



ENDOMETRITIS

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LESSON I

- *Introduction to uterine infections*
- *Types and incidences of uterine infections*
- *Clinical signs of endometritis*



FERTILITY

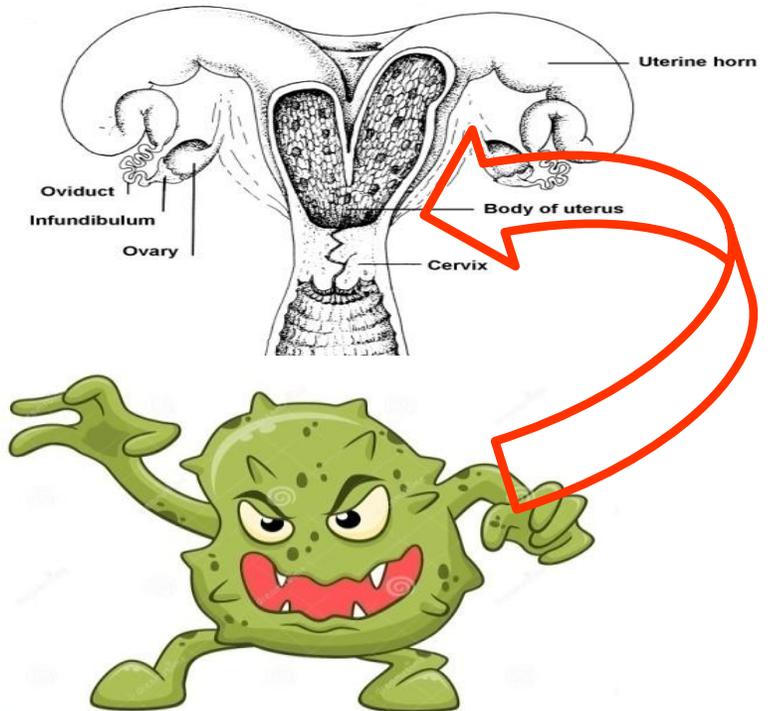




Parturition is an event of new life coming into being.

At the same time, it is also a period of high risk for mother and offspring in all species, and cattle are no exception.

After parturition, there is often an upsurge of microbial infection in the cow that ultimately have a greater impact on health and productivity.





- **Most microbial contaminants are eliminated from the uterus during the first three weeks after parturition by the uterine involution and activation of innate immune defences.**
- **However, failure in this ‘comeback to normal’ mechanism leads to various degrees of uterine infection.**

PUERPERAL METRITIS



- Inflammation of the inner lining and all the deeper layers of the uterus.
- Occurs within 21 days of parturition
- It is characterized with
 - > foetid reddish-brown uterine discharge
 - > signs of systemic illness (fever, decreased milk yield, dullness or signs of toxæmia)

ENDOMETRITIS

- Inflammation of the endometrial layer of the uterus.
- Characterized by the presence of purulent or muco-purulent uterine discharge.

(Sheldon et al., 2006)

- About 15% of dairy cows have clinical signs of uterine disease that persist beyond three weeks post partum.



SUB-CLINICAL ENDOMETRITIS

- Inflammation of the uterine endometrium without any overt expression of clinical signs.
- Characterized by a clear uterine discharge.
- Affects 30–35% of dairy cows between 4 and 9 weeks postpartum.

(LeBlanc, 2008)

‘Silent Killer’ of fertility



ENDOMETRITIS

- ✓ Clinical signs
- ✓ Aetiology
- ✓ Pathogenesis
- ✓ Diagnosis
- ✓ Therapeutic approaches and
- ✓ Prevention

NORMAL POST-PARTUM EVENTS

- **The major events that must be completed after parturition before a cow is likely to conceive again are**
 - > uterine involution**
 - > regeneration of the endometrium**
 - > elimination of bacterial contamination**
 - > return of ovarian cyclical activity**
- **Pre-requisite for normal postpartum events are the normal expulsion of the foetus, foetal membranes and associated fluids at calving.**

UTERINE INVOLUTION

- **Involution of uterus involves**
 - > **physical shrinkage**
 - > **necrosis and sloughing of caruncles and**
 - > **regeneration of the endometrium.**
- **Uterine caruncles are usually sloughed by 12 days after parturition.**
- **The sloughed caruncles along with the remains of foetal fluids and blood from the ruptured umbilicus form the lochial discharge.**

EPITHELIAL REGENERATION

- **Epithelial regeneration is complete by about 25 days after parturition.**
- **Deeper layers of tissues requires 6 - 8 weeks for complete restoration, after calving.**

EVACUATION OF MICROBIAL LOAD

- **The postpartum environment of the uterine lumen supports the growth of a variety of aerobic and anaerobic bacteria.**
- **Normally they are removed by a range of uterine defense mechanisms.**

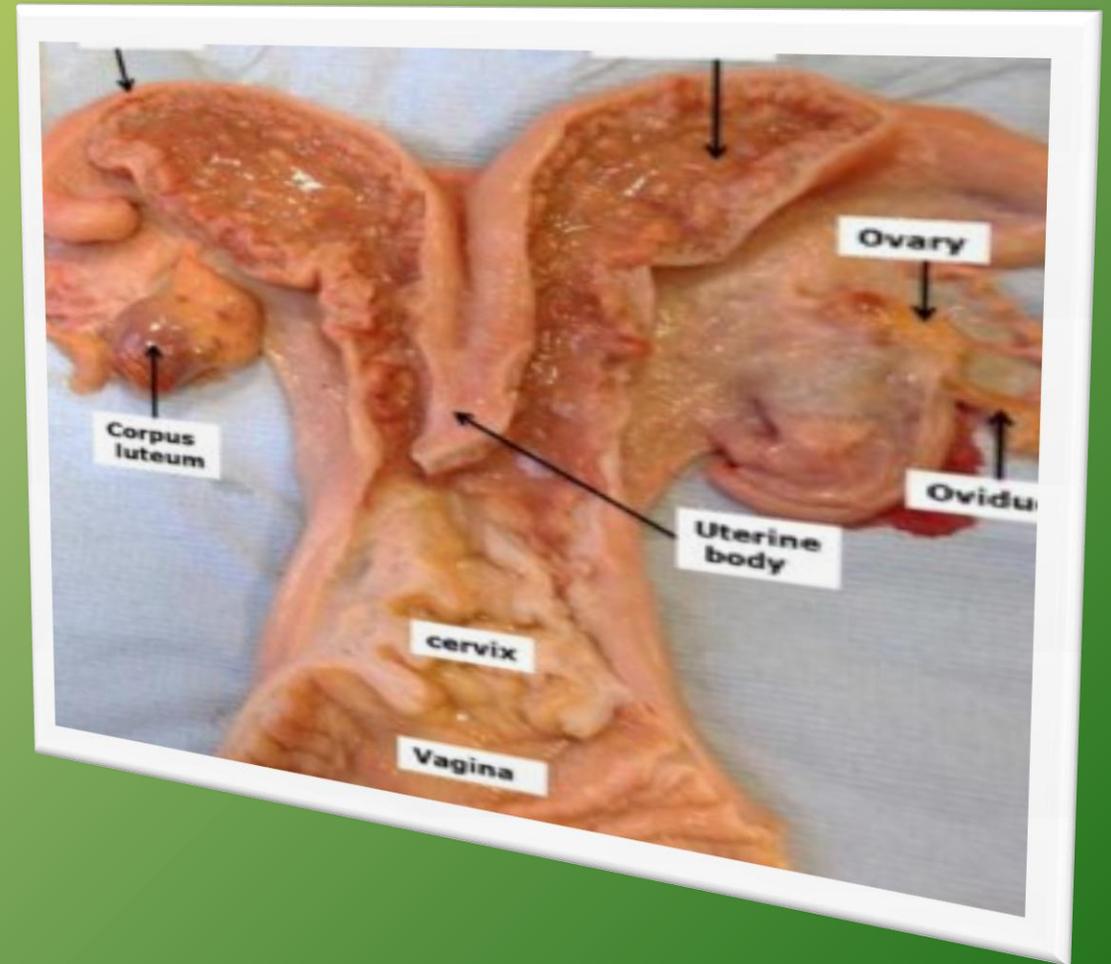
OVARIAN REBOUND

After parturition,

- > Concentrations of steroid hormones decrease**
- > plasma follicle stimulating hormone (FSH) increase in concentration - stimulates the emergence of the first postpartum follicular wave.**
- > the first dominant follicle is selected around 10–12 days after calving**
- > fate of this dominant follicle decides the early return of ovarian cyclical activity.**

CLINICAL SIGNS OF ENDOMETRITIS

Nature of vaginal discharge is a mirror of uterine health status !!!!!



- **Clinical endometritis**
- **Sub-clinical endometritis**

CLINICAL ENDOMETRITIS



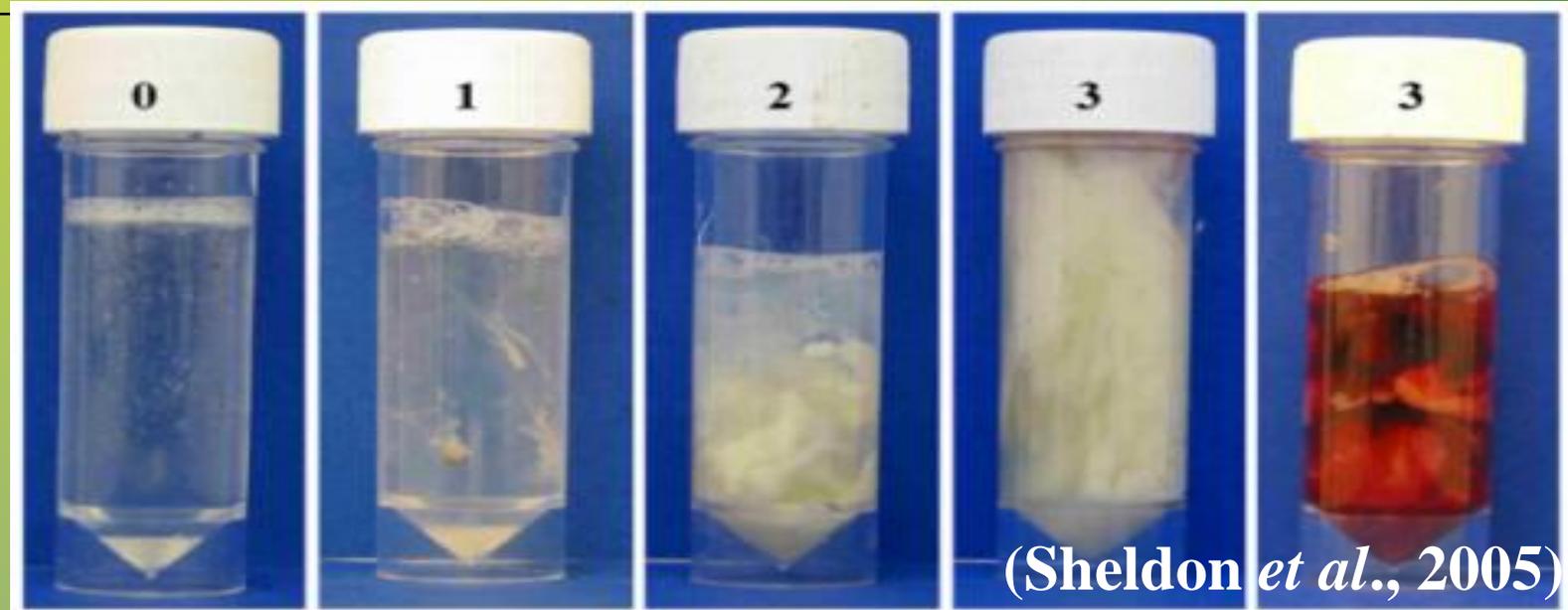
- In case of clinical endometritis, purulent or muco-purulent discharge from the uterus into the vagina is readily detected

CLINICAL ENDOMETRITIS SCORE

- The physical character and odour of the vaginal mucus can be scored to assess the degree of infection.
- The score indicates the prognosis for the likely success of treatment.

(Sheldon et al., 2005)

SCORE	CHARACTERS
0	Clear translucent mucus
1	Clear mucus containing flecks of white pus
2	Discharge containing $\leq 50\%$ white or yellow-white pus
3	Discharge containing $\geq 50\%$ white, yellow-white or bloody pus



SUB-CLINICAL ENDOMETRITIS

- The vaginal discharge is often clear without any purulent materials.
- Typically, copious clear discharge with thin consistency is a characteristic feature of subclinical uterine infection.

The reproductive performance of the cows affected by subclinical infection is usually diminished, which will be reflected as repeat breeding syndrome.



SUMMARY

- **One of the main factors that impair fertility is the occurrence of uterine infections.**
- **The disturbed uterine environment disrupts the utero-ovarian function leading to infertility.**
- **Changes observed in the vaginal discharge is the clinical manifestation of uterine health in dairy cattle.**

CVE – AGMOOCS - TANUVAS



Thank you !!