

Uterine infections – metritis and endometritis



It has been found that 80–90% of cows will have some level of bacterial contamination post-calving.

There is a broad range of bacterial types that are implicated, which can initiate disease in the post-partum period. But the development of the disease will depend on the immune system of the cow and on the type and load of the bacteria involved. Spontaneous recovery can occur in many instances and, therefore, the correct treatments and definitions of disease must be applied.

Definitions

(from Sheldon, 2018 Vet Rec)

Metritis: An enlarged uterus and a watery red-brown fluid to viscous off-white purulent (pus-filled) uterine discharge, within 21 days and usually within 10 days of parturition.

Clinical endometritis: The presence of a purulent uterine discharge detectable in the vagina 21 days or more postpartum.

Subclinical endometritis: Absence of clinical signs (i.e. no pus) but detectable changes in endometrial cytology samples.

Metritis (inflammation of the uterus) is a bacterial infection and refers to the whole uterus, while endometritis is limited to the lining of the uterus (endometrium).

Causes and risk factors

The risk factors for uterine infections may differ between regions, countries and as a result of farm management and other factors implicated in herd health, but include:

- Twins
- Dystocia
- Stillbirth
- Primiparity (a cow that has given birth once or is giving birth for the first time)
- Male offspring
- Retained placenta
- Metritis
- Negative energy balance, fat mobilisation, subclinical ketosis
- Cows going off feed after calving

Epidemiology

Diagnosis of up to 40–50% of cows with postpartum uterine infections may occur in some herds. However, the definition and diagnosis of postpartum uterine infections is often not clear and imprecise, and can make comparison between herds difficult.

Uterine infections or disease in the first week of lactation (metritis) is known to be apparent in up to 40% of dairy cows. Some large surveys have reported rates of metritis up to 50%, with 21% of dairy cows with metritis having evident signs of systemic illness (e.g. high body temperature/ fever). Uterine infections persisting beyond the first 3 weeks of lactation (endometritis) are reported up to 15–20%.

Suggested targets for endometritis in relation to yield:

- <8,000 L (<5–10%)
- 8,000–10,000 L (<7.5–10%)
- 10,000 L (<10–15%)

Economic impacts

Dairy cows with uterine infections postpartum are more likely to have:

- Delayed cycling (reduced fertility)
- Anovulatory anoestrus (cows not ovulating)
- Prolonged intervals between oestrus events
- Persistent Corpus Luteum (CL)
- Reduced conception rates
- Extended days to conception
- Increased rate of failure to conceive (FTC)
- Increased likelihood of culling

The economic impacts of uterine infection are related to impacts of fertility, culling, reduced milk yield, costs of treatment and opportunity costs. An individual case of metritis has been estimated to cost about £260.

Observed signs

Metritis

A watery red-brown fluid to viscous off-white purulent uterine discharge, often fetid, can be seen. In the most severe cases, the temperature is very high, especially in the first phases of the disease, and the cow looks very sick. Foetal membranes can be present but metritis can occur in absence of retained placenta. At the inspection, the uterus appears enlarged.

Diagnosis

Grading:

- Grade 1 – enlarged uterus, discharge without systemic signs of disease
- Grade 2 – as above with generalised signs of illness, e.g. depression, depressed DMI, depressed milk yield and fever ($T \geq 39.5^{\circ}\text{C}$)
- Grade 3 – as above with signs of toxæmia, e.g. recumbency, severe depression, cold extremities, reduced appetite

Treatment

Cows with metritis need the intervention of the veterinary surgeon, especially if at least 2 of 3 clinical indicators of disease are found from fetid discharge, fever and generalised signs.



Figure 1. Cow showing signs of metritis

Endometritis

Clinical endometritis: The presence of a purulent uterine discharge detectable in the vagina 21 days or more postpartum.

- Animals should not be classified as having clinical endometritis before this time, as the majority presenting signs before 21 days will spontaneously resolve
- This is not associated with generalised signs of disease

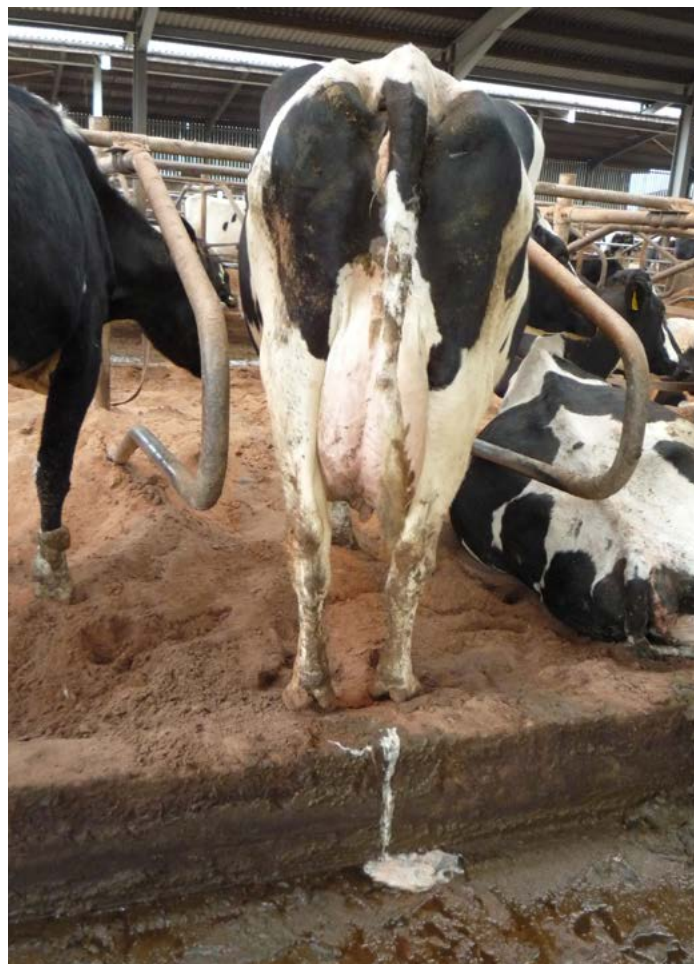


Figure 2. Cow showing signs of endometritis

Diagnosis

- Visual appearance of discharge at the vulva and/or discharge on the tail
 - Not always visible
- Vaginal examination ≥ 21 days postpartum
- Metrichick – vaginal discharge scoring (see [youtube.com/watch?v=jlhd8buSpHU](https://www.youtube.com/watch?v=jlhd8buSpHU))

Grading:

The appearance of the discharge reflects the amount of pathogenic bacteria present in the uterus. The grading is a prognostic indicator for the success of treatment. Success is achieved when normal vaginal mucus appears 2 weeks after the initial diagnosis at 21–28 days postpartum.

- Grade 0 – clear or translucent mucus
- Grade 1 – clear mucus with flecks of pus

- Grade 2 – $<50\%$ white/cream pus (>26 days postpartum)
- Grade 3 – $>50\%$ white/cream pus, occasionally bloodstained (>21 days postpartum)

Treatment

- Treatment should only be instituted ≥ 21 days (see above)
- Grade ≥ 2
 - Treatment decisions should be made under veterinary direction

Preventative strategies

- Appropriate management of risk factors identified on farm

Herd health planning

- Use of an effective recording and monitoring system



Figure 3. Subclinical endometritis

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