

To test your knowledge and understanding of the control of this condition, try our instantly marked self assessments, by clicking here

Health Quiz

Mastitis in Ewes

The mammary system has two distinct glands, supported largely by the median suspensory ligament, each with its own teat, nerve and blood supplies. The normal gland is firm, without obvious swellings and pain although the ewe may fidget during gland palpation. Examination involves palpation of the gland for the presence of heat, pain and swelling, and examination of any secretions.

Gangrenous mastitis is more commonly reported in ewes nursing triplets than twins, and rarely seen in ewes rearing singletons strengthening the link with appropriate feeding.

Mastitis is a major disease problem with estimates from 1 to 15 per cent of ewes affected per lactation. The clinical manifestations of mastitis can range from sudden gangrenous mastitis with severe illness to chronic mastitis with abscess formation. Severe illness during the first month of lactation may also result in death of the lambs unless fed supplementary milk. Chronic mastitis is an important cause of involuntary culling (premature removal from the flock) and financial loss.

Gangrenous mastitis.

Gangrenous mastitis occurs sporadically during the first two months of lactation often associated with poor milk supply related to ewe underfeeding and over-vigorous sucking by the lambs. Many sheep farmers believe that gangrenous mastitis is associated with cold east winds but this may simply be an association with reduced grass growth during a cold spell of weather and lack of grazing not corrected by increased supplementary feeding. The condition is more commonly reported in ewes nursing triplets (Fig 1) than twins, and rarely seen in ewes rearing singletons strengthening the link with appropriate feeding. Gangrenous mastitis is often preceded by lesions on the ewe's teats. Note the teat lesions (Fig 2) are on the inner aspect of the teat and are caused by the lamb's incisor teeth during vigorous sucking.

Affected ewes are very dull and depressed (Fig 3), separated from the remainder of the flock and show no interest in their lambs and may drag the hind leg next to the gangrenous quarter. Examination of the

Phil Scott DVM&S, DipECBHM, CertCHP, DSHP, FRCVS



Fig 1: Gangrenous mastitis is more commonly reported in ewes nursing triplets than twins, and rarely seen in ewes rearing singletons strengthening the link with appropriate feeding.



Fig 2: Gangrenous mastitis is often preceded by lesions on the ewe's teats caused initially by vigorous sucking by hungry lambs.

udder reveals marked swelling of one gland with sharply-demarcated purple/black discoloration of the skin extending to involve the ventral abdominal wall (Fig 4). The gangrenous areas of skin on the udder and ventral abdomen are cold. The lambs should be housed and given supplementary feeding although they may not drink from a bottle and teat.



Fig 3: Ewes with gangrenous mastitis are very dull and depressed, separate from the remainder of the flock and show little interest in their lambs.



Fig 4: Examination of the udder reveals marked swelling of one gland with sharply-demarcated purple/black discoloration of the skin extending to involve the ventral abdominal wall.

Gangrenous mastitis is a major welfare concern. Despite antibiotic and supportive therapy during the acute phase of disease affected sheep endure an initial phase of toxæmia with marked loss of body condition. After several weeks the gangrenous udder tissue sloughs leaving a large granulating wound with superficial bacterial infection (Fig 5) attracting nuisance flies. Granulation tissue continues to proliferate over the coming months forming large growths (Figs 6-7). These ewes are unsuitable for breeding stock. There is no market for such sheep as cull ewes and affected ewes should be euthanased during the acute phase of disease once the diagnosis of gangrenous mastitis has been established. Where the granulation tissue has a narrow neck, it may be possible to apply a tourniquet and the growth can be removed. However, these ewes command low prices at market and many carcasses are condemned because infection has spread elsewhere in the body.

With some notable breed exceptions, ewes must not be expected to rear triplets under commercial farming conditions in the UK. Appropriate ewe condition score at lambing time and an appropriate level of nutrition during the first two months of



Fig 5: After several weeks the gangrenous udder tissue sloughs leaving a large granulating wound with superficial bacterial infection.



Fig 6: Granulation tissue proliferates over the coming months forming large growths.



Fig 7: The granulation tissue almost touches the ground in this ewe. Note her very poor fleece and low condition score.



Fig 8: Chronic mastitis leading to abscess formation within the ewe's right mammary gland. The numerous golf ball-sized swellings are abscesses within the mammary gland.

lactation should help to prevent teat skin abrasions (Fig 2) caused by over-vigorous sucking by hungry twin lambs. Prompt treatment with procaine penicillin and topical antibiotic with supplementary lamb feeding may prevent further cases of gangrenous mastitis in ewes with teat skin lesions.

Gangrenous mastitis is a sporadic cause of ewe deaths which rarely exceeds 2 per cent of the flock at risk but loss of lambs may also occur in those ewes affected within the first month of lactation. Presently, 100 ewes could be fed an extra 250 g of barley per head per day for four to six weeks for the loss of one ewe with twin lambs at foot. While such extra feeding may not prevent all cases of gangrenous mastitis, there are other benefits from additional feeding such as improved lactation in all ewes and lamb growth rate. This supplementary feeding will also help restore ewe body condition such that ewes are weaned in good condition. Earlier sale of lambs, at or before weaning, eliminates those diseases associated with this stressful period such as systemic pasteurellosis and avoids the mid-summer challenge from parasite larvae on pasture, blowfly strike and headflies. Without a large seasonal price differential for lambs, there are many reasons to finish lambs as quickly as possible. The role of inadequate nutrition in increasing disease susceptibility in both ewes and lambs is often underestimated.

Other causes of mastitis

Mastitis occurs sporadically in grazing sheep causing systemic illness but infection does not extend to gangrene of the mammary tissue. Affected ewes are separated from the remainder of the flock and are depressed with a gaunt appearance. There is marked swelling of the affected gland. The "milk" often contains large white clots or may be pale red and watery depending upon the causal bacterium.

Treatment involves parenteral antibiotic therapy, typically oxytetracycline or penicillin, with an intramammary preparation and an analgesic drug (non steroidal anti-inflammatory drug) as directed by the farmer's veterinary surgeon. Regular stripping of the mastitic gland will remove toxins. The sporadic nature of the condition in grazing sheep renders prevention difficult.

Chronic mastitis

Chronic mastitis may develop following incomplete recovery from an earlier acute episode of disease during lactation leading to abscess formation within the mammary gland (Figs 8-10). The teat is often thickened with a fibrous cord blocking the teat canal. Abscesses range in both number and diameter within the udder (Fig 8).

The best time to detect chronic mastitis is the pre-breeding check undertaken two to three months after weaning when mammary gland involution makes detection of the abscesses within the mammary gland much easier. Deep-seated abscesses have a thick capsule which may extend



Fig 9: Obvious udder enlargement caused by chronic mastitis leading to abscess formation. Note the ewe's low condition score and poor fleece.



Fig 10: A section through the mammary gland (Fig 9) at necropsy showing a large abscess.

to several centimetres thick (Fig 10). Superficial abscesses have a thin wall often only a few millimetres thick which may rupture and discharge pus. Spread of infection to the lungs is not uncommon in sheep with chronic mastitis and results in numerous abscesses which contribute to general malaise in some sheep.

Those chronic mastitis cases not detected during the pre-breeding check are subsequently identified post-lambing when the first sign is a hungry lamb(s). The teat of the affected gland is thickened and no milk can be expressed from the teat.

Treatment of chronic mastitis with numerous large abscesses within the gland is not worthwhile. Sheep with one infected gland are usually culled because they can rear only one lamb and therefore be uneconomic in most flocks. Prompt treatment of acute mastitis should prevent the establishment of chronic infection but not all acute mastitis incidents are identified and treated correctly.

To test your knowledge and understanding of the control of this condition, try our instantly marked self assessments, by clicking here **Health Quiz**

NADIS Health Bulletins are designed to improve farm income, animal health and welfare by promoting disease control and prevention.

Discuss how health planning can improve the profitability of your farm with your veterinary surgeon.

NADIS is supported by BPEX, EBLEX, HCC, QMS, Merial Animal Health and Pfizer Animal Health.

