SUPERFICIAL SKIN INFECTION WITH SCOPULARIOPSIS BREVICAULIS IN TWO GOATS. A CASE REPORT

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Received for publication January 09, 2009

Abstract

The aim of this study was to describe a case of hair lost and skin changes due to Scopulariopsis brevicaulis infection in a dead goat and a sick kid, and to determine effective treatments. At the macroscopic examination, both goat hair loss and skin lesions of varying size were seen along the body of the animals. Microscopically, arthrospores were seen in the hair and skin samples. In parasitological examination, no parasites were observed in the skin and hair. Pure cultures of Scopulariopsis brevicaulis were isolated from skin and hair samples in Sabouraud dextrose agar with penicillin and streptomycin. The infection in the kid was successfully treated by itraconazole (100 mg/kg, daily, for 6 weeks) and D-biotin (twice 0.1 mg/kg i.m., at 1-week interval).

Key words: goat, Scopulariopsis brevicaulis, treatment.

Scopulariopsis is a large anamorphic genus commonly found in a wide range of habitats including mammal hair, hooves, and horns; animal products such as meat and dairy products; and in the soil (1, 3, 15). The genus contains unique, hyaline and dematiaceous species and telemorphs, which are classified in the genus Microascus (10). Some species of the ascomycete genus Microascus, which comprises teleomorphs (sexual states) of Scopulariopsis, have been implicated as pathogens of humans and animals (13). Scopulariopsis species are common soil and plant saprotrophs and opportunistic pathogens that cause ringworm with dermatophytosis in humans and animals (2, 4, 5, 8, 13, 18, 20). Additionally, Scopulariopsis species are cause of onychomycosis and less frequently deep-tissue infections in humans (12, 13, 16). Scopulariopsis brevicaulis is the most common saprotroph species encountered and frequently in dogs, cats, and large farm animals, particularly horses (5-7, 19, 20). However, it can cause infection in animals (17). It is not easy to determine whether this essentially saprophytic fungus is the real cause of infection, a secondary coloniser or a simple contaminant. The role of Scopulariopsis species is more significant in immunosuppressed and immunocompromised humans than healthy humans (3, 14, 16, 18, 19).

The aim of this study was to describe a case of hair lost and skin lesions due to Scopulariopsis brevicaulis infection in a goat and kid, and to determine effective treatments.

Description of the case

A month-old live kid with skin and hair desquamations was presented. At the same time, skin scrapings and hair samples from a dead one-year-old goat with the same lesions (reported by the farm veterinarian) were also brought to our laboratory. There was no observed morbidity and mortality in other goats. There were found to be 541 animals - 134 female goats and 5 male goats, 24 one-year-old kids, 198 seven-month-old female kids and 142 male kids, and 38 male kids in an intensive incubator. The goats and kids were kept in different compartments. The veterinarian reported that the sick kid was born rather small and it tried to make contact with the dead mother. He reported that the dead goat and the live kid started quickly to lose their hair. The infection in the goat was monitored while being treated by parasitic drugs for 15 d. However, the treatment was unsuccessful. The goat died after 45 d.

The hairs of the goats were completely lost along their bodies and became matted and thick after a short time (Fig. 1). The aim of this study was to describe a case of hair lost and skin lesions due to Scopulariopsis brevicaulis infection in a goat and kid, and to determine effective treatments.
Fig. 1. Hair loss and matted skin of the goat before death.

Fig. 2. Morphology of *Scopulariopsis brevicaulis* colony, which is initially white, with powdery surface, and at the later stages of culture became buff-coloured.

Fig. 3. Chains of *Scopulariopsis brevicaulis* - brunched chains, strong rough-walled, lemon-shaped conidia, cotton-blue lactophenol staining.

The samples were cultivated in a Sabouraud dextrose agar with penicillin and streptomycin at room temperature (25°C) and at 37°C for 10 d and then the cultures were examined microscopically following staining with lactophenol cotton blue. Good growth was noted at room temperature, but not at 37°C. *S. brevicaulis* was identified on the basis of colony morphology and microscopical examination. The colonies initially have a white, powdery rough, and granular surface, and later became buff-coloured (Fig. 2). Upon microscopic examination, the *S. brevicaulis* were seen in chains, with rough walled, lemon-shaped conidia (Fig. 3).

The infection of the live kid was treated by the use of itraconazole (Sporanox®, capsules, Toprak) (100 mg/kg, daily, for 6 weeks) and D-biotin (Gabiotan®, Bayer) (0.1 mg/kg, twice, at one-week interval). After this treatment, *Scopulariopsis brevicaulis* infection subsided and the hairs of the kid grew again.

**Discussion**

In this study, *Scopulariopsis brevicaulis* was isolated from the skin samples of a dead goat and a sick kid. Therefore, it was thought that *S. brevicaulis* may be cause of infection in goats. However, it is not easy to determine whether *S. brevicaulis* is the real cause of infection, a secondary coloniser or a simple contaminant, because it is the most common saprotroph species encountered in dogs, cats, and large farm animals, particularly horses (5, 7, 19, 20). Holko et al. (11) reported that *S. brevicaulis* together with Cryptosporidium andersoni was isolated from abomasal lesions in cattle, but a relationship between the fungus and the lesions could not be found. Ogawa et al. (17) reported that *S. brevicaulis* can cause a generalised hyperkeratosis in a Japanese Black Calf.

In this study, parasites were not found in the skin or hair samples of the goats examined. It is considered that skin desquamation and hair loss may have been related to *S. brevicaulis*, as it was purely isolated from skin and hair lesions in the goat and kid. The anti-parasitic treatment applied in the goat before its death was unsuccessful. The infection of the goat was not investigated before; therefore, it was not certainly determined whether *S. brevicaulis* was the cause of the death of the goat.

*S. brevicaulis* is reported to be generally resistant to antifungal agents (3, 9). Therefore, combinations of different anti-mycotics are usually used in the treatment of such infections (9). In this study, we did not perform any antifungal susceptibility tests but the therapy of the *S. brevicaulis* infection succeeded by using itraconazole and D-biotin.

In conclusion, this case report showed that *S. brevicaulis* can cause superficial skin infections with skin and hair loss in goats and can be lethal in goats if infections remain untreated.

**References**


