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AN INSIGHT INTO DIAGNOSIS AND THERAPEUTIC MANAGEMENT OF DERMATOPHILOSIS IN WATER BUFFALO

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ABSTRACT

Dermatophilosis is prevalent in tropical countries and has higher incidence during high humidity and rainy season. In the present case report, a six years, non-pregnant buffalo was referred to University Clinic with the history of nodular skin lesions for one month on the entire body surface. The lesions observed on dorsum were mainly crusts and scabs and ulcers on foot. Tick infestation was also noticed. Based upon the history, clinical signs and appearance of lesions, the case was tentatively diagnosed as dermatophilosis or mite infestation or cutaneous form of theileriosis. Deep and superficial skin scrappings and blood smear examination was performed to confirm the disease. The skin scrappings under microscopy was found negative for mites. No haemoparasites were observed on examination of blood smear. Skin scraps were kept in normal saline solution overnight followed by Giemsa staining and examination revealed typical railroad appearance structure of *Dermatophilus congolense*. On the basis of typical morphology of bacterium, the case was diagnosed to be of dermatophilosis. For the therapeutic management of Dermatophilosis inj. oxytetracyline 10 mg/Kg intravenously for five days followed by lomg actiong oxytetracyclin for two weeks. Animal showed marked improvement after 14 days of therapy with complete clinical recovery after 20 days with the disappearance of scabs and crusts with no remission fo signs was observed for next 3 months.

Keywords: *Bubalus bubalis*, buffaloes, dermatophilosis, morphology, oxytetracycline, skin scrapping

INTRODUCTION

Dermatophilosis is a bacterial disease affecting a wide range of species including human beings. Disease is caused by *Dermatophilus congolensis* a gram positive non-acid fast anaerobic actinomycetes and is characterized by skin lessions. Signs include matted hair, crusts, and wart -like lessions over the head, dorsal surfaces of neck and body and upper lateral part of chest. It is also known as “strawberry foot rot” as it causes proliferative dermatitis affecting the skin from the coronet to the carpus or hock. Dermatophilosis has

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been reported as one of the four major bacterial diseases which affects the cattle and other animals in tropical and subtropical regions (Hashemi *et al*., 2004). It is a contagious disease, and transmission is mainly by direct contact between animals, through contaminated environment or via biting insects.

Condition can be seen as an acute infection which subsides within 2 to 3 weeks and lesion heals spontaneously. In chronic infections, the bacteria persist in the affected hair follicles and scabs from where it gets transmitted to non infected hair follicles and epidermis. The invaded epithelium cornifies and separates in the form of scabs. Presumptive diagnosis is usually made on the basis of typical appearance of lesions and definitive diagnosis involves cytological examination demonstrating typical railroad track appearance. For treatment and control of the disease, a wide range of antibiotics are indicated alongwith alterations in managemental practices. As disease can be transmitted to humans care must be taken while handling such cases. Prompt identification followed by its therapeutic management can limit further spread of the disease. In present study, we describe the clinical, cytological and therapeutic findings pertaining to dermatophilosis in a buffalo.

CASE PRESENTATION

A six-year-old non pregnant buffalo was presented to University Veterinary Clinics with signs of dirty scabs and crusts all over the body including the head as well as dorsum and lateral aspect of the body (Figure 1a and 1b), ulcerative lesions on the coronet (Figure 1c), intermediate pruritus and inappetence. Anamnesis revealed more than one month as duration of illness and condition was non-responding to doramectin and enrofloxacin. On clinical examination, mild elevation of body temperature, tick infestation and pallor mucosa was recorded. On the basis of clinical presentation, the case was tentatively diagnosed to be of dermatophilosis or mite infestation or cutaneous form of theileriosis. For diagnosis, multiple deep skin scrappings, crusts and scabs were collected in normal saline solutions and 10% KOH. Blood and serum were collected and sent to laboratory for haemato-biochemical analysis. Blood smear was prepared, stained with Giemsa stain for ruling out the incidence of theileriosis.

Skin scraps were examined for mites and found negative. Further, other samples of skin scraps and crusts were soaked overnight in normal saline solution followed by preparation of smears and staining with Giemsa stain. On examination, multiple typical branching filaments forming ribbons of sphericalor ovoid cocci giving "railroad appearance'' are seen confirmatory of dermatophilosis (Figure 2a to 2c). Haematological anaylsis revealed mild anemia, leucocytosis (12600/mm^3) with normal differential cell count. Microscopic examination of stained blood smears was found negative for the presence of intracellular haemoprotozoan parasite.

Upon confirmation of the disease, the animal was treated with antibiotic inj. oxytetracyline 10 mg/kg intravenously, antihistaminic drug pheniramine maleate 0.2 mg/kg intramuscularly for five days followed by long acting oxytetracycline 20 mg/kg repeated after every 72 h for two weeks. Topical application of tetracycline powder was advised over the forehead and region of coronet. The animal started showing improvement from the third day of the start of therapy and subsequently led to complete recovery after 21 days of therapy (Figure 3a and 3b).

Figure 1a. Crust, scabs and ulcerations over the forehead (Day 0).

Figure 1b. Crust, scabs and ulcerations over the forehead (Day 0).

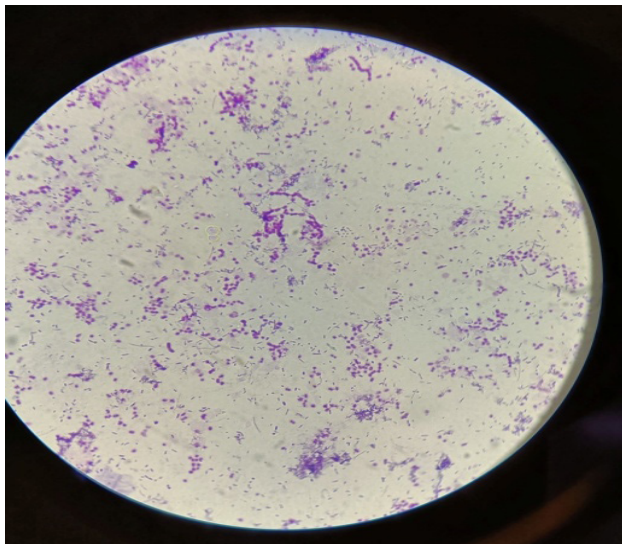

Figure 2a. Microscopic view of skin scrapping soaked overnight and stained with Giemsa's Stain showing branching filaments forming ribbons of sphericalor ovoid cocci.

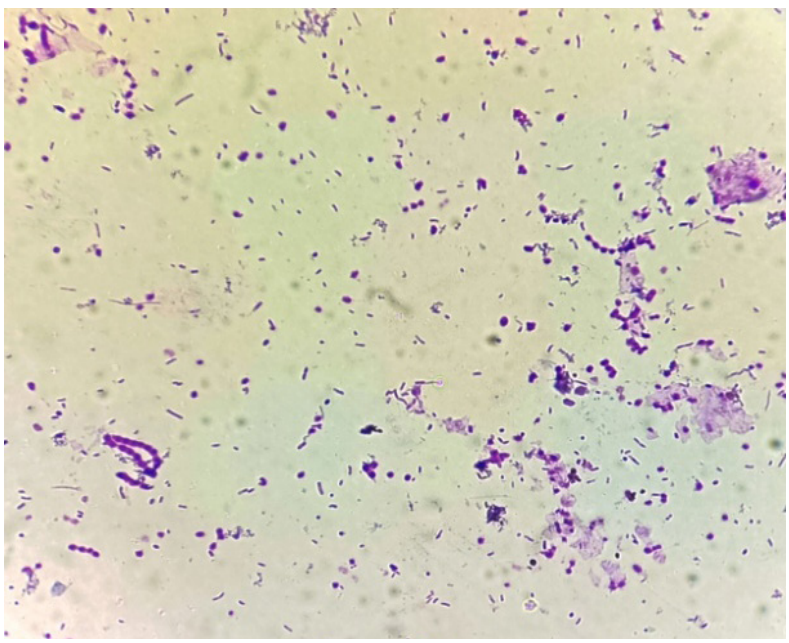

Figure 2b. Microscopic findings of skin scraps showing branching filaments of organisms forming ribbons of sphericalor ovoid cocci in Giemsa stain at 100X.

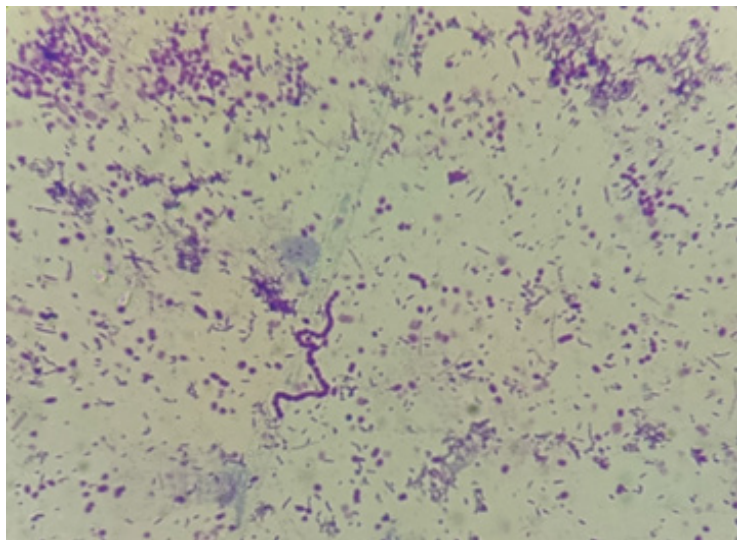

Figure 2c. Microscopic view of typical “rail road appearance” of *Dermatophilus congolense* at 100X.

Figure 3a. Showing complete remission of lesions on forehead of the affected buffalo 21 days post therapy.

Figure 3b. Showing complete remmision of lessions on the dorsum and back of affected buffalo 21 days post therapy.

DISCUSSION

Dermatophilosis is a contagious bacterial skin disease of zoonotic importance affecting animals and man. The disease is more common in warm and humid climatic conditions. Several reports had been published highlighting the incidence of dermatophilosis in cattle, however a single report of a buffalo affected with dermatophilosis was reported by Ranjithkumar *et al*., 2018. In the present study, occurence of the disease condition was during pre-monsoon season had made the humid conditions condusive for infection to spread. Generalized chronicity of illness as reported by the farmer, would be due to flourishment of infection due to poor managemental conditions *viz*. presence of ticks in the animal shed and wet managemental practices. This finding was in conjunction with the findings of Admasu and Alemu (2011) who reported higher incidence of Dermatophilosis in wet weather and on animals infected with ticks. The damage to the skin by ectoparasites, predispose the animals to infection and make vulnerable for further spread of infection.

Direct examination of scraps was

attempted but no positive result was evident. Diagnosis of the disease condition by soaking skin scraps overnight as suggested by Ranjithkumar *et al*., 2018. Confirmative diagnosis in present study was made on the basis of typical morphology of the organism observed under microscopy in Giemsa-stained smears prepared after soaking the scraps overnight. Similar skin lesions had also been reported by other researchers (Tresamol *et al*., 2016; Ranjithkumar *et al*., 2018). Treatment was advised with antibiotic oxytetracylin intravenously followed by long acting oxytetracylin subcutaenously which showed excellent recovery. The farmer complained, mild side-effect such as inappetance during the course of treatment which remit after the intravenous therapy was stopped. Alongwith parenteral route application of tetracyclin powder over the infected area was also advised that resulted in early remission of clinical signs and lesions on foot and over the head. Owner was advised to take appropriate precautions owing to the zoonotic imporatnce of the disease. It wis suggested to wash hands with antiseptic soaps each time after handling the affected animal.

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