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Case Report *Bovine*

Management of Dermatophilosis in a "7 Year-Old" Friesian Crossbreed Bull

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ABSTRACT

This clinical article reports a case of dermatophilosis in a 7-year-old Friesian and White Fulani cross-breed bull at Livestock Investigation Division of the Veterinary Research Institute, Vom, Nigeria. The following clinical signs were observed; widespread area of dermatitis presenting as dry scabs and crusty nodules. The lesions were mostly present around the dorsum, neck, and shoulders. Skin scrapings were collected and sent to the dermatophilosis laboratory of the National Veterinary Research Institute, Vom for laboratory analysis. The laboratory results confirmed the presence of organisms seen as branching filaments containing multiple rows of cocci, which is characteristic of *Dermatophilus congolensis*. The infected bull was treated using two doses of long-acting Oxytetracycline at 20 mg/kg, and Lamstreptocide A and B was applied topically twice weekly. The affected animal recovered completely within 90 days of treatment.

Keywords: Dermatophilosis, Kirchi, Lamstreptocide A and B

INTRODUCTION

Dermatophilosis is an acute or chronic contagious zoonotic exudative epidermis with scab formation caused by members of aerobic, gram-positive actinomycete called *Dermatophilus congolensis*.[1,2] This disease is non-pruritic and is usually characterized by exudative, proliferative, or hyperkeratotic dermatitis, accompanied by the production of crust and folliculitis.[3] The disease had been reported to be more severe in ruminants and of particular importance in tropical and subtropical regions.[4,5]

The disease has several names; in cattle, it's called cutaneous streptotrichosis; sheep is mycotic dermatitis, horses, and rain scald.[2] Although other local names exist such as Senkobo skin diseases in central Africa, Kirchi in Nigeria, and Saria in Malawi. Dermatophilosis is the name common to all species.[2]

Several factors contribute to the pathogenesis of the disease; among them are mechanical injuries to the skin, rainfall, tick infestation, concurrent diseases, and stress that can compromise the host immune system.[6] It is generally accepted that in the rainy season, due to devitalizing effects on the skin barrier, the high relative humidity has a significant influence on the maturation and motility of the infective zoospore and it has been claimed to be a major predisposing factor in the spread of dermatophilosis.[6] Epidemics usually occur during the rainy season.[7] The disease is transmitted by direct contact with infected animals or contaminated objects or flies.[4]

There are breed differences in susceptibility to dermatophilosis in Africa, the N'dama and Muturu cattle breeds and native sheep are resistant, while the Zebu, White Fulani, and European breeds

are susceptible.[8] Dermatophilosis leads to great economic loss in African countries[1,6] due to inferior wool and leather quality,[9] death, decreases in milk production,[10] decrease in semen quality,[11] and treatment expenses.[12]

The aim of this article is to report the successful management of dermatophilosis in a 7-year-old cross-breed bull at the Livestock Investigation Division of the National Veterinary Research Institute, Vom, Nigeria.

CASE REPORT

On the March 22, 2024, a team of veterinary health section staff on routine herd inspection within the institute farm observed a bull in the dairy herd with skin lesions, which were mostly scabs and crusty nodules. History revealed that the lesion has persisted for over 1 month. The herd was managed under a semi-intensive system and fed hay and concentrate.

Clinical examination findings

On physical examination, the temperature was 38.2°C, respiratory rate 38 cycles/min, and pulse rate 110 beats/min. The prevailing climatic condition was warm and humid. The following clinical signs were observed; wide area of dermatitis presenting as dry scabs and crusty nodules, majorly on the back and neck region [Figure 1]. Lethargy and pale mucus membranes were also observed.

Skin scrapings and hair samples were collected and sent to the Dermatophilosis Laboratory of the National Veterinary Research Institute, Vom, Nigeria, for analysis.

Microscopic examination of the skin scrapping using Gram's staining revealed the presence of organisms seen as branching filaments containing multiple rows of cocci, which is characteristic of *D. congolensis*.[13]

Case management

The affected bull was treated using two doses of long-acting oxytetracycline (Manufactured by Biocycline LOBS International Health France) at 20 mg/kg intramuscularly, 72 h apart and repeated after 2 weeks. Ivermectin (Manufactured by Interchemie Werken B.V. Holland) was also administered subcutaneously at 200 µg/kg. Lamp streptocide A and B was applied topically [Figure 2] 2 times a week.

Following treatment, there was a drastic improvement on the conditions of the animal; the lesions started regressing from day 21 [Figure 3] after the commencement of treatment and completely disappeared 3 months after the onset of treatment.

DISCUSSION

Dermatophilosis is reported to cause 50.8% loss of annual revenue expected from hides in Nigeria.[14] It also contributes

Figure 1: Presence of crusty lesion on the dorsum of affected bull.

Figure 2: Topical application of Lamb streptocide A and B on the affected bull.

Figure 3: Gradual regression of lesion 2 months post-treatment.

to 43.7% shortfall in meat expected from beef cattle, 20% drop in milk yield because affected lactating cows become difficult to be milked due to painful lesions on the affected udder and teats.[15,16] Dermatophilosis lesions on affected cattle are mostly found on the dorsum and neck region of the animal and this may largely be due to the activities of ox pecker (*Buphagus erythrorhynchus*) which alights more frequently on the back of cattle. Furthermore, the back of the animals are also exposed to wetness caused by rain which will make it more vulnerable to injuries by Ox pecker birds and subsequent infection with the *Dermatophilus* bacterium.[2]

In this farm, there is a record of the outbreak of dermatophilosis at this particular period of the year (January – June), which is usually the rainy seasons. This may be due to the increased presence of ectoparasites such as ticks and flies[9] in most of the grazing paddocks.

The affected bull was treated with oxytetracycline long acting. The choice of oxytetracycline for the treatment of the affected bull was based on the success of the drug as reported by several studies. Awad *et al*., in 2008,[3] reported 85% cure rate with the administration of two doses of long-acting oxytetracycline, 2–3 days apart. Radostits *et al., i*n 2007,[13] also recommended the administration of long-acting oxytetracycline in the treatment of dermatophilosis. Ivermectin was administered for the control of ectoparasites such as ticks and flies, which are mechanical vectors of dermatophilosis.[6,9]

Lamp streptocide A and B was applied topically twice a week to facilitated healing and drying up of the crusty lesions. This is in accordance with reports by Isitor *et al*., in 1993,[11] who reported the regression and drying up of lesions of five bovine cases of dermatophilosis 3 weeks post-application of the product and complete recovery of three mild cases of the condition in cattle. Lamp streptocide A and B is an ethno-veterinary preparation specially designed and manufactured by the National Veterinary Research Institute (NVRI), Vom, Nigeria for the treatment of dermatophilosis.

CONCLUSION

Dermatophilosis was successfully managed in a 7 years-old cross breed bull using topical application of Lampstreptocide A and B; and administration of Oxytetracycline long acting. The bull recovered completely 3 months following treatment.

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