

CANKER – FORGOTTEN DISEASE?

If you were brought up on a diet of James Herriot books, you'd assume you would be encountering horses with canker on a weekly basis.

However, on a recent scan of our veterinary books at home, I could only find reference to it in one book. A quick internet search for "horse canker" brought up a disease affecting horse chestnut trees.

On this basis you'd be forgiven for assuming this disease is confined to the annals of history, yet we've had a couple of cases in the clinic recently, so I felt it would be worth highlighting the disease and the various treatment options that are cited.

Canker – or chronic proliferative pododermatitis – was traditionally associated with draught breeds, yet is recorded in other breeds including Warmbloods. Although it was hypothesised that damp, unhygienic conditions underfoot were a contributory factor, this does not necessarily seem to be the case. It does appear sarcoid-associated bovine papillomavirus (BPV-1 and BPV-2) may be implicated in horses with canker and, therefore, antivirals or immunomodulatory drugs may be a useful adjunct to treatment (Brandt et al, 2011).

Canker predominantly affects the frog tissue, yet in severe cases, the disease process can extend to the

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Practice Notes



solar area, heels and even along the caudal part of the coronet bands. It may affect one through to all four feet. This is a proliferative disease resulting in overgrowth of spongy, frond-like material, which often has a white exudate and a necrotic odour.

Lesions are often likened to soft cauliflowers and any manipulation will usually result in a degree of haemorrhage. Sometimes lesions will lie beneath an under-run area of apparently normal frog tissue, so careful examination of the whole foot surface is required. Often, these lesions have initially appeared like, and been treated for, thrush, and veterinary intervention is only sought after repeated treatment failure. The horse may or may not show lameness, although in cases that are lame, it may reflect the involvement of deeper, sensitive tissue.

Diagnosis

Diagnosis of canker is usually based on the characteristic nature of the lesions, although

histopathology can be useful. Biopsy will also help discount other conditions – especially if there is suspicious involvement of the heels or caudal coronary areas.

When taking a biopsy, as with any skin biopsy technique, it is important to choose the edge of a lesion and not include overlying necrotic tissue. Inclusion of normal and abnormal tissue and provision of multiple samples will help the histopathological diagnosis. Biopsies will usually reveal proliferative, hyperplastic epithelial papillae, dyskeratosis, keratolysis and ballooning degeneration of the epidermal outer layers, together with neutrophilic infiltration (Nagamine et al, 2005; O'Grady and Madison, 2004).

It is likely there will be mixed bacterial population present, often including *Bacteroides* species and *Fusobacterium necrophorum*, although it is probable these are secondary. Spirochaetes have also been implicated in the disease process (Nagamine et al, 2005).

Treatment

In Herriot's day, canker was treated with iodine crystals in combination with turpentine. Some of the treatments used currently have probably changed very little, as people try any number of topical remedies to treat this difficult condition. Povidone iodine scrubs, oxytetracycline spray, formalin dips, copper sulphate or even bleach are often used for a prolonged period before presentation for veterinary investigation and treatment.

Prognosis for complete resolution of canker is guarded, and often treatment only provides owners with a management option and the horse will have better and worse phases. The recommended approach is to undertake complete excision of the lesions.

Some vets will advise this is completed under general anaesthetic to gain the time required for undertaking such radical excision. As this will result in profuse haemorrhage, use of a tourniquet is also advisable. Other vets will prefer to use standing sedation, together with local anaesthesia and a tourniquet, although this is dependent on the horse's temperament, the extent of tissue involved



and any financial constraints.

It is unknown whether excisional margins should extend 1cm to 2cm into healthy tissue or whether this may result in seeding of the disease to deeper tissue. Subsequent to the resection, some vets advocate using cryotherapy or laser therapy on the exposed healthy tissue before bandaging (O'Grady and Madison, 2004). Whichever approach is taken, it is vital to work with a reputable and cooperative remedial farrier. He or she will be able to help reset tissue and provide aftercare in accordance with the vet's wishes.

After resection, ongoing topical treatment is usually recommended. Topical metronidazole is often cited as appropriate medication to address the presence of anaerobic bacteria, either in a powder form or using the liquid formulation to soak dressings (Goble, 2003). One report suggests using metronidazole after topical cleaning with 10 per cent benzoyl peroxide in acetone is successful (O'Grady and Madison, 2004).

Other topical antibacterials chosen include tetracyclines, sulphapyridine or dimethyl sulfoxide (DMSO) mixtures. Any topical treatments should then be covered with appropriate bandaging. It appears some counterpressure on the exposed tissue is beneficial, as is the case when treating excess granulation tissue (Goble, 2003). If the solar surface is very concave then sterile swabs or hoof packing material can be used to leave the sole surface parallel with the ground. Care must be taken not to create painful pressure points with excessive packing.

In some cases, a hospital plate can be used, although in our clinic we find bandages keep the underlying tissue drier and therefore provide a better environment for healing. Bandages are initially changed daily, then every two to five days until the lesion

surface started to become keratinised. At this point, sole hardening topical remedies can be used before complete removal of the bandages or hospital plate. Sterile maggot therapy has also been tried in some cases, although in our experience, maggots of the non-sterile variety are often found in canker lesions.

Systemic antibiotic therapy may be appropriate in some cases, together with resection, although it is debatable whether appropriate concentrations will occur at the lesion sites. If this approach is chosen then oral medication is usually most appropriate as a prolonged course will be required. Trimethoprim sulphonamide is most commonly chosen. Use of oral corticosteroids, in combination with standard approaches, has shown promise as an adjunctive treatment for canker (Oosterlinck et al, 2011).

In some cases, repeated radical resection is unsuccessful or not feasible, whether that is due to horse or owner factors. We have had success with repeated local excision and topical treatments, which have ultimately been passed back to the referring farrier to continue with. In one case, the horse's owner purchased a set of hoof knives to trim off excess tissue from the lesions, which maintained the horse between farrier visits.

Although chronic proliferative pododermatitis is a rare condition, it continues to be seen and may be much more common than the veterinary profession recognises,

as cases are often treated for ongoing thrush by owners. Although it remains a difficult and frustrating disease to treat – both as a vet and a farrier – it can be very rewarding. Most cases are not "cured" and management options are appropriate to allow the horse to return to work, despite occasional bouts of unsoundness. Unfortunately, the canker may ultimately degenerate to the point that euthanasia may be required. Please note some drugs mentioned within this article are used under the cascade.

References

- Brandt S et al (2011). Consistent detection of bovine papillomavirus in lesions, intact skin and peripheral blood mononuclear cells of horses affected by hoof canker, *Eq Vet J* 43(2): 202-209.
- Goble D O (2003). Lameness in draft horses. In Ross M W and Dyson S J (eds), *Diagnosis and Management of Lameness in the Horse*, Saunders, Missouri.
- Nagamine C M et al (2005). Proliferative pododermatitis (canker) with intralesional spirochaetes in three horses, *J Vet Diagn Invest* 17(3): 269-271.
- O'Grady S E and Madison J B (2004). How to treat equine canker, *AAEP Convention Proceedings*.
- Oosterlinck M et al (2011). Retrospective study on 30 horses with chronic proliferative pododermatitis (canker), *Eq Vet J* 43(9): 466-471.

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ination is planned, then day two, three or four post-ovulation should be picked as there is no known difference in fertility when picking one of the above three days.

When using frozen semen, two inseminations are preferable to one, with breedings planned on days five and/or six after the LH surge, or days three and/or four after ovulation. Surgical AI with fresh or fresh chilled semen can be performed on day two, three or four after ovulation. If semen longevity is poor, waiting to day three or four after ovulation is preferable. When using frozen semen, surgery should be done on day three or four after ovulation (days five or six after LH surge).

Further reading

- Concannon P W et al (1989). Biology and endocrinology of ovulation, pregnancy and parturition in the dog, *J Reprod and Fert Suppl* 39: 3-25.
- Concannon P W (2000). Canine pregnancy: predicting parturition and timing events of gestation. In Concannon P W, England G and Verstegen J (eds), *Recent Advances in Small Animal Reproduction*, International Veterinary Information Service (www.ivis.org), document no. A1202.0500.
- England G C W (2010). Physiology and endocrinology of the female. In England G C W and von Heimendahl A (eds), *BSAVA Manual of Canine and Feline Reproduction and Neonatology*, BSAVA, Quedgeley: 11-12.
- Johnston S D et al (2001). Breeding management and artificial insemination of the bitch. In Johnston S D, Kustritz M V R and Olson P N S (eds), *Canine and Feline Theriogenology*, W B Saunders, Philadelphia, USA: 41-65.
- Makloski C L (2012). Clinical techniques of artificial insemination in dogs, *Vet Clin North Am Small Anim Pract* 42(3): 439-444.
- Ondin K et al (2002). Comparisons of estradiol, LH and FSH patterns in pregnant and nonpregnant beagle bitches, *Theriogenology* 57(8): 1,957-1,972.
- Romegnoli S and Johnston S D (1991). Vulvar discharge. In D G Allen (ed), *Sm Anim Med*, Lippincott, Philadelphia: 763-789.
- von Heimendahl A and England G C W (2010). Determining breeding status. In *BSAVA Manual of Canine and Feline Reproduction and Neonatology*, BSAVA, Quedgeley: 44-50.

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