

Short Communications

Use of local hyperthermia to treat sporotrichosis in a cat

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SPOROTRICHOSIS is a subcutaneous mycosis caused by the dimorphic fungus *Sporothrix schenckii*. In domestic cats, sporotrichosis is characterised by the presence of ulcerated and nodular cutaneous lesions, which may be disseminated (Rippon 1988). The treatment of feline sporotrichosis is difficult and represents a challenge to veterinarians (Barros and others 2004) since there are few therapeutic options and the drugs used may have adverse effects (Welsh 2003). Itraconazole is effective and safe when compared to other oral antifungal agents, and is therefore the drug of choice for the treatment of the disease (Sykes and others 2001), especially in situations in which cost is not a limiting factor (Morris-Jones 2002). Local hyperthermia has been used as an alternative treatment for human patients with cutaneous or lymphocutaneous lesions (Hiruma and others 1987, Haruna and others 2006). However, there are no reports regarding the use of local hyperthermia in cases of feline sporotrichosis. This short communication describes a case of localised cutaneous sporotrichosis in a domestic cat that was treated with local hyperthermia.

A seven-month-old neutered female crossbred cat, weighing 3.0 kg, was presented to the authors' laboratory with a clinical suspicion of sporotrichosis. Clinical examination revealed the presence of a single ulcerated cutaneous lesion with well-defined borders, measuring 0.7 cm in diameter, in the left lateral thoracic region, and swelling of the axillary lymph node on the same side. According to the owner, the lesion had become apparent approximately three months earlier. A sample of secretion from the lesion was collected for cytopathological analysis and mycological culture. Slides containing the impression of the secretion were stained with Giemsa; microscopic examination revealed the presence of oval and fusiform leveduriform structures. *S. schenckii* was isolated and identified by mycological culture (Rippon 1988). Routine mycological examination consisted of seeding the sample on to Sabouraud's dextrose agar and mycobiotic agar (Difco), which was incubated at 25°C and observed for fungal growth for four weeks. Suspected isolates were subcultured on potato dextrose agar (Difco) at 25°C for macroscopic and microscopic morphological analysis, and dimorphism was demonstrated by conversion to the yeast-like form on brain heart infusion agar (Difco) at 37°C.

The cat was treated with local hyperthermia using a thermal bag with a temperature ranging from 40 to 42°C, which was directly applied to the lesion by the owner twice a day for 15 minutes. Since feline sporotrichosis is a zoonotic disease, the owner was given advice on handling and managing the cat, following the recommendations of Gremião and others (2006). After three weeks, the lesion had healed completely and no regional lymphadenopathy was observed. The local hyperthermia treatment was continued for another four weeks, and the cat was discharged. Two years after the treatment, the cat has shown no further lesions.

Ketoconazole and itraconazole have been used for the treatment of feline sporotrichosis (Nobre and others 2001). Although these drugs are effective in cats (Schubach and others 2004), using them to treat sporotrichosis can be difficult because of the need for a long course of treatment, difficulties in administering the drugs orally and regularly, and lack of conditions to keep the animal confined during the period of treatment (Barros and others 2004). In the present study, local hyperthermia using a thermal bag was chosen as the method of treatment because the cat was cooperative and had a single ulcer at an easily accessible anatomical site.

Although the mechanisms by which heat causes the regression of cutaneous lesions of sporotrichosis are unknown, studies have shown that the growth of all *S. schenckii* forms declines at temperatures of 40°C or more (Hiruma and Kagawa 1983, 1986). Local hyperthermia is used successfully to treat human sporotrichosis (Hiruma and others 1987) because of its low cost and lack of adverse effects (Bustamante and Campos 2004). This method is recommended for treating pregnant women and patients who have fixed cutaneous or lymphocutaneous lesions and who are intolerant to imidazole compounds, terbinafine hydrochloride or iodine compounds (Bustamante and Campos 2004). Disseminated sporotrichosis is rarely observed in human beings and generally affects immunocompromised patients (Barros and others 2001). Hyperthermia is of limited value as a treatment for the disseminated form of the disease. Problems associated with the treatment include determination of an adequate period of treatment, incorrect use of the thermal bag and an inadequate temperature; in addition, the location of the lesions may render this treatment unsuitable (Hiruma and others 1987, Bustamante and Campos 2004).

The occurrence of single lesions is rare in cases of feline sporotrichosis, which, in contrast to human cases, usually present with widespread cutaneous lesions accompanied by clinical signs of systemic involvement (Schubach and others 2003). The isolation of *S. schenckii* from the blood of cats with a single cutaneous lesion has been reported by Schubach and others (2003). In the present case, it was not possible to determine whether there was haematogenous dissemination of the pathogen, a factor that would limit the effectiveness of local hyperthermia. In addition, the possibility of a spontaneous cure was ruled out on the basis of the duration of the lesion before treatment. Furthermore, reports of spontaneous resolution of sporotrichosis in cats are rare (Schubach and others 2004).

In the present case, the owner adhered to the treatment protocol and local hyperthermia was found to be a safe and inexpensive method compared with systemic antifungal treatment, achieving a clinical cure and reducing the duration of treatment. Thus, the authors suggest that local hyperthermia be considered an option for the treatment of feline sporotrichosis in cooperative cats with the fixed cutaneous form of the disease.

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