SHORT CONTRIBUTION

Eradication of the camelid biting louse, Bovicola breviceps

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The importation of alpacas and llamas from South America over the last 15 years has resulted in the concurrent introduction of the biting louse, Bovicola breviceps, into Australia.1,2 Alpacas are produced for their luxury fibre and infestation of lice may result in fleece price penalties. B. breviceps is specific for camelids, which includes alpacas, llamas, vicunas, guanacos, dromedary and Bactrian camels.1,3 Spread of lice is most likely to occur with close body contact at shows, sales, and during mating, transport and lactation. Contaminated grooming equipment may also provide a source of infestation but communal rolling areas are less of a risk.1

Detection of lice infestation is usually made at shearing time and usually only found in heavily infested camelids. Numerous white eggs are found firmly attached to the fleece 5 to 10 mm above the skin, particularly on the flanks and lateral thorax caudal to the elbows (Figure 1). When the fleece is parted, 1 to 1.5 mm long white and light-brown adult lice can be seen moving across the skin. Generally less than 5% of each herd is heavily infested.1

Camelids are not usually shorn cleanly. Long tufts of fibre are left on legs, head, dorsal midline and tail and their wool does not have the high grease content of sheep's wool. Therefore, sheep and cattle pour-on products are not suitable for lice eradication in camelids because distribution of the active ingredient over the whole body cannot be guaranteed. Successful eradication of lice has previously consisted of three treatments of diazinon, 14 days apart, based on the estimated incubation period of lice eggs.1 No products for the treatment or eradication of lice infestations are registered for use on alpacas or llamas.

Recently, Elanco Animal Health released a new product, Extinosad® Jetting Fluid (25 g/L spinosad suspension concentrate), for the control of lice and the treatment and prevention of blowfly strike on sheep with long wool. The active ingredient, derived from the bacterium Saccharopolyspora spinosa, is the first member of the spinosyn class of insecticides and acts on the nervous system of invertebrates such as lice, causing muscle contractions, paralysis and death.4 Because Extinosad® breaks down in ultraviolet light, applications on wool leave no residues on wool or in meat of slaughtered sheep. Consequently, there are no with-holding periods for this product and it is not a scheduled poison.

Lice were detected on one alpaca in a small herd of 25 South American camelids at shearing (December 2000). The lice population on areas of the body where lice are most commonly found subsequently declined because shearing physically removed many lice and eggs and altered the microclimate in the fleece and exposed remaining adult and juvenile lice to sunlight.5,6 No animals received treatment at this stage. At the next shearing 12 months later (November 2001), the same animal was still infested, suggesting that while shearing had reduced infestation, it had not eradicated lice. Numerous adult lice were observed on the alpaca when the fleece was parted, but lice counts were not performed. An uncontrolled trial was conducted over the next 13 months after shearing. The objective of the trial was to assess whether spinosad combined with a wetting agent and applied twice at a 2 to 3 week interval could eradicate lice on this alpaca as well as from other alpacas in the herd to which it can be presumed to have spread.5

The trial was undertaken on a property located 100 km southwest of Melbourne, Victoria. About 6 weeks after shearing, 24 mature alpacas and one llama (age range 1 to 15 years, body weight 45 to 140 kg) were shower-dipped in a dilute solution of Extinosad®. Extinosad® was added to the sump of the shower dip as a solution of 1 mL/L of water (1:1000). A wetting agent, alcohol alkoxylate 1000 g/L (BS 1000 Bio-degradable Surfactant®, Crop Care Australasia, Pinkenba, Qld) was also added at 1 mL/L of water (1:1000) to ensure the animals were thoroughly wet to the skin. The contents of the sump were mixed for 5 minutes before dipping started. The sump was topped up as necessary with fresh dilutions of spinosad and wetting agent, both prepared as 1:1000 solutions.

Figure 1. Eggs of the biting louse, Bovicola breviceps, firmly attached to alpaca fibre.

Figure 2. The parted flank fibre just before shearing of the alpaca shown in Figure 1, after receiving two treatments of spinosad, 17 days apart.
The shower dip was a modified portable sheep shower dip with 10 nozzles at the top (five each side), 12 nozzles on the bottom (six each side) and a separate hose to allow thorough wetting of the head and neck (operated manually). An electric pump delivered about 150 L per minute from the 400 L sump through the nozzles. Four to five camelids were treated at one time. They were wetted for 8 minutes (top nozzles 3 minutes, bottom nozzles 2 minutes, top nozzles 3 minutes) then excess fluid was allowed to drain off the animals’ backs into the sump for 2 minutes before they were released. At the end of dipping, 200 L of dipping fluid had been removed by 25 camelids (8 L per animal).

Samples from the sump were collected in 50 mL polypropylene centrifuge tubes (Falcon®, Becton Dickinson) for measuring spinosad content before dipping, after 12 alpacas had been treated and after all camelids had been treated. Samples were frozen and dispatched to Agrisearch Analytical (Rozelle, NSW) for analysis. Results for these samples were 13.1, 14.7 and 15.6 mg/L spinosad, respectively. Results indicated that removal of spinosad from the jetting fluid by chemical or mechanical means (‘stripping’) had not occurred.

Animals were shower-dipped for a second time 17 days later. No other treatments or medication were given to any of the camelids and all remained healthy throughout the course of the trial.

Counts of lice were made on 10 alpacas before treatment (6 weeks after shearing), 1 and 5 months after the second treatment and on all alpacas before shearing (December 2002) at the end of the trial. Fleece was parted (10 cm in length) at 20 sites on the right and left side of animals, in adequate natural light to observe adult and immature lice and eggs. Equidistant partings were spaced from the upper hind leg and rump to the neck. More than 20 eggs per site were found on one animal before spinosad treatment, but after shearing (Figure 1). Shearing had reduced adult lice on the infested alpaca to undetectable levels. No adult lice, nymphs or eggs were found on the previously infested alpaca at the final shearing in December 2002, 10 months after spinosad treatment (Figure 2).

It was concluded that it was possible to eradicate the biting louse from this alpaca using two treatments, 2 to 3 weeks apart of Extinosad® combined with a wetting agent. Spinosad was not stripped from the dipping solution during treatment, so additional dipping fluid can be added in the same concentration as the initial solution (1:1000). All animals in the herd were treated. These results are preliminary and provide the basis for a further controlled clinical trial.

The use of Extinosad® for eradication of lice in South American camelids is not included on the label by the manufacturer and was conducted under veterinary supervision. Cameld breeders should understand that eradication of lice requires treatment of all camelids (South American camelids and camels) of all ages on their property on the same day, and repeated 2 to 3 weeks later. Re-infestation can occur at shows or from visiting animals (for example ‘mobile-matings’) so breeders need to weigh up the value of eradication versus control of lice in their herds. Eradication is preferable, but may prove difficult if the herd cannot remain ‘closed’ and separated from all other camelids that could act as a source of re-infestation.

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References

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Clostridial myonecrosis in horses (37 cases 1985-2000)

This is a retrospective study of case material, from two equine referral centres, selected on the basis of positive Clostridium sp culture or identification of Clostridium sp by specific fluorescent antibody testing from soft tissue wounds.

Of the documented 37 cases, 27 survived, eight were euthanased and two died during treatment - a survival rate of 73%. C perfringens alone was associated with 25 cases (68%), six cases (16%) with C septicum alone, four cases with mixed clostridial infections (11%), one case with C sporogenes and one with an unspeciated Clostridium sp. The highest survival rate of 81% was seen in those cases where C perfringens alone was involved. Colic was the commonest antecedent condition prior to referral.

The myonecrotic lesion occurred within 6 to 72 hours of a soft tissue injection in 34 cases, but was associated with a wound in the remaining three cases. The commonest site for recent intramuscular injections was the cervical region (24 cases); four cases involved the semimembranosis/semitendinosus region, three were in the gluteal region, two perivascular to the jugular vein and one case developed lesions in both the gluteal and neck regions following injections at both sites.

The authors conclude that clostridial myonecrosis can occur following intramuscular injection or accidental perivascular administration of a wide variety of commonly administered drugs, and is commonest in the neck region. Aggressive treatment involving high dose intravenous antibiotic therapy and surgical fenestration/debridement can result in survival rates of up to 81% in some cases.