Non-healing hoof lesions in dairy cows

I AM grateful for the responses to my letter (VR, November 12, 2011, vol 169, p 534) from Owen Atkinson (VR, November 19, 2011, vol 169, pp 561-562) and from Arturo Gomez and others (VR, December 10, 2011, vol 169, p 642). Gomez and others asked ‘how many of these lesions involve digital dermatitis (DD) lesions on the corium and how the authors showed that the lesions were DD lesions’. My response to this question is taken from the paper by Evans and others (2011), where my definition of ‘non-healing’ hoof lesions was given as ‘had a topical granular appearance, were particularly pungent in smell, did not heal well, and in many cases required amputation of the affected claw’. To this definition I would now add ‘a typical moist granular topical appearance’. These lesions were PCR tested for each of the three DD-like, Treponema phagedenis-like and Treponema dentiscara-like spirochaetes, and ‘... all three BDD treponeme groups were present in 84.2 per cent, 81.3 per cent and 55.6 per cent of samples of toe necrosis, non-healing white line disease and non-healing sole ulcer samples, respectively’. This same clinical case definition was then used for the cases discussed in my letters to Veterinary Record in August and November last year (VR, August 27, 2011, vol 169, pp 236-237; November 12, 2011, vol 169, p 534).

Mr Atkinson proposed that toe necrosis may be an extension of DD infection at the coronary band tracking down to the toe. This may occur in some cases, but in my own experience it is not a common finding, with most cases having an intact, albeit very short, wall. Gomez and others refer to DD infection tracking along the hoof lamellae and producing dyskeratotic horn. I would agree with this. A prominent finding within affected hooves is the gross overgrowth of soft horn, producing an internal ‘honeycomb’ appearance of the affected hoof. Fig 1 shows the external appearance of a non-healing lesion, with marked shortening of a typical affected hoof. It also explains why extensive debridement of the tissue is required in treatment. I would agree with Karl Burgi (personal communication) that some cases respond to trimming and application of topical antibiotic, held in place by a dressing, and in my opinion this should be changed every two to three days. However, even when used in conjunction with parenteral antibiotic therapy, in my hands the number of cases fully healing, as opposed to showing an alleviation of clinical signs for three to six months, is not as high as I would like.

Both Atkinson and Gomez and others suggest that toe necrosis and other non-healing lesions may have always been present, and that the apparent increase in incidence is partly because we are looking for it more often. My semi-retired state has allowed me to look back through some of my older textbooks to see if this is indeed the case. I found that ‘toe necrosis’, also referred to as ‘apical necrosis of the pedal bone’, was not listed in Bovine Surgery and Lameness (Weaver 1986), nor in the second edition (Weaver and others 2005); nor in Lameness in Cattle (Greenough and Weaver 1997), Bovine Medicine: Diseases and Husbandry of Cattle (Petersen 1992), A Colour Atlas of Diseases and Disorders of Cattle (Blowey and Weaver 1991), Cattle Lameness and Hoofcare (Blowey 1993, 1998), Veauthier and Pijl (2003), nor in Hedges and others (2001) (biotin project, 750 lame cows from 1105 cow years studied).

The first mention of toe necrosis that I can find is in the second edition of A Colour Atlas of Diseases of Cattle (Blowey and Weaver 2003), but there is no mention of the involvement of DD, nor is there in second edition of Bovine Medicine: Diseases and Husbandry of Cattle (Andrews and others 2003), or in Manual for Treatment and Control of Lameness in Cattle (van Amstel and Shearer 2007), both of which refer to toe necrosis. Bovine Laminitis and Lameness (Greenough 2007) appears to be the first text to suggest the involvement of DD. The author refers to the condition simply as a ‘toe ulcer’, but the pictures show the moist, stippled appearance of what we would now define as a ‘non-healing’ lesion, and Greenough refers to the fact that DD organisms may be involved. The potential involvement of DD is then referred to in the third edition of Cattle Lameness and Hoofcare (Blowey 2008). Both Cook and Burgi (2005) and Holzhauer (2008) described non-healing lesions in Finland in 2008, so the incidence of the lesion was presumably increasing at that time, and Cook and Burgi (2008) suggested the potential involvement of DD, and that they considered it to be a ‘new’ lesion. Van Amstel (2011) presented further evidence for the involvement of DD in these lesions in New Zealand. The above list is by no means exhaustive.

What is of considerably more interest is that the incidence of the condition appears to be increasing, and to my knowledge we have no idea why this is occurring. However, in my opinion, it suggests that in herds infected with DD, and especially those herds where non-healing lesions are an issue, daily or twice daily footbathing is no longer an option – it has become a necessity.

Roger Blowey, Wood Veterinary Group, 125 Bristol Road, Gloucester GL2 4NB e-mail: rogerblowey@mailbox.co.uk

References

Atlas of Diseases and Disorders of Cattle. 3rd edn. Elsevier


doi: 10.1136/vr.e32