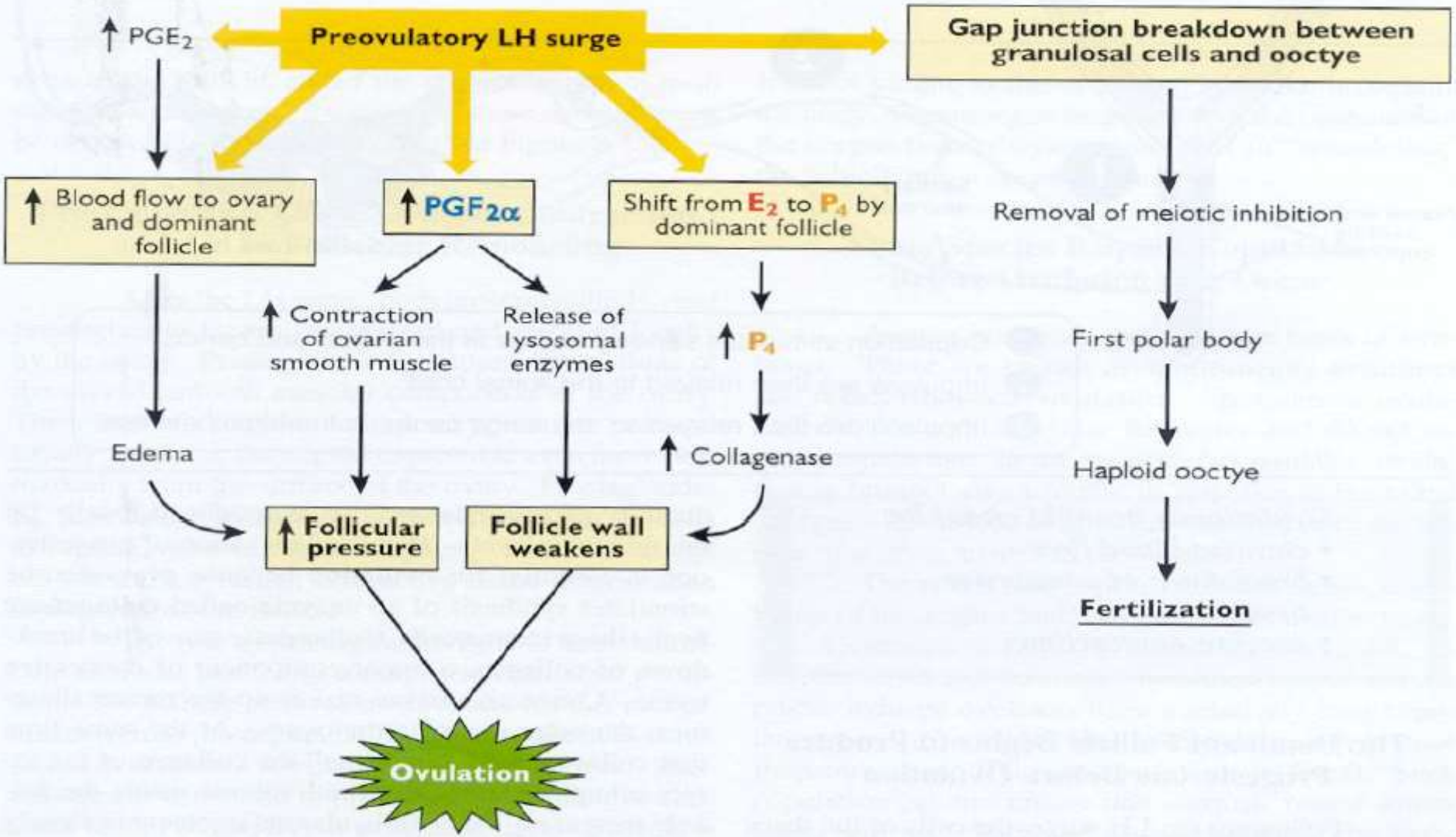
Ovarian cysts in domestic animals

Ovarian cysts in cattle are the frequent cause of abnormal estrus behavior and infertility in cows. The incidence varies between 5-45%. Mostly develop during the post partum period. 14% of all cows develop cysts in life.

Ovarian Events caused by the Preovulatory LH Surge



Etiology: Exact etiology not known but endocrine dysfunction and mechanical interference are the two postulated causes. The possible mechanisms include

1) Low LH

2) Lack of LH receptors

3) Lack of response to estrogen

4) ↑ suprabasal P_4

5) ↑ ACTH

6) ↑Prolactin

7) ↓ Thyroid function peptides

8) ↑ Endogenous opiod

9) Low glucose and insulin

Predisposing factors

Common in dairy cows

Close confinement increases the incidence

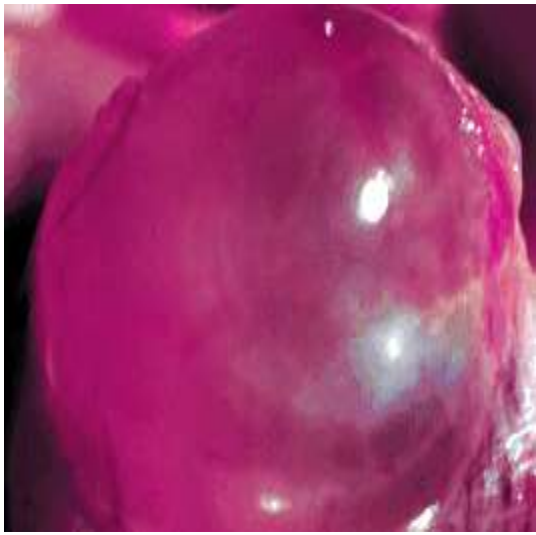
Common during 2^{nd} to 5^{th} lactation

High milk production increases the incidence

High estrogenic feeds

Stress at parturition

Type of Cysts : Follicular and Luteal



Clinical findings

Anestrus in luteal cysts (usually single)
Nymphomania in follicular cysts (multiple)
Frequent and prolonged estrus
Masculine behavior
↑ 17 keto-steroids and adrenal virilism
Sterility hump
Edematous vulva
Vaginal prolapse
Mucometra
Enlarged uterus
Swiss cheese appearance of endometrium
Clitoral hypertorphy

Diagnosis:

Transrectal palpation finding of enlarged ovaries and fluid filled structures

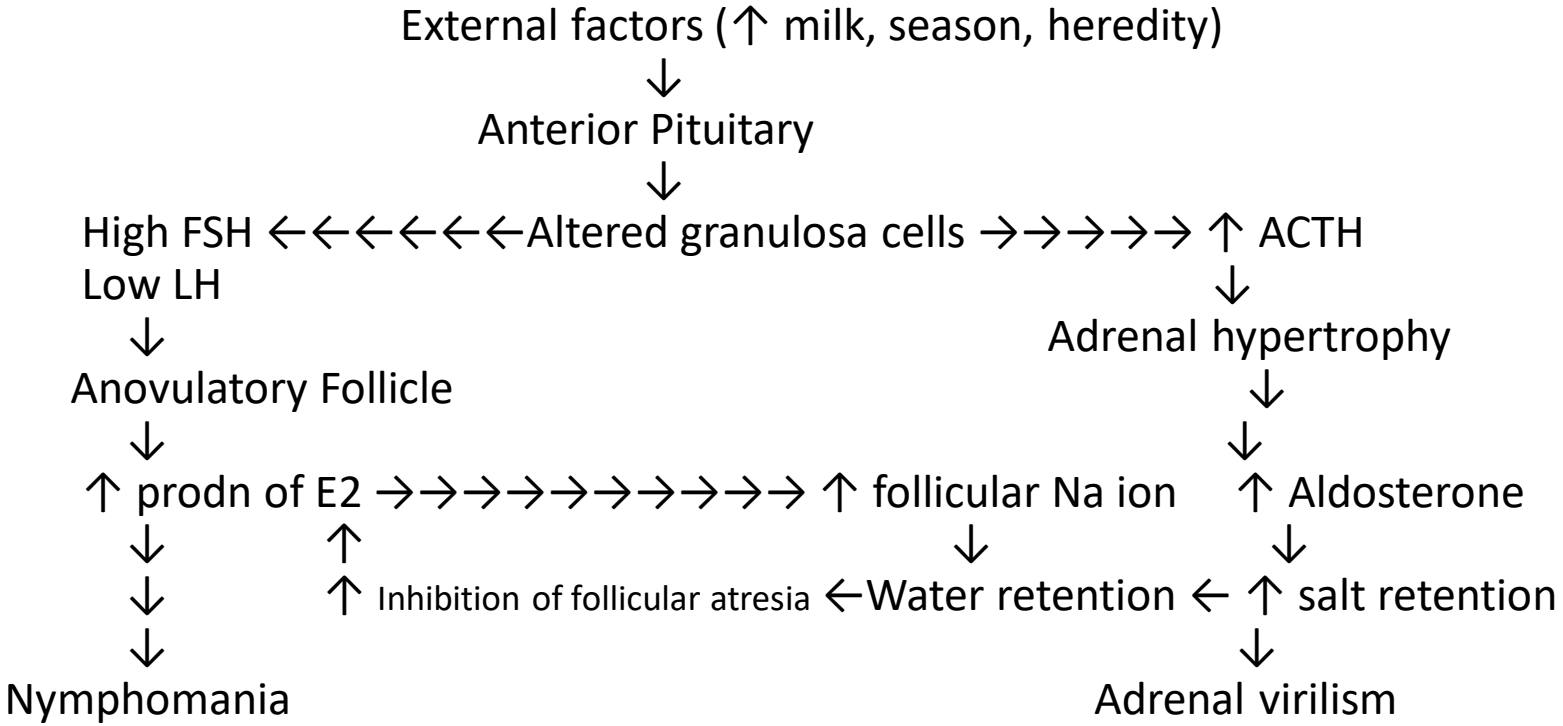
Transrectal ultrasonography

Plasma progesterone profiles

Most cows develop cysts during postpartum period some may resolve spontaneously

- Persistence of cysts results in pathologies in uterus and other places like mucometra, adrenal virilism, bull like appearance, sterility hump etc.

Possible etiopathology of follicular cysts



Therapy

- Spontaneous recovery
- Manual rupture
- Pottassium Iodide 10-15 gm for 5 days, Iodine Inj.(Ifer-H 2 ml SC)
- hCG Injection 1500-5000 IU IM or IV

  Chorulon, Pubergen, Profasi
- GnRH 40- 100 µg IM or IV : Inj.Receptal 10mL

Oral eltroxin

- Prostaglandin Injection Lutalyse, Juramate, Iliren
- Progesterone 500mg IM or P4 implants
- hCG plus PG 9 days later
- GnRH plus PG 9 days later
- Ovusynch protocol: GnRH + PG 7 days + GnRH

  Day 0 Day 7 Day 9
- P4 implant + PG + GnRH
- Prophylactic GnRH 8-20 days post partum

Ovarian cysts in bitches

Ovarian cysts are detected in older Bitches at ovariohysterectomy

Frequently of parabursal origin.

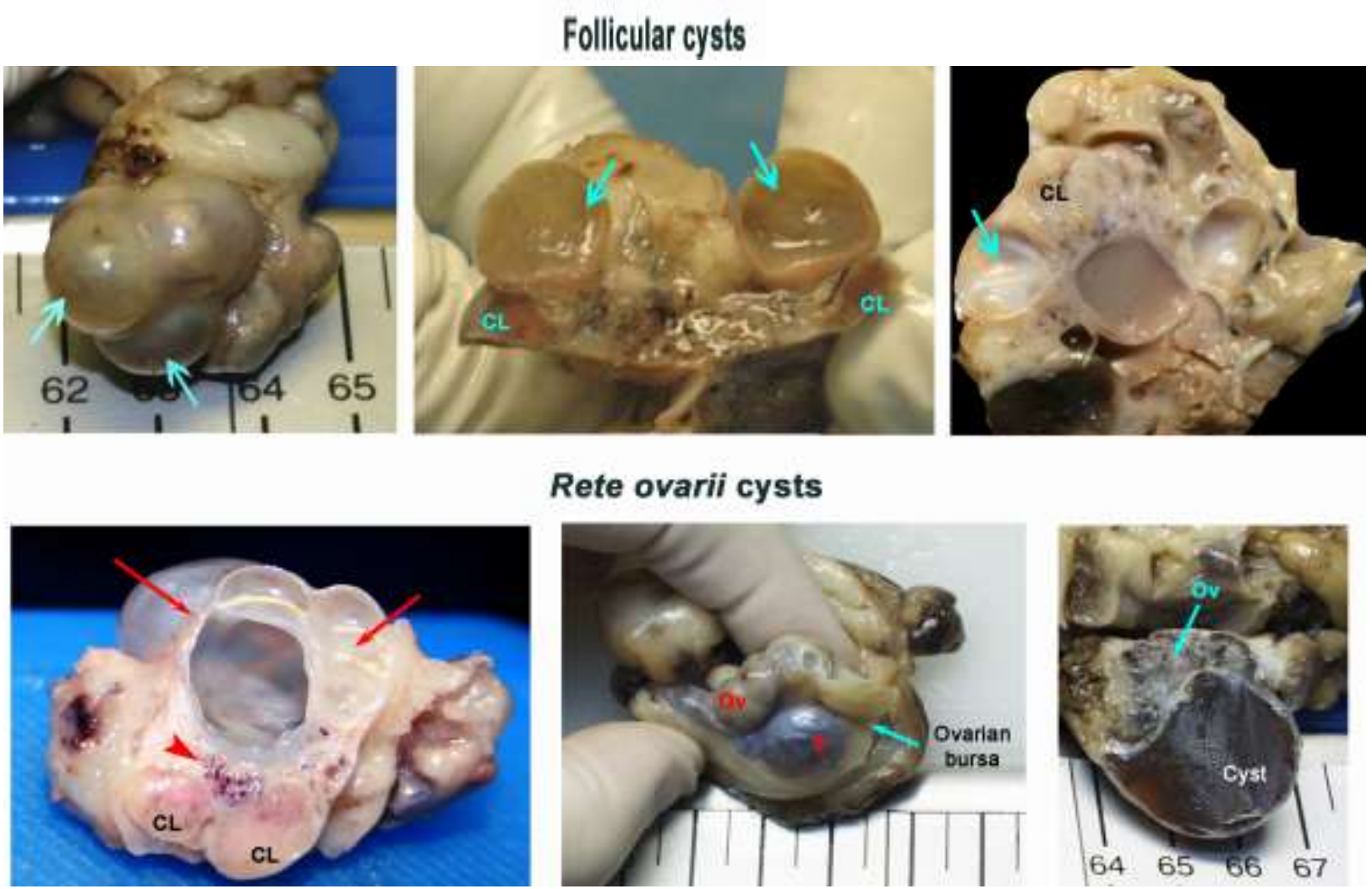
Bitches with ovarian cysts may show prolonged bleeding or prolonged estrus

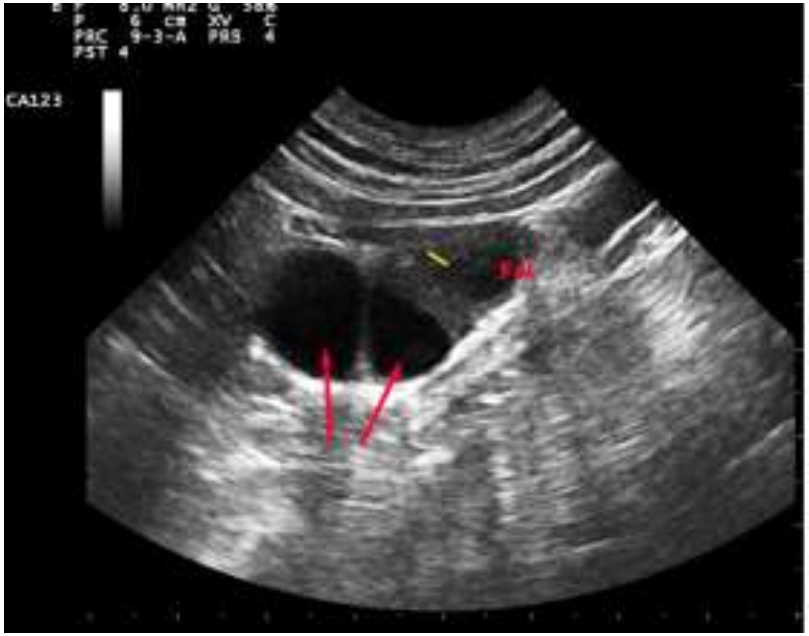
Estrogen producing cysts may sometimes produce persistent estrus with vulval discharge, flank alopecia and hyperkeratosis.

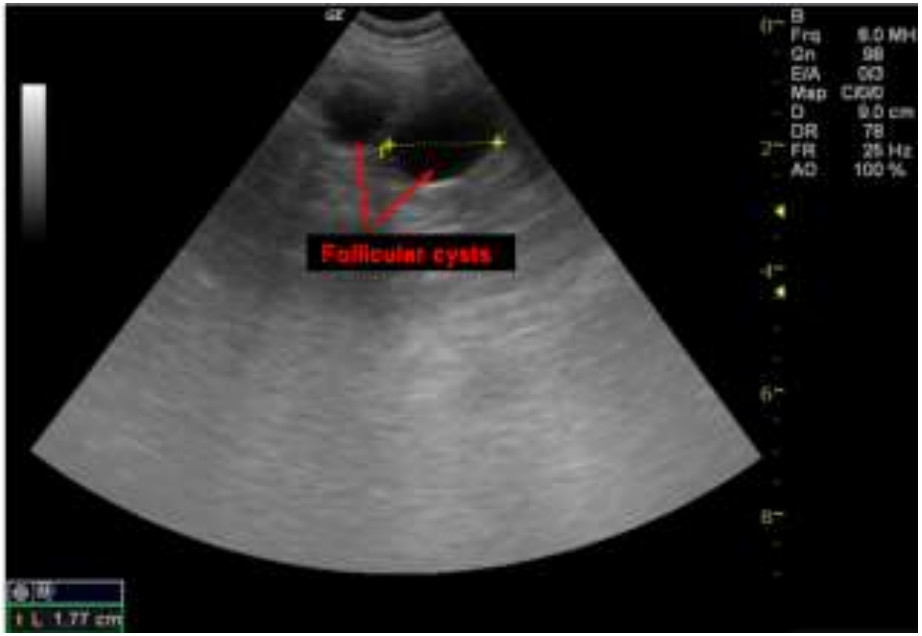
Bitches are presented to the clinic due to prolonged oestrus or vaginal discharge outside of physiological oestrous cycle Vulvar discharge is sero-sanguineous or sanguineous-purulent.

Localization and number	Number of bitches (%)
Multiple cysts on both ovaries	48 (66)
Multiple cysts on a single ovary	9 (12)
Multiple cysts on one ovary and solitary cyst on contralateral ovary	3 (4)
Solitary cysts on both ovaries	5 (7)
Solitary cyst on a single ovary	8 (11)

Canine ovarian cysts have been classified as follicular and non follicular cysts (cysts from rete ovarii and parovarian cysts







Persistent vaginal cornification (> 21 days)

GnRH, 25 µg IM (queen) or 50 µg IM (bitch); or LH, 2.5 mg IM (queen) or 5 mg IM (bitch)

Other treatment options of ovarian cysts may be the aspiration of cystic fluid via laparotomy in the way described by Fayrer- Hosken et al.
(1992) or ultrasound- guided aspiration. The latter was successfully performed in six bitches of which three subsequently conceived

Ovarian cysts in sheep and goats

Cystic ovaries appear to be more common in goats than in sheep.

In one study, 2.4% of more than 1000 female goats examined at slaughterhouses had ovarian cysts.

Owners often make the diagnosis based on short cycles or nymphomania, so cystic ovarian disease probably is over-diagnosed.

Affected goats may evidence pawing the ground and nymphomania or anestrus.

Ultrasonography and hormone profiles can aid in diagnosis

Therapy involves the administration of hCG, GnRH or combinations of hCG and progesterone

Ovarian cysts in sows

Around 8 to 10 percent of sows have a poor production record due to cystic ovaries. Initially, these animals have a normal first or second litter and then. instead of showing an increase In litter the number of piglets decreases: the animal exhibits irregular estrus or no estrus at all.

Follicular cysts small and multiples develops from mature follicles cysts, not ovulated and neither were partially lutenized.

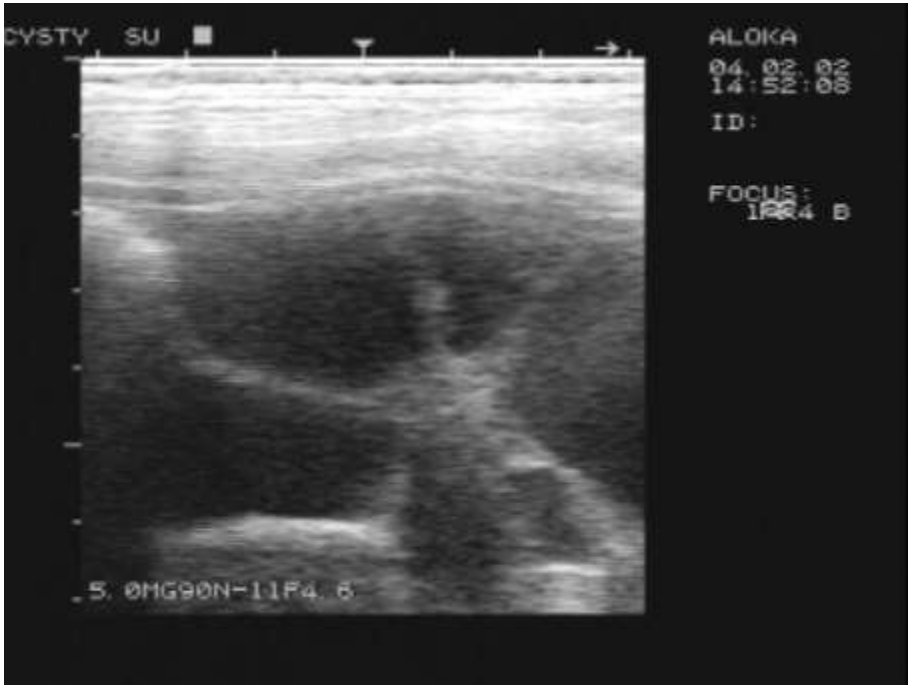
Follicular cysts originate from follicles which do not ovulate but continually grow until they exceed a diameter of 11 mm

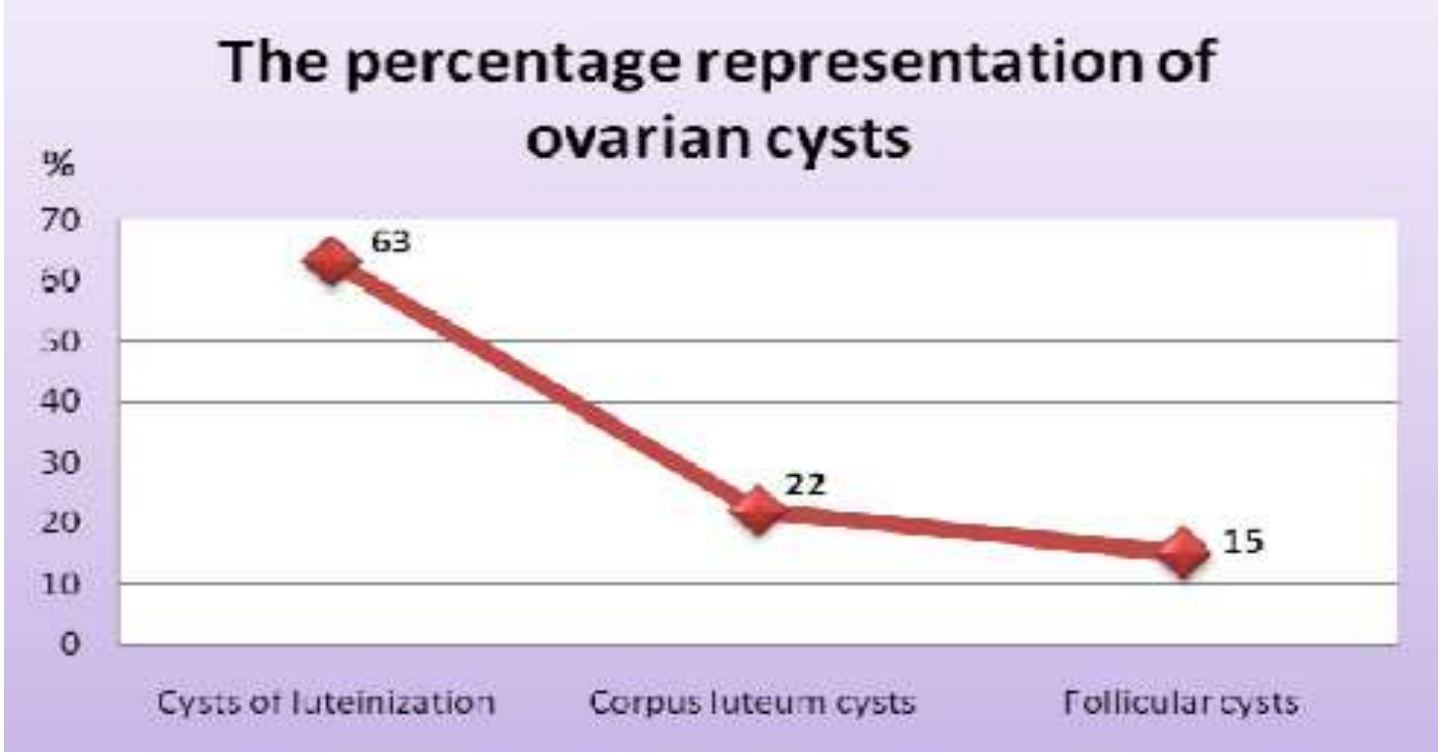
Luteal cysts arise from ovulated follicles, presumably due to the premature closure of the ovulation site and are assumed to develop from overgrown corpora haemorrhagica

Single cysts can coexist with normal follicles and corpora lutea and appear to cause little interference with the cycle length. Multiple large or small cysts without corpora lutea in ovaries are common and are always associated with temporary or permanent infertility

There are no pathognomic clinical signs for cystic ovaries in pigs. Symptoms of this disorder include anoestrus and irregular and/or prolonged estrous cycles

However, it leads to decreased farrowing rates as well as smaller litter sizes and it is a source of sub-fertility in sow herds





Positive response in sows with large follicular ovarian cysts to the treatment consisting of 2 administrations of 100 µg GnRH at a 12-hour interval. hCG and PG can also be used

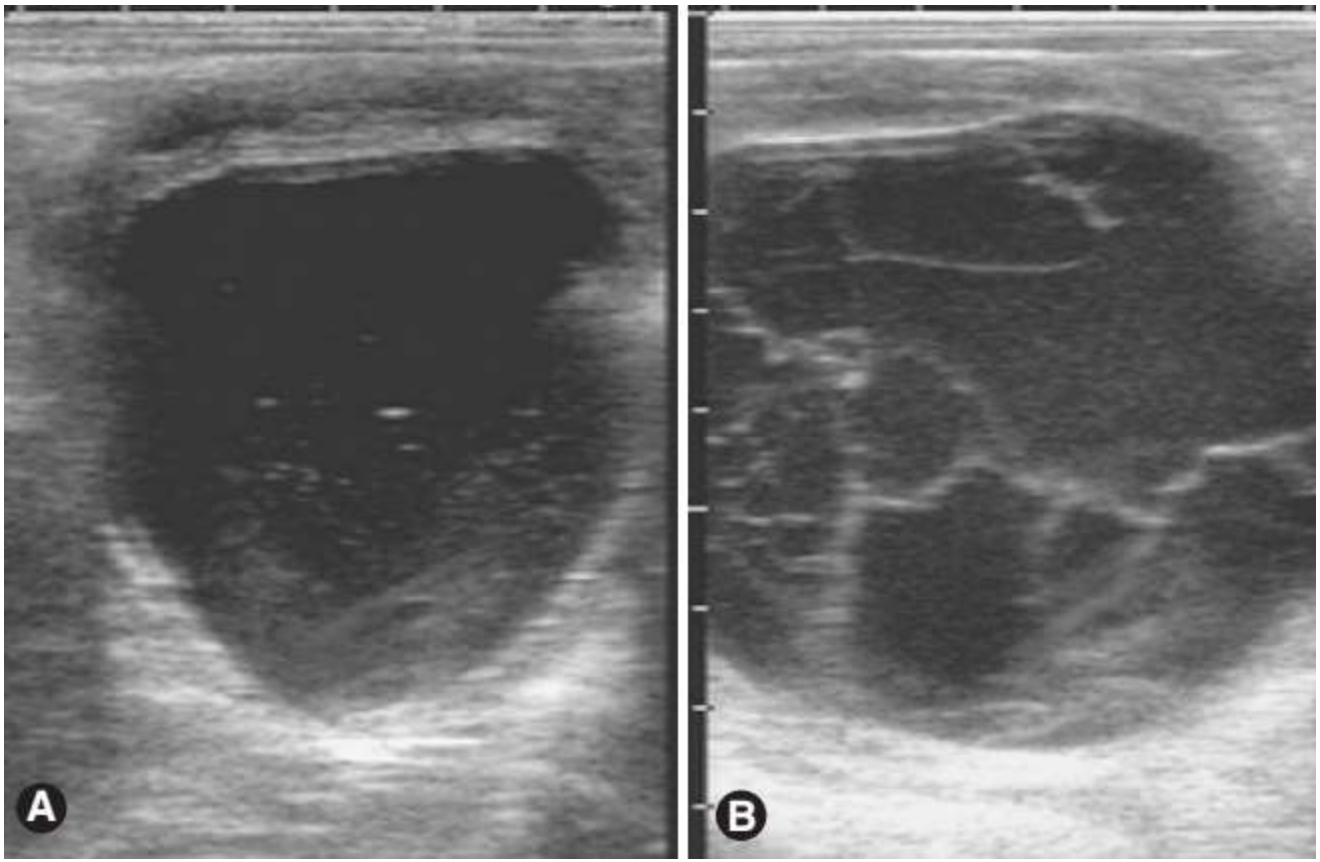
Ovarian cysts in mares

Anovulatory follicles in mares have some characteristics that are similar to the cystic ovarian syndrome in cattle.

Ovulation failure occasionally occurs during the physiologic breeding season. Anovulatory follicles may be large (5 to 15 cm in diameter), persist for up to 2 months, and result in a prolonged period of behavioral anestrus and a long interovulatory interval

The incidence of anovulatory follicles increases with age. Mares 16 to 20 years old were noted to form anovulatory follicles.

Anovulatory follicles in mares



A majority of anovulatory follicles eventually become luteinized (85.7%), although some remain as follicular (nonluteal) structures (14.3%). Progesterone levels may be used to determine the luteal status of anovulatory follicles

Possible symptoms include:

Behavior changes, especially corresponding with fertility cycles

Refusing to accept a rider
Refusing to accept a stud
Erratic heat cycles
Infertility

A majority of nonluteinized anovulatory follicles will spontaneously regress in 1 to 4 weeks.

Administration of prostaglandins will result in the destruction of the luteal cells in mares with luteinized anovulatory follicles, a rapid decline in serum progesterone levels, and a return to estrus.

Granulosa-Theca Cell Tumors in the Mare

Granulosa-theca cell tumors (GCT's) represent the most common group of tumors that develop in the equine ovary and probably comprise 2.5% of all equine tumors.

Reported in all ages and breeds, even in pregnant mares, but are most common in five- to ten-year-old mares.

They arise from sex cord- stromal tissue within the ovary; most are benign and unilateral, but hormonally active.

Mares with GCT's usually exhibit one of three types of behavior depending upon the type and amount of hormones produced by their tumor. These are

1) prolonged anestrus,

2) persistent or intermittent estrus behavior (nymphomania), or

3) stallion-like behavior.

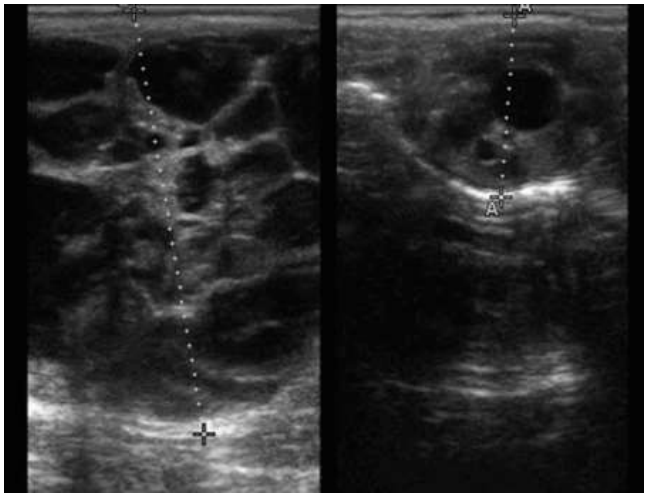
Mares exhibiting the latter may also have a crested neck and enlarged clitoris.

Serum inhibin and testosterone are elevated in 87% and 54%, respectively, of mares with granulosa cell tumors. A serum testosterone concentration of >100 pg/ml is considered diagnostic for a GCT in a mare.

The diagnosis of GCT's in mares is based on clinical history, including changes in behavior, rectal palpation, ultrasonography, and serum hormone analysis.

By rectal palpation, the affected ovary is enlarged; it may be cystic and/or abnormally firm; an ovulation fossa is typically absent. Palpation of both ovaries is important because ovarian enlargement may be associated with other conditions, e.g. hematoma. If the contra-lateral ovary is active, the enlarged ovary probably does not have a GCT

GCT’s can be multilocular and honeycombed to dense, knobby or smooth. Some GCT’s may appear with a single, fluid-filled cyst or as a solid ovarian mass.



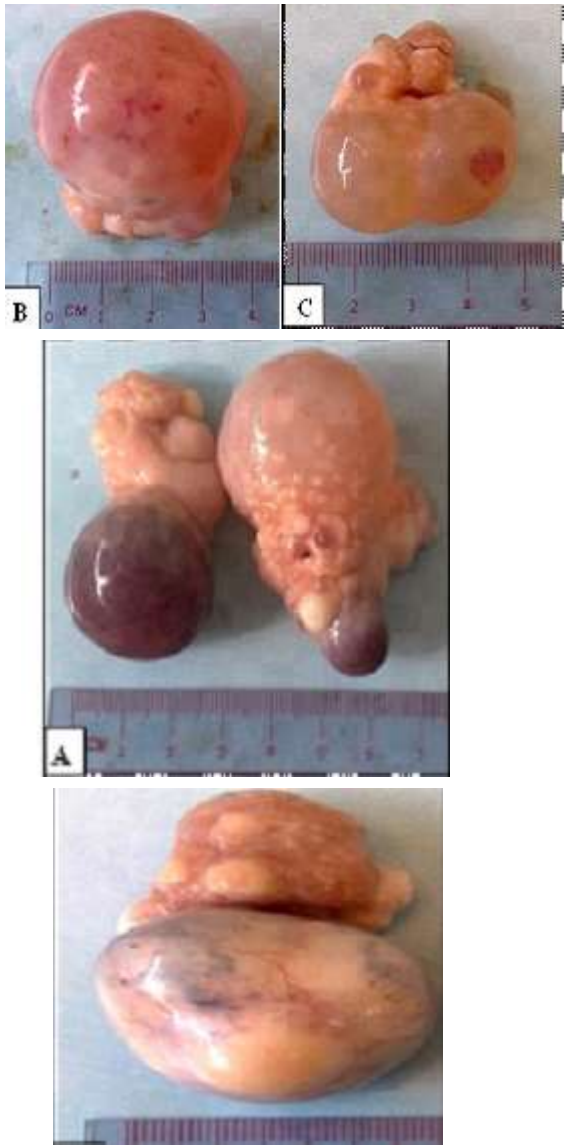
Treatment for granulosa-theca cell tumors is surgical removal of the affected ovary. Most mares return to normal estrous cycles within 6-8 months following the ovariectomy, with a range of 2-16 months.

Ovarian cysts in camels

In fact, the term "cystic ovaries" does not always apply to camelidae because some females develop follicular cyst if not bred, as ovulation in these species is induced.

Incidence of ovarian cysts in she camels varied from 0.9% to 3.39%

Follicular, luteal and hemorrhagic cysts are a normal evolution of the non-ovulatory follicle (functional cysts). The presence of these cysts indicates ovulation failure which may be caused by inadequate LH release in response to copulation



Camels with ovarian cysts evidence cocking behaviour for prolonged periods (more than 2 months before September) and a high plasma progesterone (<1.5 ng/mL).

Sonographically cysts showed hyperechogenic streaks in an anechogenic lumen in 75% (6/8) of the camels whereas in 25% camels (2/8) the ovarian cysts evidenced anechogenic structure with a thick echogenic wall

Camels with ovarian cysts are treated with 4500 IU im of hCG, GnRH or Ov Synch protocol.

Camels with a palpable and sonographically visible persistent corpus luteum can be treated with 500 µg of a commercially available prostaglandin

- The above lectures are also explained in video lectures at my YouTube Channel Govind Narayan Purohit

- Kindly share the videos and subscribe to my channel if you like them

- Thanks