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Concurrent Infections of a Goat with *Dermatophilus congolensis* and *Blastomyces dermatitides*

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Abstract: A 1½-year-old male West African dwarf goat with skin lesions typical of dermatophilosis was involved in this study. Lesions were distributed on the head, neck, back and legs. Skin scrapings were aseptically collected and processed for bacteriological and mycological examination using blood agar and Sabouraud's Dextrose Agar (SDA), respectively. *Dermatophilus congolensis* and *Blastomyces dermatitides* were isolated from the cultures. This study represents an important documentation of such a concurrent infection from a goat in Nigeria.

Key words: Concurrent infection, goat, isolation, *Dermatophilus congolensis*, *Blastomyces dermatitides*

INTRODUCTION

Fungal and bacterial dermatitis, particularly those caused by *Dermatophilus congolensis* have grave economic consequence on the livestock and leather industries in the tropical and subtropical Africa. The economic loss recorded as a result of downgrading of skin due to dermatophilosis of sheep and goats had been estimated to be several millions of Nigerian currency "Naira" annually (Zaria, 1993).

Reports as to the occurrence of dermatophilosis and Trichophytoseshave been documented in animals (Oduye and Lloyd, 1971; Chineme *et al*., 1980; Adekeye *et al*., 1989; Kwanashie *et al*., 1989; Loria *et al*., 2005). Cutaneous blastomycosis in animals other than the dog was reported to be very rare (Murray *et al*., 2005).

This study therefore, reports and documents the isolation of *Blastomyces dermatitides* from a West African dwarf goat with clinical dermatophilosis in Nigeria.

MATERIALS AND METHODS

Case history: A 1½-year-old male West African dwarf goat was presented with lesions typical of dermatophilosis. The lesions were distributed on the head region, neck, back and legs. More of the lesions were seen around the muzzle, face and ears.

Skin scrapings were aseptically collected into a clean envelop using a sterile forceps for direct examination and culturing in the bacteriology and mycology units, of the Diagnostic Laboratory of the Veterinary Teaching Hospital, Ahmadu Bello University, Zaria.

Laboratory examination

Bacteriology: A portion of the specimen was examined using direct examination by emulsifying small amount of skin scrapings in a drop of sterile distilled water on a clean glass slide to make a smear. The smear was allowed to dry in air, heat-fixed, Methylene blue stained and examined under the microscope using oil emersion objective.

D. congolensis isolation was carried out using the modified Haalstra's technique (Vanbreuseqhem *et al*., 1976). Some scabs were minced using a sterile scalpel blade. One gram of minced scab was placed in a bijou bottle to which 5 mL of sterile water was added. The bottle was loosely closed and incubated at 37°C in a candle jar for 30 min. The surface fluid of the suspension in the bijou bottle was inoculated into 7% de-fibrinated sheep blood agar plate and was incubated under micro-aerophilic condition at 37°C for 48 h.

Mycology: Some minced scabs were inoculated onto Sabouraud's Dextrose Agar (SDA) plates in duplicate. One of the agar plates was incorporated with

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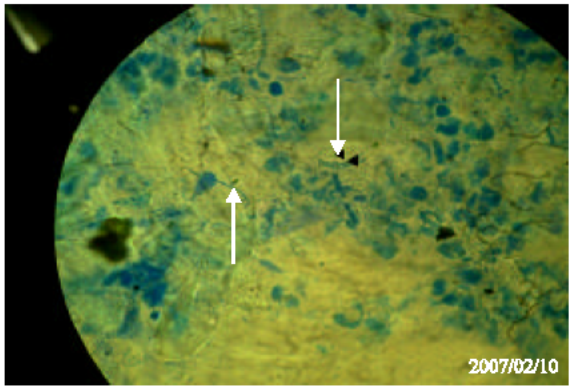

Fig. 1: *Dermatophilus congolensis* (Arrowed) Methylene blue stained×1000 oil immersion

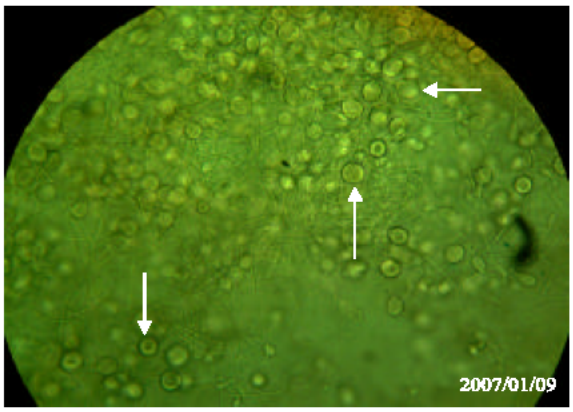

Fig. 2: *Blastomyces dermatitides* (Arrowed) Lactophenol cotton blue×400

Cyclohexamide at 0.5 mg mL^{-1} and Chloramphenicol at 16 μg mL^{-1} and the other without antibiotic. The plates were sealed with masking tape and incubated at room temperature. Plates were examined for fungal growth every three days for a period of 30 days.

A portion of the growth on SDA was removed with a 22-gauge nichrome needle, placed on a glass slide containing a drop of lactophenol cotton blue stain and was gently teased. A converslip was placed on it and examined under low and high power objective lens of the microscope.

RESULTS

Colonies on sheep blood agar were small, grayish-yellow, beta-hemolytic and adherent to the medium. Gram and Methylene blue staining revealed a Gram-positive and branching filament made up of rows of cocci, typical of *D. congolensis* (Fig. 1).

Colonies on Sabouraud's dextrose agar were initially moist and glabrous which developed cream-colored aerial mycelium on further incubation.

Microscopically, a regularly septated hyphae with smooth-walled and round conidia typical of *Blastomyces dermatitides* were observed (Fig. 2).

DISCUSSION

Dermatophilosis from this breed of goats was diagnosed based on clinical signs, demonstration of the organism from stained smears and isolation from the cultured specimen. However, the colonial and microscopic morphology of *B. dermatitides* in this investigation was consistent with the findings reported by an earlier worker (Patter, 2003; Murray *et al*., 2005).

Blastomyces dermatitides infection is acquired by inhalation of aerosolized conidia produced by the fungus growing in soil or decaying organic matter. Cutaneous blastomycosis usually results from haematogenous dissemination from the lung. However, primary cutaneous infection may occur when the skin is injured and infected by the fungus. Perhaps the infection of *D. congolensis* constituted the primary initiator of the skin injury before the cutaneous infection of the *B. dermatitides*. Blastomycosis has been reported in dogs while the disease in other animals especially in goats is not common (Murray *et al*., 2005). The isolation and identification of B. dermatitides concurrently infecting an African dwarf goat with dermatophilosis thereby bringing an exacerbated condition is hereby documented in Nigeria.

REFERENCES

Adekeye, J., P. Ado, C.N. Kwanashie, J. Adeyanju and S. Abdullahi, 1989. Prevalence of Animal Dermalophytes in Zaria. Zaria Veterinarian, 4: 83-86.

Chineme, C.N., J.D. Adekeye and S.A. Bida, 1980. *Trichophyton verrucosum* infection in young goats. Bull. Anim. Health Prod. Afr., 29: 75-78.

Kwnashie, C.N., P.B. Addo and S.N.A. Saidu, 1989. Mixed infection of a cow with *Dermatophilus congolensis* and *Trichophyton mentagrophytes*. Trop. Vet., 7: 42-44

Loria, G.R., C. La Barber, V. Monteverde, O.A. Sparagano and S. Caracappa, 2005. Dermatophilosis in goats in Sicily. Vet. Rec., 156: 179-222.

Murray, P.R., K.S. Rosental and M.A. Pfaller, 2005. Systemic Mycosis caused by dimorphic Fungal Pathogens. Med. Microbiol. (5th Edn.), pp: 765-771.

Oduye, O.O. and D.H. Lloyd, 1971. Incidence of Cutaneous Streptothricosis in Nigeria. Br. Vet. J., 127: 505-510.

Patter, P.S., 2003. Endemic Mycosis. In Anaissie, E. J. Mc Ginnis M.K. and Pfaller, M.A (Eds.): Clinical Mycology.

Vanbreuseghem, R., M. Takashio, M.M. Nagh, D. Presler, M. Selly and P. Vam Wetter, 1976. *Dermatophilus* Infection in Animals and Man. Proceedings of a Symposium Held at the University of Ibadan, Nigeria. (Eds.), D. N. Lloyd and K. C. Sellers, Adademic Press London, pp: 202-211.

Zaria, L.T., 1993. *Dermatophilus congolensis* infection (Dermatophilosis) in Animals and Man. An update. Comp. Immune. Microbiol. Infec. Dis., 16: 179-222.