Conjunctival sporotrichosis from cat to human: Case report

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A R T I C L E   I N F O

Keywords:
Sporothrix schenckii
Cat transmission
 Conjunctival nodule
Cat ulcer
Zoonosis
Asia

A B S T R A C T

Purpose: To report a case of conjunctival plaque infected from Sporothrix schenckii, which was possible transmitted from a cat.

Observations: A case of Thai woman presented with chronic painless ulcerated conjunctiva with white plaque. The lesion was not healed for one month after excision. She became concerned of getting infection from her cat because it developed chronic and multiple skin lesions on its legs. Identification of Sporothrix schenckii by PCR method was confirmed in the tissues from her conjunctiva and cat’s skin.

Conclusion and Importance: The diagnosis of Sporothrix infection should be suspected in atypical conjunctival lesion in patient who had close contact with infected cat. This brought awareness to doctors and cat owners, even though it was uncommon.

1. Introduction

Sporothrix schenckii was a dimorphic fungus, living in soil, dead wood, and hay. Infection in human occurred by accidently traumatic inoculation to the skin, for example, gardening, sporting, or outdoor activities. When mold penetrated through the traumatic skin, it will transform into blastospores, or budding cells in subcutaneous tissue. The clinical features were frequently fixed-cutaneous (painless, ulcerative-nodular lesion) or lymphocutaneous form. 1-6 Hematogenous spreading (bone, lung, CNS) or disseminated form have been reported in immunocompromised host, which can progress to sepsis and multiple organ failures. 7 This was a case report of conjunctival (mucosal) form of sporotrichosis in immunocompetent host which the infection was highly suspected to be transmitted from pet.

1.1. Case report

The 42-year-old Thai woman presented with chronic, painless, ulcerated conjunctiva with white plaque. The lesion was not healed for one month after excision. She became concerned of getting infection from her cat because it developed chronic and multiple skin lesions on its legs. Identification of Sporothrix schenckii by PCR method was confirmed in the tissues from her conjunctiva and cat’s skin.

A case of Thai woman presented with chronic painless ulcerated conjunctiva with white plaque. The lesion was not healed for one month after excision. She became concerned of getting infection from her cat because it developed chronic and multiple skin lesions on its legs. Identification of Sporothrix schenckii by PCR method was confirmed in the tissues from her conjunctiva and cat’s skin.

The diagnosis of Sporothrix infection should be suspected in atypical conjunctival lesion in patient who had close contact with infected cat. This brought awareness to doctors and cat owners, even though it was uncommon.

https://doi.org/10.1016/j.ajocase.2020.100898
Received 11 February 2020; Received in revised form 19 July 2020; Accepted 16 August 2020
Available online 20 August 2020
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mycobacteria showed no organisms. We also reviewed tissue from wound biopsy of the sick cat which showed non-encapsulated multi-lobulated mass filled with many neutrophils, plasma cells and lymphocytes in the dermis, infiltrated with macrophages that contained round yeast-like organism, size 3–8 μm with clear capsule and narrow-based buddings. The PCR using universal primers, internal transcribed spacer (ITS) 1 and ITS4 from both patient and cat’s formalin-fixed paraffin embedded (FFPE) tissue showed 100% homology to Sporothrix schenckii. Therefore, we gave her a diagnosis of Sporothrix infection in ulcerative nodular form which most likely transmitted from her pet by direct contact.

The patient was treated with Terramycin (oxytetracycline hydrochloride with polymyxin B sulfate) eye ointment four times daily for 2 months. Maxitrol (neomycin sulfate with polymyxin B sulfate and dexamethasone) eye ointment at bedtime was added after day 10 and was discontinued after one month because of intraocular pressure rising. The lesion was healed (Fig. 1B, C and 1D) and resolved in two months without recurrence after follow-up for a year. The cat wounds got better by being applied gentian violet without taking any oral medications.

2. Discussion

This was the first case report in Thailand which showed sporotrichosis at conjunctiva (extracutaneous manifestation). The PCR demonstrated Sporothrix schenckii from both the patient’s conjunctiva and her cat wounds. It showed high possibility that the patient caught these fungi from her infected cat. Although, she denied history of being bite or scratch from the cat, the organisms could inoculate onto her right hand and accidently passed through her conjunctiva while rubbing.

In Thailand, sporotrichosis was rare. Cutaneous sporotrichosis has been reported once in 1990 - that presented with two crusted mass at the elbow. The skin biopsy and culture revealed Sporothrix schenckii. Another report was found in stray cat. Normally, sporotrichosis found high endemic in South America e.g. Brazil and Peru. According to report in Brazil, 372 cats, 34 dogs, and 83 humans, were infected between year 2010 and 2016, which 35% of infected cats were dead. In Asia, Sporothrix infection was uncommon. There were a few report from Japan, India, China, and Malaysia. Tang MM reported case series of cutaneous sporotrichosis in Malaysia, which 68% revealed history of skin trauma and half of these trauma related to cat biting or scratching. Arinelli A and Aleixo A collected 26 cases of ocular sporotrichosis in Rio

Fig. 1. Slit-lamp photographs of the conjunctival plaque at presentation(A) ten days(B), three weeks(C), and one month(D) after treatment.

Fig. 2. Photograph shows location of the itchy bump on her right hand post incisional biopsy.
de Janeiro, Brazil. The typical characteristics were groups of shiny surface nodules surrounded by conjunctival redness and edema with eye discharge, 80% involved at tarsal conjunctiva. Adjacent lymphadenopathy was found in 77% of cases. Additionally, 96% documented the history of direct contact with an infected cat. Although there was no report of visual impairment in cases of ocular sporotrichosis in normal host, but awareness of this infection should be concerned in immunocompromised cases.

There were two routes of transmission: from plants and animals. At 25 °C, Sporothrix habitat as filamentous hyphae in plants can pass through host tissue by traumatic inoculation. Last decades, Sporotrichosis was found to be associated with occupational related plants e.g. agriculture work. Lately, closely contact by infected cats became a significant risk factor for Sporothrix infection which developed two to three weeks after deep scratches or bites. The gold standard for diagnosis of Sporothrix was culture positive after incubation on Sabouraud dextrose agar for 5–8 days. However, the infection lodge deep in host tissue, reside in cyst form, and the culture was frequently negative. Then tissue biopsy was usually required. Histopathologically, sporotrichosis showed granulomas, presence of lymphoplasmacytic cell infiltration and yeasts or asteroid bodies but identified organisms was not detected in 65%. Therefore, PCR from FFPE tissue processing was helpful to establish diagnosis. Sensitivity and specificity of PCR were as high as 100% and 98.7%, respectively. In our case, histopathological review from cat wound (demonstrated yeast-like organism), history of cat contact and location of cat’s wound which developed on its nose brought us recognition of mycoses that grew at subcutaneous level. Sporothrix schenckii was detected from PCR performing.

Treatment of choices depended on clinical severity including oral itraconazole (dosage 100–400 mg/day), Potassium iodide (KI), Terbinafine, or intravenous Amphotericin B in disseminated disease. Before PCR result, our patient was initially started with Terramycin eye ointment which was antibiotic composed of oxytetracycline hydrochloride and polymyxin B sulfate. Zhai B suggested anticytopococal activity of polymyxin B in vitro and in mice. Additionally, Hsu LH demonstrated anti-fungal activity of polymyxin B of Fusarium species in vitro. Our report had supported role of polymyxin B in antifungal activity. Otherwise, spontaneous recovery had been reported. In 1985, cutaneous sporotrichosis spontaneously disappeared after follow-up for 46 days in 15-month-old boy and in 2009, pregnant veterinarian with lymphocutaneous sporotrichosis was healed without treatment by 7 months.

3. Conclusions

This is the first ocular Sporothrix infection in Thailand which highly possible transmitted from sick cat. Animal-to-human (zoonosis) spreading should be under awareness. PCR from tissue biopsy is helpful for diagnosis.

Patient consent

The patient consented to publication of the case in writing.

Funding

No funding or grant support.

Authorship

All authors attest that they meet the current ICMJE criteria for Authorship.

Declaration of competing interest

The following authors have no financial disclosures: UR, MJ, ST, WT, AC.

Acknowledgements

We thank Dr. Navaporn Worasilchai for the PCR performing and analysis.

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