In **week 6** of a 20-week Irish Farmers Journal animal health series, **Eoin Ryan** of UCD Vet Hospital explains the signs, diagnosis, treatment and the control of Summer Mastitis in Cattle and Clostidial diseases of sheep.

Summer Mastitis

ANIMAL HEALTH

SUMMER mastitis or dry cow mastitis is a common condition affecting cows and heifers in Ireland. It is caused by the bacteria Arcanobacterium pyogenes and anaerobes such as Peptostreptococcus indolicus, and as the name suggests is primarily seen between May and September. In terms of general mastitis prevention, the most important anatomical defence of the cow is the integrity of the teat end or teat orifice. This holds true for summer mastitis also.

Bacteria cannot gain entry to the mammary gland (udder) if the teat end is closed and undamaged.

In suckler cows, the time of highest risk is immediately after the calf sucks the cow, as it takes over 30 minutes for the teat end to fully close again.

In the case of heifers and dry cows, teat end damage from rough environments, e.g. scratches from thorns/briars, is necessary to predispose to summer mastitis and to facilitate entry of bacteria through weakened teat orifices. Frequently, in hot summer weather conditions or wet weather conditions, cows will seek the shade/shelter of ditches or trees leading to an increased risk of teat scratches.

The other main contributor to this condition is the vector spread of the causative bacteria onto the teat skin by flies (Figure 1).

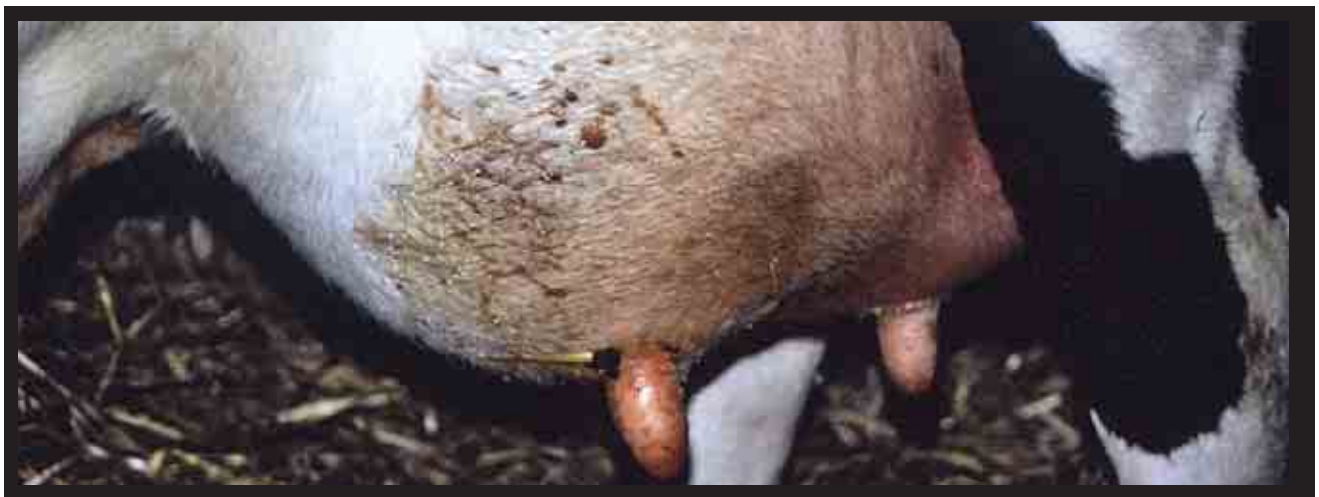

Figure 2: Enlarged, swollen, painful quarter due to summer mastitis.

Figure 1: Flies are the main vector of summer/dry cow mastitis.

Figure 3: The use of teat sealers is a very good preventative measure against dry cow mastitis.

SYMPTOMS

Summer mastitis is a serious condition and can be fatal if left untreated. Once the offending bacteria gain entry to the mammary gland, they lead to severe tissue damage and the production of large amounts of toxins. Often the first sign the farmer will notice is stiffness when the animal is walking. On closer inspection, the affected quarter will be hard, hot and swollen (Figure 2). The mastitic milk from a case of summer mastitis is thick and curd-like with a characteristic foul smell.

In most cases, toxins produced by the bacteria and the damaged tissue will gain entry into the cow's bloodstream leading to septicaemia (blood poison). These cows will be extremely sick and dull, with congested mucous membranes (redness around the eye), high heart rates, high temperatures (40ºC or 104ºF) and swollen joints. Prompt treatment is crucial in these cases. Some cows are able to wall off the infection without showing systemic signs. Eventually, pus may burst out through the skin from the abscess formed within the affected quarter.

In all cases of summer mastitis, there is irreversible damage done to the milk producing tissue with glandular function lost.

TREATMENT

There is often a very poor response to antibiotic treatment in cases of summer mastitis.

Antibiotics are often denatured or ineffective in the presence of such viscous purulent mastitis within the gland. Certainly, cows with signs of septicaemia should receive veterinary attention with antibiotics, anti-inflammatories and fluids to combat toxic shock and to prevent the spread of infection to other organs in the body. In early cases, stripping out the mastitic milk several times a day will aid in recovery and prevent septicaemia in the cow. However, surgical amputation of the teat is indicated in the majority of cases to release the mastitic milk and associated toxins. This surgery should be performed by your veterinary practitioner under local anaesthetic, as there is a danger of serious haemorrhage (bleeding) if the amputation is carried out too high or near the base of the teat. It is especially risky to perform vertical incisions in the wall of the teat.

CONTROL/PREVENTION

Fly control is crucial in the prevention of summer mastitis. Options for fly control include pyrethroid pour-ons, insecticidal ear tags and Stockholm tar applied to the teats. Heifers and dry cows should be monitored for evidence of teat damage, which may indicate problems with the environment, as well as early cases of summer mastitis so that treatment can be implemented quickly. In relation to dry cows, the use of teat sealers together with dry cow therapy is a very effective preventative measure and highly recommended (Figure 3).

Clostridial Diseases of Sheep

APART from Blackleg, Black's Disease, Malignant oedema, Tetanus and Botulism (all covered under "Clostridial Diseases of Cattle"), there are a number of other clostridial diseases that affect sheep.

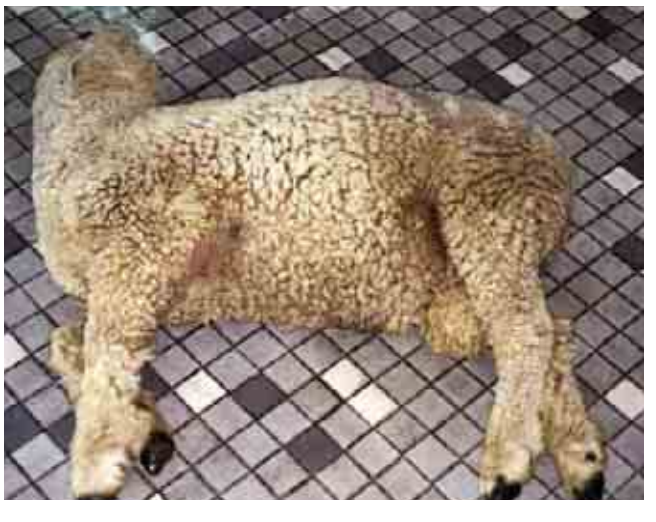

Figure 1: Lamb in terminal stages of pulpy kidney disease, showing opisthotonus - head and neck arched backwards.

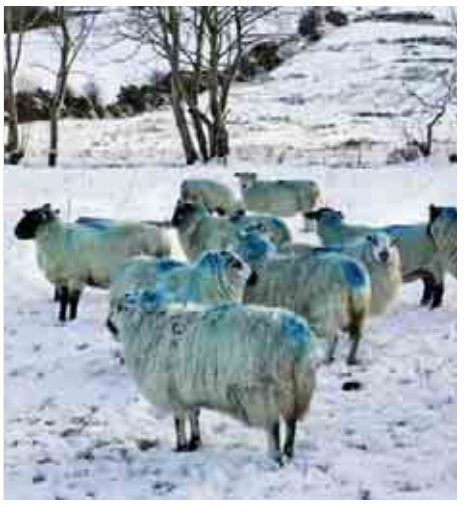

Figure 2: Braxy is associated with windy weather including severe frost and snow

Figure 3: Lamb with toxaemina (blood poison) due to Clostridium perfringens

PULPY KIDNEY DISEASE

This is a disease of young, rapidly growing lambs on a high plane of nutrition, and is caused by Clostridium perfringens Type D. Most commonly, lambs are found dead. As with other types of Clostridium perfringens, Type D proliferates in the intestines of affected animals with the release of a number of toxins which lead to vascular and brain damage. Some lambs may be found showing nervous signs before they die, e.g. opisthotonus (Figure 1), as well as diarrhoea on occasion. As with all the clostridial diseases, the body tends to decompose rapidly following death. As a result, the kidneys are usually soft and discoloured on post mortem with this disease — hence the name. Characteristic lesions in the brain also aid in diagnosis. In affected flocks, farmers are advised to decrease the energy content of the ration if possible and to vaccinate using any of the following: Covexin-8; Covexin 10; Heptavac and Heptavac P Plus.

BRAXY

Braxy is caused by Clostridium septicum and usually presents as sudden death in sheep. It is generally regarded as uncommon in Ireland.

In this case, the offending bacteria affect the abomasum (the fourth stomach). Infection occurs only in the winter months and is associated with the consumption of frozen feeds (Figure 2). Early signs include anorexia (lack of appetite), fever, abdominal pain and distension. Braxy can be prevented using the following vaccines: Covexin 8; Covexin-10; Heptavac; Heptavac P Plus; and Ovivac P Plus.

CLOSTRIDIUM PERFRINGENS

There are a number of types of Clostridium perfringens that affect lambs (Figure 3) and calves.

Clostridium perfringens Types B and C cause fatal haemorrhagic diarrhoea (bloody scour) in lambs (Lamb Dysentery).

Most commonly, lambs less than 3 weeks of age are affected.

The following vaccines give protection against C. perfringens: Tribovax-10; Covexin 8; Covexin-10; Heptavac; Heptavac P Plus; and Ovivac P Plus.