

Practical Approach to the Treatment of Foot Problems

Roger Blowey, BSc, BVSc, FRCVS
Wood Veterinary Group
Gloucester, England

Because approximately 25% of dairy cows in the UK are examined for lameness each year, treatment is obviously important. This paper describes some of the treatments currently used in general practice.

White Line Abscess

In uncomplicated early cases localized under-run sole should be pared away and, in addition, the equivalent length of adjacent wall should also be removed. This eliminates any deep cavity which could otherwise become impacted with dirt and debris. The most common point of discharge of a white line abscess is at the soft horn of the heel and it is relatively easy to remove under-run heel horn. Sometimes the wall is under-run with pus discharging at the coronary band. Once again the under-run wall should be removed. The resulting space is quickly covered by horn produced by the laminar corium.

White line abscesses at the toe and on the axial wall are especially painful because there is no easy route for pus to be discharged. Even lesions involving protrusion of the pedal bone through the corium will eventually heal if all under-run horn is removed and the affected digit rested. In a proportion of cows the white line abscess initially appears to respond to treatment but lameness recurs. Re-examination reveals granulation tissue protruding from the original lesion. This is often an indication that further under-run horn is present, especially when the wall is involved. A topical dressing is now rarely used in the UK. It impedes drainage and in the dirty, wet environment of the cow's foot retains moisture and appears to retard healing. It also causes the affected area to become a weight-bearing surface. Blocks applied to the sound claw have revolutionized the speed of healing, in that they allow the affected claw to be rested. Recent products such as Cowslips (Gittspur Ltd) are very easy to apply, will stay in place for 2-3 months and wear much more evenly than wooden blocks. Their application is discussed in a following paper. If a block is not applied, the affected claw should be radically trimmed so that the sound claw becomes the major weight-bearing surface.

Sole Ulcers

Whereas a white line abscess leads to separation of horn from the underlying healthy corium, with sole ulcers the corium itself is damaged. They are therefore much slower to heal. Treatment consists of removing any horn overlaying the ulcer and then "dishing" the sole around the ulcer area until it is no longer weight-bearing. Under-run sole adjacent to the ulcer should be pared to expose healthy corium. As with white line abscesses, the presence of a dressing is thought to retard healing. Although once commonly applied, astringents such as copper sulfate and lead acetate damage healthy corium and are no longer popular. Protruding granulation tissue is best removed with a sharp hoof knife, taking care not to cut too deep for fear of damaging the underlying corium. Removal of weight-bearing, applying a block to the sound claw and/or radical paring of the affected claw are very important aspects of treatment.

Deep Pedal Abscess

Penetrating infection, originating from a white line abscess or particularly from a sole ulcer, can lead to involvement of the navicular bursa, navicular bone or the pedal joint, resulting in severe lameness. Amputation of the digit is easily performed under regional intravenous anesthesia, with the cow standing up. The disadvantages are the need to change the dressings on the foot post-operatively and the considerable strain which is then placed on the remaining digit. An alternative treatment, which saves the affected digit, involves deep pedal curettage (Blowey, 1990). Under regional anesthesia, and using a hoof-knife, a large drainage hole, 3-4 cms in diameter, is cut through the corium and the horn of the sole and heel. Aggressive antibiotic therapy is administered (e.g. tylosin or oxytetracycline at 10 mg/kg bodyweight for the first day, then 5mg/kg daily for 7-10 days) and a block applied to the sound claw. Provided that the drainage hole is kept open, it is remarkable how well such cases heal.

Digital Dermatitis (Hairy Warts)

Although the skin adjacent to the heels is the most common area affected by this spirochaete infection, lesions also occur in the interdigital cleft, or the anterior aspect of the foot (where they may damage the coronary band) and even occasionally on an under-run sole or sole ulcer (Blowey *et al.* 1994a). Individual cases are commonly treated with a 2-3% oxytetracycline aerosol and most respond within 12-24 hours. Where the coronary band is involved, a combination of topical and parenteral treatment (e.g. ceftiofur) is needed. In advanced cases of coronary band digital dermatitis, where a fissure develops in the vertical hoof wall, radical paring is needed, plus the application of a block to the sound claw. Such cases may still take 6-12 months to heal.

Herd treatments for digital dermatitis consist of antibiotic footbaths, e.g. 4-6g/liter oxytetracycline or a solution of lincomycin and spectinomycin (LincoSpectin, Upjohn Ltd.) at 1.0g/liter. Provided that the footbath is used correctly, then one passage through the antibiotic achieves an almost 100% success rate. One footbath is sufficient for 150-200 cows. The best effect is achieved by washing the cows' heels in the milking parlor before they exit into the footbath and ensuring that the whole herd is treated at the same time. Treatment failures occur if the antibiotic solution is too weak (e.g. the volume of the footbath is underestimated), if the bath becomes excessively contaminated with feces, if the same bath is used again without changing the solution (e.g. cows are walked through twice daily for 3-4 days) or if only half the herd is treated on one day. In the latter situation the untreated cows re-infect the treated cows. Currently no UK products are licensed for use in a footbath, so theoretically the statutory minimum 7-day milk and 28-day meat withholding periods should be observed. However, this is rarely applied and even in herds which do not wash teats prior to milking no evidence of antibiotic contamination of milk has been found (Blowey *et al.* 1994a). Care should be taken to ensure that cows do not drink the footbath solution (especially when it is clean), since lincomycin produces a serious

rumen disturbance. Although it is used widely in the UK, there have been no reports of significant illness occurring as a result of footbath ingestion. Following the footbath, cows should be dispersed onto clean pastures and yards, to reduce the risk of reinfection.

Interdigital Necrobacillosis (Foot-Rot or Foul)

A range of antibiotics can be used in treatment, although in milking herds ceftiofur or cephalixin are the treatments of choice, due to their zero milk withholding time. In the UK a more virulent form of the disease (colloquially termed Super Foul) has been reported over the past few years in herds where digital dermatitis erodes the interdigital epithelium (Blowey 1994b; Cook & Cutler 1995). The condition is extremely rapid in onset and produces severe interdigital tissue damage. Treatments used include ceftiofur, oxytetracycline and tylosin, plus local topical application of clindamycin. Probably the most important factor determining response to treatment is speed of application. Antibiotics should be administered immediately when clinical signs are seen and continued for 4-7 days, depending on severity. Some cases have to be culled due to infection of deeper structures.

Interdigital Skin Hyperplasia (Corns, Tyloma)

The incidence appears to be increasing, especially in herds where interdigital dermatitis acts as a primary irritant. Early lesions can be treated by dishing the axial walls of both claws with a hoof knife, thus reducing compression during weight-bearing. Many lesions then resolve spontaneously. Concurrent antibiotic treatment of any interdigital dermatitis is obviously essential. Larger lesions require amputation.

References

1. Blowey RW (1990) *Vet Rec* 127 515.
2. Blowey RW, Done SH & Cooley W (1994a) *Vet Rec* 135 115
3. Blowey RW (1994b) *Proc. 8th Int. Symp. on Disorders of the Ruminant Digit*. Canada, p. 142.
4. Cook NB & Cutler KL (1995) *Vet. Rec.* 136 19.