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CLINICAL FEATURES, DIAGNOSIS AND TREATMENT OF UNUSUAL CASE OF CUTANEOUS STEPHANOFILARIASIS IN CROSSBRED DAIRY CATTLE

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Abstract: Stephanofilariasis is a disease caused by a nematode that affects dairy cattle causing skin lesion unusually located at dewclaws of both forelimbs and hind limbs. The objective of this study was to report the clinical features, diagnosis and treatment of cutaneous stephanofilariasis in crossbred cattle in Theni district of Tamil Nadu. Stephanofilariasis was confirmed based on the appearance of skin lesions and skin scrapping examination. The affected animals were successfully treated with Ivermectin.
Keywords: Dairy cattle, unusual stephanofilariasis, Ivermectin.

Introduction

Stephanofilariasis is caused by nematodes of the genus *Stephanofilaria*, a chronic disease that occurs in dairy cattle, with prevalence in summer because it is transmitted by flies (Scott, 1988 and Taylor et al., 2004) which causes skin lesions characterized by alopecia and ulcerative nodular dermatitis in bovines, buffaloes and goats, if untreated may continue for years (Scott, 1988), which can cause myiasis. According to the literature, five species of Stephanofilaria have been described in bovines and also reported in a number of regions of the world. *Haematobia irritans, Musca conducens, Musca planiceps* and *Musca autumnalis* (Riviers; Aycardi, 1985) are the intermediate hosts, which feeds on skin lesions and ingest the microfilaria. Within two to three weeks it develops as third larval stage, an infective form being introduced by bite in the skin of the definitive host i.e., bovine (Hiber,1966). Stephanofilaria occupies the hair follicle and dermic papilla via the blood circulation, resulted in formation of areas of alopecia, papules and intense itching, giving rise to lesions which may reach a diameter of 25cm (Smith; Jones, 1962). The present study was undertaken to find out the occurrence of disease and possible treatment in crossbred dairy cattle in Theni district of Tamil Nadu.

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Case History and Diagnosis

In May 2015, a large scale dairy farm highly populated with crossbred dairy cattle (70 numbers) located in Theni district of Tamil Nadu, India were asked for technical assistance from FTC, Theni. Because of the presence of skin lesions at dewclaws of both fore limb and hind limbs (Fig 1 and 2) of 5 lactating crossbred dairy cows in a total of 70 dairy animals. According to owner history, the lesions first appeared in one of the cow in April and after 20 days it was spread to all 4 animals. Initially, the farm owner used a product with larvicidal fly repellent and healing action (Topicure spray) which controls the larval stage of parasite. As reported by the owner, lesions regressed in all animals during the treatment period, but relapsed a few days after the end of therapy.

Tentative diagnosis of stephanofilariasis was made based on anamnesis and wound characteristics. To confirm the diagnosis, the skin was scrapped and imprints were stained with Romanowsky for microscopic observation. Stephanofilaria larvae were visualized in the collected material.

Treatment and Discussion

The infected animals were treated with Ivermectin injection @1 ml per 50 kg body weight subcutaneously once a week for 5 weeks. Streptpenicillin injection 5g intramuscularly daily for 7 days administered and Injection chlorphenarmine meleate was given @ 10 ml intramuscularly daily for 7 days.

All the affected animals showed ulcerated growth at the base of the dewclaws. Active lesions were covered with blood or serous exudates, while chronic lesions are smooth, dry and devoid of hair. Hyperkeratosis and parakeratosis occur in epidermis of the affected areas. The lesions were found one inch around dewclaws which undergo degeneration leading to necrosis. The animals had the tendency of biting and licking and sometimes there was bleeding along with oozing of serous exudates from ulcerated dewclaws. The dewclaws of both forelimbs and hind limbs were affected. The affected legs were swollen due to infected dewclaws; however, the general health condition of animals was not apparently affected. Treatment of these cases were coincides with the statement of other authors (Mitra and Mitra, 2013). Some authors reported that, the lesions may be present in different parts of body, particularly the scrotum (Watrelot-Virielux and Pin, 2006), pelvic areas (Novaes et al., 2006), neck (Sutherst et al., 2006) and udder (Silva; Braga; Floravanti, 2001). But in this case it is interesting that the lesions noted in dewclaws did not show any symptoms of humpsore.

Others described the seasonal incidence of stephanofilariosis was more in summer because the population of vectors more in summer (Urquhart et al.,1998).Which was also observed in this study.

After confirmation of stephanofilariasis, injection Ivermectin was given to all the infected animals to eliminate the parasites. A commercial drug with specific indication for this disease could also facilitate its treatment. Streptopenicillin was given to prevent the secondary bacterial infection. After 40-45 days of first treatment all the affected dewclaws become normal (Fig 3). Parenteral ivermectin may also have contributed to the success of the treatment, since, in theory, it promoted the maintenance of satisfactory levels of the drug in the wound by supplying more of it for when licking by the animal removed some of the ointment. Ivermectin is an excellent filaricide and is widely used in the treatment and prevention of cutaneous myiases (Silva; Braja; Fioravanti, 2001; Amaral et al., 2004) and cutaneous stephanofilariasis (Mitra and Mitra, 2013). Parentral treatment with ivermectin was 100 % effective in curing the disease. Probably the incidences occurred due to environmental conditions (temperature and abundance of vectors) and lack of specific immunity against this nematode since this disease was never reported before on this dairy herd.

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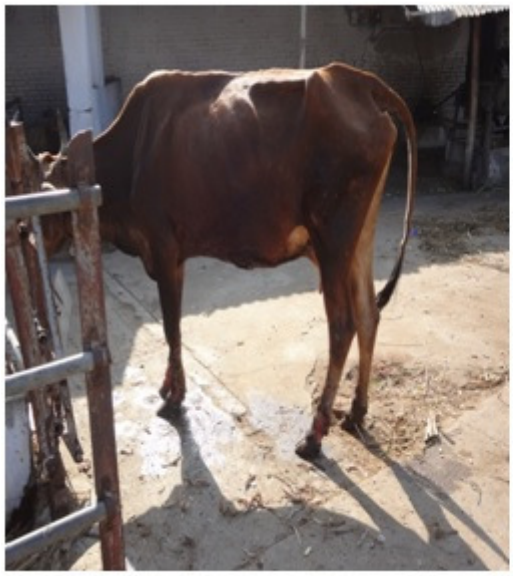

Fig 1. Before Treatment **Fig 2.** Before Treatment Skin lesions on dewclaws

Fig. 3 After Treatment