

CASE REPORT

Canine Otitis Externa Caused by the Fungus *Sporothrix schenkkii*

W. M. DION

AND G. SPECKMANN*

Introduction

Sporotrichosis is usually a chronic granulomatous cutaneolymphatic infection of man and animals caused by the fungus *Sporothrix schenkkii*. The most common route of infection is through a skin wound, from which focus the fungus may spread subcutaneously via the lymphatic vessels. Dissemination to the internal organs is rare but has been reported in the dog (1). Lindley (2) reported a subcutaneous growth on the leg of a dog caused by *S. schenkkii*. Londero *et al* (3) and Scott *et al* (4) also reported cases of dogs with multiple skin lesions on the head and body caused by the same fungus. The present example is unusual in that the infection presented is a case of otitis externa chronica.

Case History

A six year old female German Shepherd dog which was born and raised in the Ottawa area had been intermittently treated for otitis externa for the past five years. The ears had been cleaned regularly with cotton tipped applicators and various specific preparations were instilled, including bactericidal, fungicidal and acaricidal agents. Temporary clinical improvement lasting from two to 12 weeks had been noted with all topical treatments. Systemic antibacterial therapy had no clinical effect. Ceruminal discharge was examined on several occasions and was found negative for parasites and bacterial pathogens. There was no evidence of foreign bodies. The failure in therapeutic response eventually led to the assumption that a car accident, in which the dog had been involved at the age of six months, had caused damage to the ear. The ear problem suddenly became more severe in December 1976. Pain appeared to have increased considerably and the dog held its head tilted to the left

side. When the ears were examined with an otoscope, the right ear was found to be unaffected. The left ear canal appeared to be clean, but the lower part of the left auricle had an elevated temperature and was thickened with multiple subcutaneous, nonsuppurative nodules. Its inner scaly surface was covered with a wax-like material mixed with necrotic tissue filling out the skin folds in the area. Part of this material was scraped off with a curet, including pieces of tissue for mycological examination.

Mycology

A swab had been taken from the left ear of this dog in November 1976, but no fungi or yeasts were cultured from it. A scraping of the exudate and epidermal tissues was requested for culture in December, as it is very unusual for pathogenic fungi to be isolated from a swab. No sign of yeasts could be detected on a routine microscopic examination of the sample in 10% KOH. The material was cultured on slants of Mycosel agar¹ and Sabouraud's dextrose agar containing 400 μ gm of chloramphenicol per ml and incubated at 25°C. After five days a yeast-like growth was visible on the agar surface around two of the fragments. This was subcultured onto plain Sabouraud-dextrose agar without antibiotics, and developed into a smooth white colony with a mycelial fringe. After ten days the culture turned a tan color in the centre and after several weeks became black and wrinkled. Microscopically the mycelium consisted of delicate branching hyphae 2-3 μ in diameter bearing abundant conidiphores which terminated in groups of hyaline pyriform conidia 2-4 $\mu \times$ 2-6 μ borne on short denticles characteristic of the genus *Sporothrix*. When the fungus was transferred to brainheart infusion agar with blood and incubated at 37°C, it developed as a creamy yeast-like colony with a few spiky hyphae projecting round its fringe. A second transfer to fresh blood agar resulted in almost complete reversion to a yeast-like type of growth, the colony being soft and cream colored; it later became grayish and again developed some hyphal forms. The organism was thus identified as the diphasic pathogenic fungus *Sporothrix schenkkii*. A second specimen of scrapings from the infected ear was taken one month after initiation of the treatment described later in the text. By this time the subcutaneous nodules had disappeared and *S. schenkkii* was not cultured from any of the fragments.

The "cigar shaped" bodies characteristically found in the tissues in cases of sporotrichosis are difficult to demonstrate microscopically, as they

*Animal Pathology Division, Health of Animals Branch, Agriculture Canada, Animal Diseases Research Institute (E), P.O. Box 11300, Postal Station H, Ottawa, Ontario K2H 8P9.

¹BBL, Division of Becton, Dickinson & Co. Ltd. (Canada), Mississauga, Ontario.

are usually sparsely distributed throughout the infected areas. The ear scrapings which were not required for culture were fixed in formalin and then filtered through lens paper so that they collected in a lump. This mass was embedded in wax, sectioned and stained with the Gridley stain for demonstrating fungi. By this procedure a few cylindrical yeast-like cells were found in the infected tissue. The yeast *Pityrosporum pachydermatis* which is often reported in association with canine otitis externa was not observed in the stained sections from the left ear, nor in KOH mounts of scrapings taken from both ears.

A suspension of yeast-phase cells of *S. schenkii* in physiological saline was injected intraperitoneally into two mice. One mouse, killed after two weeks, appeared to be normal and the fungus was not cultured from the internal organs. The second mouse, killed after five weeks, had numerous small white granulomas in the peritoneal cavity and around the liver; *S. schenkii* was recovered from these as well as from the spleen.

Treatment

The treatment of choice for sporotrichosis is the oral administration of inorganic iodides (5). The dog which weighed approximately 32 kg, was fed daily with 0.5 g of potassium iodide wrapped in meat for six weeks. No clinical side effects were noted, except intermittent constipation and slight inappetence. Occasional cleansing of the auricle with cotton tipped applicators soaked in water and one daily application of griseofulvin suspension² for the first two weeks were the only topical treatment. After 14 days of treatment the dog no longer tilted its head, and during the third week it regained its vitality. The ear was considered to be normal when the dog was reexamined six weeks after termination of treatment. After seven months there has been no recurrence of the infection.

Summary

The pathogenic fungus *Sporothrix schenkii* was isolated from a case of otitis externa chronica in a German Shepherd dog. Local treatment with griseofulvin and oral administration of 0.5 g of potassium iodide daily for six weeks resulted in the disappearance of the symptoms. Mycological cultures from the ear were negative and there was no sign of a recurrence of the infection seven months after treatment was started.

Résumé

Les auteurs ont isolé le champignon pathogène *Sporothrix schenkii* d'un cas d'otite externe chronique dont souffrait une chienne de race Berger allemand. L'application locale quotidienne de griseofulvine, pendant deux semaines, et l'administration buccale quotidienne de 0.5 g d'iodure de potassium, pendant six semaines, réussirent à faire disparaître les signes de la maladie. Les cultures mycologiques de l'oreille finirent par donner des résultats négatifs et, sept mois après le début du traitement, on ne pouvait déceler aucun signe de récurrence de la condition.

References

1. CARRADA-BRAVO, T. New observations on the epidemiology and pathogenesis of sporotrichosis. *Ann. trop. Med. Parasit.* 69: 267-273. 1975.
2. LINDLEY, J. W. *Sporotrichum schenickii* in the dog. *SWest. Vet.* 18: 234-235. 1965.
3. LONDERO, A. T., R. M. DI CASTRO and O. FISCHMAN. Two cases of sporotrichosis in dogs in Brazil. *Sabouraudia* 3: 273-274. 1964.
4. SCOTT, D. W., J. BENTINCK-SMITH and G. F. HAGGERTY. Sporotrichosis in three dogs. *Cornell Vet.* 64: 416-426. 1974.
5. JUNGERMAN, P. F. and R. M. SCHWARTZMAN. *Veterinary Medical Mycology*. Philadelphia: Lea & Febiger. 1972.

²Fulvidex otic suspension, Schering Corporation Ltd., Pointe Claire, Québec.