

Short Paper

An outbreak of *Chorioptes bovis* mange on a dairy farm in Tabriz, Iran

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Summary

This report is on infestation with *Chorioptes bovis* of Holstein cattle on a dairy farm included 900 cows in Tabriz. Ten heifers and 25 milking cows under the age of 5 years were infested. Clinical signs consisted of alopecia, crusts, ulcerations and superficial skin fissures. Pruritus and itching were severe in all cases. Lesions were present around the base of the tail, on the neck and below the knee. Skin scrapings were examined and eggs, larvae, nymphs and adult mites were recovered. The infested animals were separated from others and treated three times at weekly intervals with 0.05% solution of sebacil. Signs of improvement were observed after the final treatment.

Key words: *Chorioptes bovis*, Dairy cattle, Iran

Introduction

Chorioptes bovis was first reported in association with dermatitis on cattle by Kegelaar (1835), (Gerlach *et al.*, 1957). Chorioptic mange is the commonest form in horses and cattle. In cattle *C. bovis* most commonly causes lesions at the base of the tail, on the perineum, and the back of the udder (Kettle, 1995). Many workers believe that there are separate species of mites for each host affected, namely *C. bovis* (cattle), *Chorioptes caprae* (goats) and *Chorioptes ovis* (sheep) (Scott, 1988; Wall and Shearer, 2001). While others believe that there is only a single species, namely *C. bovis*.

The complete life cycle takes about three weeks, and an egg-laying ovigerous female may live for three weeks. Ovigerous females lay a total of three to 17 eggs. Chorioptic mange is largely a winter disease and in the summer the mites are to be found on the area above the hooves on the hind of legs (Kettle,

1995). Infection is passed from animal to animal by contact and possibly by grooming tools (Radostits, 1994). The mites infesting cattle have received little attention as economic pests of veterinary importance by cattle owners in Iran. This paper emphasizes the importance of this mite because of its rapid transmission from one individual to another, and the economic losses it causes (milk production and leather quality), and the control measures that have to be undertaken at the appropriate time to avoid further spread of the condition.

Materials and Methods

An industrial dairy farm with a population of 900 Holstein cows including 480 milking cows, 170 pregnant and non-pregnant heifers and 250 calves of various ages, reported an outbreak of a pruritic disease in late February 2005. The farm was located 40 km southwest of Tabriz (38° 05'

N; 46° 18' E), northwestern Iran. Clinical signs were observed on 35 individuals including 10 pregnant heifers and 25 milking cows aged less than five years. Clinical manifestations included alopecia, erythema, pruritus, superficial skin fissures, lichenification, small crusts and scabs. Lesions were confined mainly to the base of the tail (Fig. 1). However, in four cows the lesions extended to the thorax, neck and below the knees. The animals were restless and continuously rubbing their bodies against walls and bars. Using a scalpel blade, multiple deep skin scrapings for parasitologic and mycologic examinations were performed on each animal. The

scrapings were placed in separate bottles and transported to the diagnostic laboratory at the Faculty of Veterinary Medicine of Tabriz where all the samples were examined. For mycologic examination, the skin scrapings were plated onto Sabouraud dextrose agar medium (Merck) and incubated at 25°C for at least 15 days. For the mites Donald and Hilton technique was performed on the samples, with the addition of a 10% solution of KOH to make the parasites more visible (Donald, 1970).

Results

The mycological culture was negative.

Fig. 1: Alopecia and skin crusts due to *Chorioptes bovis* mite on the base of the tail

Fig. 2: Larvae and adults (females and males) of *Chorioptes bovis* recovered from skin lesions

Eggs, larvae, nymphs and adult mites were recovered from the skin scrapings viewed under a dissecting microscope and identified as *C. bovis*. Using the features described by Kettle (1995) and Bowman (1999), these mites can be distinguished from *Psoroptes* species in that the suckers at the tip of their legs are carried on short unjointed pedicles (Fig. 2).

Treatment

All the infested animals and others which had come into contact with them were treated by spraying the whole body with 0.05% solution of sebacil (Phoxim, Bayer). Treatment was repeated three times at one-week intervals. Pruritus decreased gradually and noticeable skin healing was observed after the final application. Lesions were disappeared completely after 35 days.

Discussion

The psoroptid mite, *C. bovis* is an ectoparasite that infests many species of herbivores. Mange on domestic herbivores has been recognized since antiquity, and there have been numerous reports on the collection of *C. bovis* from several species worldwide. Consequently, chorioptic mange is potentially important to livestock farming worldwide (Wall and Shearer, 2001). Morbidity rate of *C. bovis* in goat was recorded 27–100% (n = 386) in New Zealand from 1976 to 1980 (Heath, 1988). Once in Germany, chorioptic lesions were observed on tails of 396 cows (Beek, 2005). Chorioptic mange was diagnosed in 1960 in the United State, but it is eradicated now. Chorioptic infestation is increased in the UK and two episodes have been reported during the last years (Cranwell and Rose, 2002).

The first report on chorioptic infestation of dairy cattle (8 cows) from Iran was in 1997 (Tavasoli *et al.*, 1997). The number of infested cows in this episode was higher than that of the first report. Chorioptic lesions were observed only on tail in the first report. In the current episode, it also affected other regions including tail, neck, under knee and thorax.

The seasonal occurrence of *Chorioptes*

mange on cattle is thought to be influenced by temperature, relative humidity and wetting of the host by rain, rather than by physiological changes in the host. In moderate climate the population of *C. bovis* on cattle is increased in late autumn and reaches a peak in late winter and early spring and then declines during the summer (Heath, 1978). This chorioptic outbreak occurred in late autumn and early winter when humidity was high. These findings are in keeping with other reports.

A range of products is available to treat mange in cattle. The treatment of choice is between pour-on products and injections. In severely-infested animals, the skin reaction means that the contact between the mite and the product is limited. The timing and frequency of treatment depend pretty well on individual circumstances (Rickard, 1994). Using 0.05% foxim two times at 10-day intervals is effective in control and eradication of chorioptic. Moreover, ivermectin (0.2 mg/kg) administered subcutaneously for two days is effective for reducing the population of mites (Radostits *et al.*, 1994). Other authors recommended pour-on using of trichlorophen and diazinon for treatment of chorioptic lesions (Soulsby, 1985).

In this outbreak, cows and heifers were treated with 0.05% Sebacil (Phoxim, Bayer) three times weekly. The lesions were improved after the last treatment.

This mite spreads by direct contact with infected animal and bedding. It is thought that bedding had a principal role in this outbreak, because any cows lately had not purchased from infected farms.

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