OCCURRENCE OF DERMATOPHILUS DERMATITIS AMONG CATTLE IN KERALA*

P.V. Tresamol[1], M.R. Saseendranath[2], H. Subramanian[3], M. Mini[4], Usha. N. Pillai[5] and S. Ajithkumar[6]
Dept. of Veterinary Epidemiology and Preventive Medicine,
College of Veterinary and Animal Sciences,
Mannuthy, Thrissur-680651

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Abstract

A total of 100 cattle presented with skin lesions from different districts of Kerala during 2010-11 were subjected to detailed investigations to identify the occurrence of Dermatophilosis. Skin swabs and scabs were collected from the lesions under sterile conditions and were subjected to direct microscopical and cultural examinations. Direct microscopical examination of Giemsa and Gram's stained smears of scabs revealed typical tram track appearance of Dermatophilus congolensis in 72 cases. Culture of skin scabs in sheep blood agar yielded typical greyish beta haemolytic adherent colonies from 75 samples. The isolates were further confirmed by morphological appearance and biochemical reactions. This report provides preliminary observations on the occurrence of dermatophilosis among cattle in Kerala.

Key words: *Dermatophilosis, Occurrence, cattle, Kerala*

Dermatophilosis, also known as streptothricosis, is an exudative, pustular dermatitis that affects mainly cattle, and caused by *Dermatophilus congolensis*. It is an economically important disease which causes considerable loss in terms of skin damage, reduced meat and milk production, culling or death of affected animals and costs of control and treatment. Diagnosis of the condition is by demonstration of typical tram track appearance of the organism in stained skin scabs and confirmation by isolation and identification of organisms. This disease is of worldwide occurrence but more prevalent in tropical and subtropical countries. Dermatophilosis has been reported from different states in India (Pal, 1995; Sharma *et al*., 1992). In Kerala dermatophilosis was reported among cattle in a farm in Wayanad district (Issac and Abraham, 2009), but no detailed studies were conducted to assess the prevalence of the condition. Hence the present study was undertaken to assess the occurrence of dermatophilosis among cattle with dermatitis.

Materials and Methods

A total of 100 cattle presented with dermatological problems were included in the study. Detailed clinical examination of these animals was carried out and type of lesions was recorded. Sterile skin swabs, skin scabs and scrapings and impression smears from lesions were collected for laboratory examination. Small pieces of skin were taken from the underside of the scabs and softened in a few drops of distilled water on a clean microscopic slide. Smears prepared were stained with Giemsa and Gram's stains (Quinn *et al*., 1994). The impression smears taken from the lesions were also stained with Giemsa's stain and Gram's

1. Professor and Head & corresponding author, Email-pvtresamol@yahoo.co.in
2. Professor and Head (Retd.)
3. Finance officer (Retd.), KVASU, Pookode, Wayanad
4. Professor & Head, Dept. of Veterinary Microbiology
5. Professor & Head, Dept. of Clinical Veterinary Medicine ,CVAS, Pookode
6. Professor and Head, TVCC, Mannuthy.

Fig. 1. Dermatitis with Matting of hairs and scab formation on limbs

Fig. 3. Haemolytic colonies of *D.congolensis* sheep blood agar

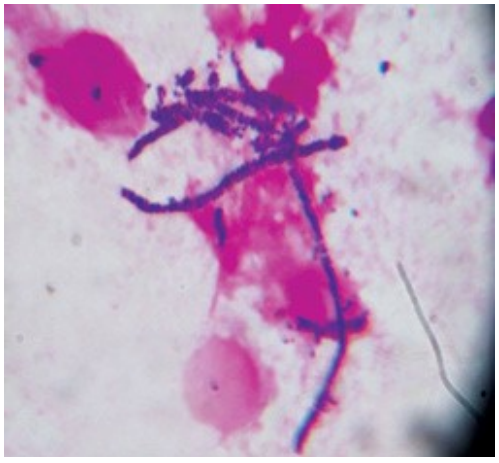

Fig. 2. Tram track appearance of *D. congolensis* in scabs (Grams stain X 1000)

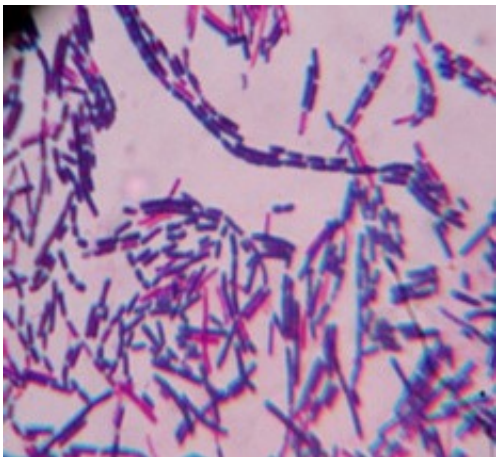

Fig. 4. Gram positive Branching filaments of *D.congolensis* from culture (Gram's stain X1000)

stain and examined under the oil immersion objective of microscope.

Isolation of *D. congolensis* was carried out in seven percent sheep blood agar using Haalstra's technique (Haalstra, 1965). The isolates were stained by Gram's method and the identification of the isolates was done by morphological, cultural, biochemical and sugar fermentation tests of the isolates (Cowan, 1974).

Results and Discussion

Detailed clinical examination of animals revealed exudative dermatitis lesions with formation of thick scabs and crusts with matted hair at their bases, suggestive of dermatophilosis, in 82 animals (Fig. 1).These characteristic lesions in dermatophilosis were described by most of the workers irrespective of the species of the animals affected (Koney, 1996; Gitao *et al*., 1998; Wabacha *et al.,* 2007). Generalised lesions were noted only in 10 animals. The lesions were localised especially on lower limbs, udder and perineum in rest of the animals. Generalised infections were more common in animals in the later stages of pregnancy or in the early stage of lactation. The stress and immunosuppression during pregnancy and lactation stages might have contributed to generalised disease in these animals. Ambrose *et al*. (1999) reported self limiting localised lesions in healthy animals while the animals with concurrent infection and immunosuppression developed chronic generalised infection.

Microscopical examination of stained smears of the scab material from the lesions of 72 cases revealed Gram positive septate branching filaments which were longitudinally as well as transversely divided to form spherical or ovoid cocci in multiple rows, with characteristic 'tram- track appearance' suggestive of *D. congolensis* (Fig. 2). This distinctive morphology of the organism was demonstrated by most of the workers as the most practical diagnostic method for dermatophilosis (Abu-Samra, 1978; Quinn *et al.,* 1994). The organisms were observed in different forms depending on the stage of development varying from long branching filaments, filaments packed with zoospores and mature free zoospores released from the filaments.

Culture of the scab materials in blood agar yielded typical beta haemolytic colonies of *D. congolensis* in 75 samples (Fig. 3). Because the organisms are facultatively anaerobic, isolation by the technique described by Haalstra (1965) was found to be useful and it also reduced the contamination by other bacteria. Failure in isolation of organisms from seven cases might be due to lack of viable organisms in the specimen possible in chronic or healing stage of disease as noted by Award *et al*. (2008). Microscopical appearance of organisms in Gram's stained smears from colonies were also highly variable with Gram positive branching filaments in different stages of segmentation, packets of coccoid forms, germinating spores or combinations of the above forms depending on the age of the culture and strain of the isolate (Fig. 4). The isolates were further confirmed by the biochemical characteristics of *D. congolensis* as reported by several workers (Pal, 1995; Mannan *et al*., 2009; Nath *et al*., 2010).

Dermatophilosis has been reported by the Food and Agricultural organization (FAO) to be one of the four major bacterial diseases which affect cattle and other animals in the tropical and subtropical regions (Hashemi Tabar *et al*., 2004). The results of the present study also confirmed dermatophilosis as one of the most frequent dermatological problem among cattle in Kerala. The higher susceptibility of the cross bred cattle along with the presence of predisposing factors such as prolonged wetting by rain or frequent washing, high humidity, high temperature and various ectoparasites might have resulted in wide spread occurrence of the condition. Attempts to control this wide spread menace to dairy industry are to be undertaken to improve the productivity of our cattle population.

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