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Chronic generalized dermatophilosis in a buffalo

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Abstract
This report describes a case of chronic atypical generalized dermatophilosis in a buffalo. Skin lesions were characterized by annular wheals and ulcerative lesions over neck, trunk, limbs and udder. Diagnosis was confirmed by cultural examination of skin scabs. Treatment response to procaine penicillin was transitory and complete recovery was achieved with two doses of long acting oxytetracycline within a month. The occurrence of infection was related to pregnancy.

Keywords: Buffalo, dermatophilosis, ulcerative dermatitis, penicillin, oxyteracycline, *Dermatophilus congolensis*

1. Introduction
Dermatophilosis is an acute, subacute or chronic exudative, pustular dermatitis of animals caused by actinomycete bacterium *Dermatophilus congolensis.* It 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 [1]. This is a commonly described dermatitis in cattle, horse, sheep and less commonly in buffaloes, goat, camel, pig, dog wild animals and man [2,3]. Diagnosis of dermatophilosis is relatively straightforward with typical skin lesions and supportive cytology and culture. The disease is a chronic dermatitis and could occur in any part of the body and occasionally become generalized. There is considerable variation in distribution of lesions in different animals and localities and variety of treatment protocol adopted with variable success. Accurate diagnosis and early treatment are found to be useful for better clinical recovery from the condition. There are few reports of Dermatophilosis among buffaloes from India [4, 5]. This report describes atypical form of the disease and response to standard drug therapy in a buffalo.

2. Case History and Observations
One buffalo in 3rd parity from a herd of five animals was presented for generalized chronic dermatitis persisting from four months without any systemic signs. The skin appeared at around 5th month of gestation. Initially, skin lesions appeared as small sized eruptions of 2-3 mm containing serous fluid and as wheals. Later on, these progressed to pustules with scabs and as large ulcerative lesions. Previously, the animal was treated with procaine penicillin for five days with some improvement and dermatitis relapsed after treatment. On physical examination, the animal was active without any deviation in vital signs. Skin lesions were annular (1-2 cm) in the form of vesicles or ulcer covered with scabs involving face, head, neck, trunk and tail (Fig. 1). Samples of blood were collected for complete blood count and haemoprotozoan infection. Skin scrapings were collected for mites; scabs were cultured for dermatophilosis and dermatophytosis. Skin impression smears were examined for cytological changes. Skin scrapings were negative for mites. Haemogram showed neutrophilic leukocytosis and skin impression smear was characterized by degenerative neutrophils and marked number of coccobacilli. Cultural examination for skin scabs confirmed *Dermatophilus congolensis*. Dermatophilosis was diagnosed on the basis of clinical signs and cultural isolation of the organism. The buffalo was treated with penicillin (@20000 IU/kg IM BID) for 15 days with marked recovery. However relapse appeared again after cessation of treatment. Treatment was changed to long-acting oxytetracycline (@20 mg/kg IM) administrated at 72 hours intervals on two occasions. Gradually, active lesions recovered over one month period without any relapse. Skin lesion resolved completely within four months. There was no relapse for 6 months. Skin lesions started reappearing during mid of the next gestation.

Treatment was again effective with long-acting oxytetracycline.

3. Treatment Response and Discussion

Animal was treated with penicillin (@20,000IU/kg IM BID) for 15 days with marked recovery. Relapse appeared again after cessation of penicillin. Many treatment regimens like topical application of 2 per cent copper sulphate, 5 per cent zinc sulphate or 2 per cent tincture of iodine and parental antibiotics like penicillin, streptomycin, and oxytetracycline had been used in dermatophilosis depending on the severity of disease [3, 6, 7]. Topical treatments may be effective in less severe form of the disease, however, it is time consuming and laborious and is not preferred. Blancou [8] considered that a high parental dose of antibiotic produced the most 'dependable curative results'. The patient in this study was treated twice with procaine penicillin with the prescribed dose rate as per Scott [9], White [7] and Constable *et al.* [10] and for prolonged duration with recurrence on both occasions. Illemobade *et al.* [11] also reported poor response to the combination of procaine penicillin (@70,000IU/kg) and streptomycin (@70mg/kg) where only one of eleven cows recovered. Another drawback of this treatment was a high dose and cost. One contention may be that procaine penicillin was used at lower dose rate as the prescribed dose varies from 20,000-70,000IU/kg. However, the duration of treatment was three times of prescribed duration.

Oduye [12] and Blancou [8] observed that long-acting oxytetracycline was superior to penicillin + streptomycin, not only in reducing mortality especially in severe case, but also in preventing relapses, which are frequent with latter preparation. The clinical observations showed that two doses of long-acting oxytetracycline effectively cured severe and long standing dermatophilosis. Similar response had been documented by Illemobade *et al.* [11], Aning and Koney [13] for securing 93 per cent cure rate. Treatment was changed to gradually, animal recovered over one month period without any relapse.

Skin lesions observed in this buffalo were atypical in the form of vesicles and ulcerative lesions with small sized thin scabs compared to large thick laminar parakeratotic crusts and scabs often becoming confluent forming mosaic pattern with underlying purulent discharge [6, 14]. Unlike to previous reports in cattle and buffaloes, where skin lesions distribution were restricted to lower limbs, udder or tail, dermatitis was generalized [2,3,6]. The proposed common route of skin invasion by the bacteria was through loss of skin abrasions produced by moist dermatits, physical injuries, licking, external parasites which usually involved lower limbs and udder as had been described in earlier reports in cattle and buffaloes. The generalized distribution of lesions in this clinical case appeared to be interplay of some systemic factor(s). The most likely reason might be transient or long standing immunosuppression as suggested by Scott [9] and cause of lowered immunity in this case appeared to be physiological immunosuppression during gestation as documented by Aleri *et al.* [15]. Severity of lesions as evident by ulcerative lesions also could be justified by gestation related immunosuppression as also observed by Scott [9]. An added evidence to this contention was supported by the clinical evidence of recurrence of the disease during subsequent gestation.

Fig 1: Generalized dermatophilosis charaterised by wheals (encircled) and ulcerative lesions (yellow arrow) in picture A and same buffalo after recovery in picture B

4. Conclusion

It followed from this case that long acting oxytetracycline was effective treating severe dermatophillosis in buffaloes and pregnancy appeared to be a predisposing factor in genesis of severe form of the disease in buffalo.

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