



Toe Necrosis - Owen Atkinson, Dairy Veterinary Consultancy Ltd

It is estimated that 1-2% adult dairy cows in the UK are lame due to toe necrosis, which means that up to 36,000 cows may be suffering from this painful condition at any one time. Very few cases are ever cured and most cows will become progressively more lame, until they are eventually culled as a direct result of the condition. However a Cheshire-based vet has made a special study of toe necrosis and puts forward his theory on the possible route of infection, as well as suggesting a treatment method which could allow the cow to make a full recovery.

Milk producers who detect a necrotic toe, which is also known as rotten toe, may try to solve the problem by trimming back the affected digit, according to Owen Atkinson of Dairy Veterinary Consultancy. However this action has little effect, and leaves the animal in chronic pain. It is inevitable that the disease will become progressively worse, leaving the producer with only two options; to have the infected digit amputated by a vet, or to cull the cow.

Mr Atkinson says that the route of infection is not always identified correctly and this may be the reason why treatment so rarely results in a cure. His view is shared with a small number of other vets across Europe, who also report some success with a new method of treatment. It involves carefully removing the wall horn all the way to the coronary band.

“Necrotic toe occurs when a bacterial infection enters the foot, causing the tissue to rot away and leaving a hollow area, with a distinctive, unpleasant smell,” he explains. “The infection always involves the pedal bone.

“The disease is characterised by the classic ‘Turkish slipper’ appearance of the foot, as the cow walks on her heel. It is now known that the bacteria which cause digital dermatitis (also known as Mortellaro) are often involved. It certainly seems more common on farms where digital dermatitis is not well controlled and more recent research at Liverpool University has demonstrated a proven link between the two diseases. At one time, it was believed that toe necrosis always started out as a toe ulcer, or possibly over-trimming of the toe, with the exposed quick becoming infected with bacteria.”

However Owen’s research indicates that the toe may not be the most common route of infection in cases typically seen in the UK.

“The classic case of digital dermatitis is found on the skin at the heel and is therefore found at the back of the foot. But it can also occur at the front of the foot, on the coronary band. In some cases, these infections seem to progress under the hoof wall and

are the route of infection to the pedal bone, leading to the toe necrosis. When the coronary band is found to be the initial route of infection, then the wall of the hoof must be removed right to the top.

“It is important to avoid missing the original small infection tract. The path of infection can easily be over-looked as it progresses under the hoof wall and towards the bone. In these cases, the infection will be coming down the foot and not upwards, as was previously imagined. Traditionally, toe necrosis was always considered as originating from the toe tip and so this wall tract was not identified. To have a chance of a successful cure, the entire dorsal wall of the hoof must be removed, as well as cutting away all the necrotic tissue at the toe. As long as infection is controlled, the horn grows back in time. The task should only be carried out once the foot has been fully anaesthetised, requiring a vet, or a vet working in conjunction with a professional hoof trimmer.”

Producers who have a clear understanding of the disease and the way it develops have more chance of limiting the number of cases on their farms, he adds.

“Farmers need to be vigilant at the detection and early treatment of digital dermatitis lesions at the coronary band. There are still occasions when toe necrosis infection originates at the toe tip, but in my opinion, these are less common in normal UK situations.”

Keeping on top of digital dermatitis is of prime importance and it is also essential to call in the vet, if a cow is suspected to be suffering from toe necrosis, as treatment involves surgery which legally or humanely cannot be done by themselves or a foot trimmer.

“Footbathing can work well as a preventative measure against digital dermatitis, but the liquid needs to be deep enough to cover the front of the foot, as well as the heel. “We still have a lot to learn about the disease; some herds have never experienced a case of necrotic toe, while others suffer from the condition fairly frequently, with up to 5% of the herd affected. It is not only a very expensive ailment, but also one which is bad for cow welfare,” says Mr Atkinson.

Necrotic Toe Study

A recent study carried out by Mr Atkinson involved careful dissection of almost 40 cases of necrotic toe. The vast majority of feet examined also had a split in the axial wall of the hoof which extended to the coronary band. He is convinced that initial trauma or infection here is the cause of a high percentage of toe necrosis lesions.