ENDOMETRITIS – DIAGNOSIS AND TREATMENT OPTIONS IN BOVINES

Author: Steve Borsberry

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Steve Borsberry discusses this condition and its effects on fertility in cows and how various diseases, among other factors, can increase its incidence

Summary

Endometritis has a significant effect on the fertility of cows; its incidence can be 18 per cent in some UK dairy herds. There are numerous at-risk factors, including retained foetal membranes, milk fever and ketosis. Innate immunity plays an important role in the ability of the host to self-cure. Diseases that lead to a reduced immune response will increase the incidence of endometritis. Manual examination of the vagina postpartum is essential to detect all cases of endometritis. Uterine discharge can be scored to provide a prognosis for treatment success and subsequent fertility. Treatment options are limited, namely analogues of prostaglandin f2-alpha and/or intra-uterine cephalosporin.

Key words

endometritis, immunity, cephalosporin, fertility

Younger veterinary surgeons are probably unaware of Martin Sheldon’s history.

Martin was a practitioner in Carmarthen, Wales, in the 1980s. In the 1990s, he obtained a diploma in bovine reproduction at the University of Liverpool. This stimulated him to continue with his
research, and go on to gain many honours before becoming professor of reproductive immunobiology at the college of medicine, Swansea University.

Why mention Martin? Many years ago I chaired a meeting where his presentation considered bovine endometritis. He stated: “When examining uterine discharge, look at it and smell it.” No mention of laboratory tests. This advice is as relevant today as it was then, as these two methods of examining uterine discharge will allow the clinician to provide a reasonably accurate prognosis for treatment success and for the future fertility of the cow.

**Risk factors**

Endometritis incidence can vary greatly between farms, ranging from zero to 18 per cent. There are numerous risk factors associated with endometritis. This helps to explain why farms that do not have the most hygienic calving conditions may not always have a high incidence of the condition.

![Figure 1](image1.png) is an estimate of the proportion of cows that have a normal endometrium, subclinical endometritis, endometritis and metritis. Subclinical endometritis significantly reduces reproductive performance and may affect 30 per cent of all cows at 70 days postpartum. Animals with endometritis are infertile.

Diagnosis of endometritis should be confirmed 21 days plus postpartum by examination of any uterine discharge. Unless postnatal checks are performed, many cases will be missed as the majority of cows will not exhibit signs of vaginal discharge, but this can occasionally be evident on the cow’s tail (Figure 2).

Manual vaginal examination has many advantages over mechanical devices as it can reveal the following:

- trauma caused by dystocia;
- pneumovagina;
- urovagina; and
- size of the cervix.

Grading the uterine discharge is a useful practice (Table 1). The endometritis clinical score reflects the bacterial growth density of recognised uterine pathogens. Figures 3 to 5 are illustrations of the various visual scores. The maximum score is six (visual plus odour) – treatment can be prolonged with scores of three to six.

The author has noted an increasing number of cows with a serosanguinous discharge with foetid
odour occurring up to 12 weeks postpartum (Figure 6). Normal lochial discharge occurs up to 15 days postpartum, but can be present after this time (Figure 7). There is no odour and it resolves without treatment.

Treatments, few being available, aim to reverse inflammation changes and enhance repair of the endometrium. Understanding the pathology of the disease helps decision making for treatment and prognosis.

Metritis, which occurs shortly after calving, is a severe inflammation involving all layers of the uterus: endometrium, submucosa, muscularis and serosa. Metritis is not for discussion in this article, but the author reminds clinicians that some uteri can be friable and if lavage is contemplated, using intra-uterine catheters or wide diameter tubes can perforate the uterine wall and result in fatal peritonitis.

Postpartum, the endometrium will take 25 to 35 days to regenerate. Endometritis will interfere with this process, causing fibrosis and depletion of endometrial glands. Endometritis will affect ovarian function leading to prolonged luteal activity – the dominant follicle is less likely to ovulate and secrete less oestradiol. High progesterone concentrations impinge on uterine immunity.

The first response to uterine infection depends on the innate immunity of the host, which includes the mobilisation of leucocytes to the uterus. This innate immunity is inherited and it may be that the genetics of the modern Holstein cow have led to the apparent increase in the incidence of endometritis and may be partially responsible for the decline of UK dairy herd fertility.

The author’s observation is herds that have started crossbreeding with British Friesians, brown Swiss and Swedish red have reduced their incidence of endometritis. Has this type of cross-breeding improved the innate immunity of these cows?

**Optimum management**

Problems with inadequate nutrition, selenium deficiency and stress due to suboptimal management of the transitional cow must be addressed, as these will reduce the animal’s immune response. Similarly, with diseases causing abortion or infertility, such as infectious bovine rhinotracheitis, bovine viral diarrhoea virus, leptospirosis and neospora, vaccination and possibly culling need to be considered for the future fertility management of the herd.

The optimum management of endometritis in the herd is to diagnose the condition as soon as possible and initiate treatment. Most clinicians consider endometritis as a disease of the dairy cow, but beef herds should not be ignored.

Postnatal checks of all cows is best practice 20-plus days postpartum; at the very least examination of at-risk cows (Table 2). Score the endometritis and either treat with intra-uterine
cephalosporin or, where there is a corpus luteum, administer an analogue of prostaglandin f2-alpha.

The author, when appropriate, administers prostaglandin and allows the client to administer intra-uterine cephalosporin four to six days later. All treated cows require re-examination and possibly re-treatment at 14-day intervals. Intra-uterine oxytetracycline is not recommended as many of the bacteria associated with endometritis are exhibiting resistance to this antibiotic.

Cows that fail to respond to these treatments have a poor prognosis regarding future fertility. Intra-uterine administration of povidone-iodine (50ml to 100ml) may be considered; however, the author is unaware of any peer-reviewed publications as to its efficacy. A number of clinicians advise intra-uterine cephalosporin 24 hours postservice when dealing with repeat breeder cows that have previously had endometritis.

In summary, it is essential to diagnose and treat endometritis quickly, taking a holistic approach to the cow’s management.

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References