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Dermatophilosis (Streptothricosis)  
in a Buffalo Calf (Bubalus bubalis)

By

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With 3 figures

(Received for publication October 28, 1975)

Streptothricosis (dermatophilosis) was first reported in 1915 by Van Saceghem (cited by Jungerman and Schwartzman, 1972) in cattle from Belgian Congo. This disease has been reported from most of the continents (Bridges and Romne, 1961; Pier et al., 1963; a.o.) and is widely prevalent in cattle in Africa as a serious economic hazard (Jungerman and Schwartzman, 1972). In India the disease has been reported rarely. It has been reported in cattle by Singh and Sikdar (1971) from Maharastra and in a buffalo calf and cow calves by Kharole et al. (1974) from Haryana. This apparently is the first report of oral streptothricosis in a few days old buffalo calf from Punjab State. The present communication also describes the isolation of the organisms and experimental reproduction of the disease in the same species.

Material and Methods

A five days old buffalo calf was noticed to have peculiar raised pinkish oral lesions. Five days later this calf died of pneumonia and was subjected to postmortem examination. The gross lesions were recorded. The tissue pieces from lesions were collected aseptically for bacteriological examination. For histopathological examination tissue pieces from almost all organs were preserved in 10% formalin. For demonstration of organisms in the lesions impression smears were prepared, fixed in methanol and were stained by Giemsa. The isolation of organisms was attempted in serum broth and blood agar (Ainsworth and Austwick, 1973).

To reproduce the disease experimentally, the gums and skin of the hind quarters of two apparently healthy buffalo calves aged 1 to 2 years were scarified and the broth culture containing Dermatophilus congoensis organisms was smeared. The animals were observed daily for 10 days.
Results

Gross lesions

The nodular lesions, pinkish in colour and firm in consistency were observed on the dorsal surface of tongue of the calf a few days before death. These lesions increased in size, became confluent (Fig. 1) and appeared yellowish white at postmortem examination. Similar lesions were also noticed on the lacerated border of the gums (at the erupting molar teeth) and the buccal mucosa of the cheeks. None of the other organs including the skin had any such lesions. The lungs revealed massive suppurative pneumonia due to which the animal appeared to have died.
Histopathology

The microsections prepared from the tongue, cheek and gums revealed identical changes. The most predominant pathological change was marked hyperplasia of stratified squamous epithelium lining the mucosa. This was evidenced by marked thickening of the mucosa, hypercellularity, infolding and elongation of rete pegs into the submucosa and hyper-keratinization. In addition to hyperplastic lesions, severe necrobiotic lesions were evident only in the mucosa and did not extend into the deeper structures (Fig. 2). The infiltration of lymphocytes and neutrophils was evident in the mucosa as well as in submucosal connective tissue.

The Giemsa stained impression smears and the tissue sections prepared from tongue lesions revealed large number of organisms morphologically identical with *Dermatophilus congolensis*. The coccoid organisms were seen in several parallel chains. The chains formed by discoid “spores” of the organisms gave a most characteristic appearance typical of *Dermatophilus* (Fig. 3). The “spores” of the chains were most abundant in the superficial part of the lesion.

![Section of tongue lesion showing numerous Dermatophilus organisms in chains. Giemsa Stain, × 750](image)

Microbiological examination

An attempt to isolate the organisms from tongue lesions in serum broth was successful. The growth in serum broth at 48 hours had a thin pellicle and a scanty cottony growth at the bottom. The organisms showing typical morphological characters of *Dermatophilus congolensis* were seen in 72 hr. old broth culture. All forms of organisms such as coccoid, filamentous, beaded filaments and chains showing multidimensional divisions were observed. When serum broth was seeded on blood agar plates, mucoid colonies were observed. The sugar fermentation tests could not be done.

Experimental observations

The scarified area of the gum and skin where broth culture containing *Dermatophilus congolensis* organisms was applied appeared rough and slightly
Dermatophilosis (Streptothricosis) in a Buffalo Calf (Bubalus bubalis)

raised above the surface. The lesions appeared progressing up to the 5th day, but thereafter regressed in size and showed a tendency towards healing. The regression was more or less complete by the 10th day. The skin lesions also showed roughening and encrustation by thin and dry scabs. The periodical examination of the smears from the experimentally produced lesions, showed the presence of *Dermatophilus congolensis* organisms up to 10 days post infection.

The sections prepared from the gum area of the experimental animals also contained numerous organisms in the keratin layer. Histologically, the sections revealed moderate hyperplasia of the stratum germinativum, mild necrosis and inflammatory cellular exudate.

**Discussion**

The histopathological changes in the lesions and the morphological appearances of the organisms in tissue secretions, smears from the exudate and in the cultures, observed in the present case were similar to those described by others (Parker and Klintworth, 1971; Kharole et al., 1974) in dermatophilosis of animals. Parker and Klintworth (1971) stressed that dermatophilosis can be readily diagnosed by microscopic examination of organisms in stained smears of exudates, scabs of crusts and Giemsa stained tissue sections from the lesions.

In addition to the present report of this condition from Punjab the disease has been reported from Haryana in a buffalo calf and cow-calves (Kharole et al., 1974) and from Maharashtra in cattle (Singh and Sikdar, 1971), which indicates the sporadic occurrence of this disease in distant and geographically varied areas of India. However, the disease in South Africa which is also a tropical country, is severe and seasonal, inflicting economic losses.

The disease in the present case was interesting because it was seen in a very young (5 days old) calf and only the oral mucosa was involved.

In the present case lesions were typically present over the lacerations produced by erupting molars which therefore favours the previous contention that a wound is necessary for establishment of the organisms, which have been reported to be present as saprophyte (Jungerman and Schwartzman, 1972).

The experimental reproduction of the disease using the isolate was successful and the lesions could be produced which regressed afterwards similar to the report of Jungerman and Schwartzman (1972) who reported the disease in cattle to be self-limiting.

**Summary**

A case of oral dermatophilosis in a buffalo calf is reported. The lesions were present on tongue, gums and cheeks. Organisms indistinguishable from *Dermatophilus congolensis* were demonstrated in the lesions and could be isolated. The isolate of *Dermatophilus congolensis* when used for experimental reproduction of the disease in buffalo calves produced mild and limiting disease with multiplication of the organisms in the lesion.

**Zusammenfassung**

Dermatophilose (Streptothricose) bei einem Büffelkalb (Bubalus bubalis)

Es wird von einem Fall oraler Dermatophilose bei einem Büffelkalb berichtet. Die Läsionen befanden sich auf der Zunge, den Gaumen und
Backen. Der Erreger, der sich als typisch für *Dermatophilus congolensis* erwies, konnte in den Läsionen nachgewiesen und isoliert werden. Das Isolat von *Dermatophilus congolensis*, das für die experimentelle Reproduktion der Krankheit bei Büffelkälbern verwendet worden war, verursachte eine leichte und begrenzte Erkrankung mit Vermehrung der Erreger in den Läsionen.

Résumé

**Dermatophilose (Streptothricose) chez un veau de buffle (bubalus bubalis)**

On rapporte un cas de dermatophilose buccale chez un veau de buffet. Les lésions se situaient sur la langue, le palais et les joues. L'agent, qui a montré les caractères de *Dermatophilus congolensis*, a pu être mis en évidence dans les lésions et isolé. La souche de *Dermatophilus congolensis* utilisée pour la reproduction expérimentale de la maladie chez des veaux de buffle provoqua une légère affection limitée avec multiplication du germe dans les lésions.

Resumen

**Dermatofilosis (estreptotricosis) en un ternero de búfala (Bubalus bubalis)**

Se informa sobre un caso de dermatofilosis oral en un ternero de búfala. Las lesiones se encontraban en la lengua, el paladar y carrillos. El agente etiológico, que resultó ser típico para *Dermatophilus congolensis*, se pudo identificar en las lesiones y aislar. El *Dermatophilus congolensis* aislado, que se había utilizado para la reproducción experimental de la enfermedad en terneros de búfala, ocasionó una afección ligera y limitada con multiplicación de los agentes en las lesiones.

References


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