Conidiobolus Zygomaticosis and Parasitic Co-Infection in a Nasal Mass

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ABSTRACT

Background: Conidiobolus are fungi belonging to the order of Entomophthorales causing chronic cutaneous and subcutaneous infections in immunocompetent individuals and almost exclusively limited to the tropics and subtropics. The Conidiobolus and parasitic environmental niches include tropical rain forests, soil, rotting vegetation, and the gastrointestinal tract of animals, hence farmers are susceptible.

Objectives: To present an exemplary case report on the management of co-infection of Conidiobolomycosis and Toxocara.

Methods: We report a farmer with a right nasal mass and soft tissue swelling of the external nose and multiple upper lip nodules. Computed tomography of the paranasal sinuses showed localized extension of the lesion and histopathology examination revealed intense eosinophilic reaction and Splendore-Hoeppli phenomenon. The course of the management is discussed with reference made to current world literatures available.

Results: The patient is diagnosed to have Conidiobolomycosis caused by Conidiobolus coronatus with a significantly positive IgG titre for Toxocara. He was treated with double oral antifungal agents with positive response and complete resolution of the lesion after six months of treatment. He was planned for a year course of both antifungals.

Conclusions: Conidiobolomycosis is a rare chronic infection that can be a diagnostic conundrum with a good prognosis as it is treatable with antifungal.

KEY WORDS

conidiobolus, zygomaticosis, parasite

INTRODUCTION

Conidiobolomycosis is a rare disease caused by fungi of the genus Conidiobolus, subphylum Entomophthoromycotina (Conidiobolus coronatus, Conidiobolus incongruus, Conidiobolus lamprauges, and Basidiobolus ranarum). This infection occurs mainly in tropical and subtropical regions, found in tropical rain forests, soil, rotting vegetation, and the gastrointestinal tract of insectivorous animals. It is characterized by granulomatous and necrotic lesions. Conidiobolomycosis forms a mass in the subcutis and submucosa of the maxillary sinus/inferior turbinate, nose, forehead, paranasal sinuses, periorbital region, and upper lip.

Toxocariasis is an infection usually found in the soil, contaminated with the eggs and its larvae. The subspecies involves are the dog (Toxocara canis) or the cat (Toxocara cati) roundworms.

We report a case of Conidiobolus zygomycosis and parasitic co-infection in a nasal mass of a gentleman. We encounter diagnosing dilemma in view of lack of reported cases in Malaysia.

CASE REPORT

A fifty-three-year-old Malay gentleman, farmer with no background medical illness, presented with painful, gradually enlarging right nasal swelling for six months. It caused complete obstruction of the right nostril associated with widening and erythema of the nasal bridge and swelling of the upper lip. He has six unvaccinated feline as pets.

Examination is shown in Figure 1. The left nostril was narrowed anteriorly due to mass effect from the contralateral side. However, the rest of the left nasal cavity and nasopharynx were normal.

Computed tomography (CT) scan was performed (Figure 2). The osteomeatal complexes are intact. Soft tissue thickening extends to the frontal scalp superiorly and upper lips inferiorly.

He received intravenous Unasyn 750 mg thrice daily for one week. Initial punch biopsy showed no granuloma or malignancy seen. However, he had worsening symptoms. We proceeded with excision biopsy. Intra-operatively, it was noted that the nasal mass was broad base, firm to rubbery, and arising from upper one-third of the right septum, extending to the nasal roof superiorly and middle of right vestibule anteriorly. Multiple firm nodular lesion at upper lips, largest 1 cm x 1.5 cm.

The histopathology result of the nasal mass showed intense eosinophilic reaction, with possibility of parasitic infection. Biopsy of lip showed an intense eosinophilic reaction with presence of eosinophilic granules as described in Splendore-Hoeppli phenomenon. Fungal culture grew Conidiobolus coronatus. Toxocara serology showed IgG positive with a significant titre of 0.923.

He was started on oral itraconazole 200 mg twice daily and oral fluconazole 200 mg daily for one year. Upon review one month post antifungal treatments, the patient had improved clinically. There was an absence of nasal blockage with a normal upper lip. At six months post treatment, the patient was asymptomatic with normal facial features.

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Zygomycosis is transmitted by fungal spore inhalation or an insect bite. It commonly affects male agricultural workers aged 20 to 50 years. It causes locally progressive disease in the head and face regions. The major presentation is a slow-growing swelling of the nasal region, facial or nasal distortion, epistaxis and facial pain. Sometimes, it can be mistaken for a soft tissue malignancy, however, bones are not involved.

Conidiobolomycosis requires histopathologic demonstration and culture isolation for definitive diagnosis. Histologically there is a diffuse dense chronic granulomatous inflammatory reaction comprising of lymphocytes, eosinophils, histiocytes and foreign body type of multinucleated giant cells. The central portion comprises of few short broad septate hyphae surrounded by amorphous eosinophilic Splendore-Hoeppli material, which occurs in response to antigen-antibody precipitate.

Adult worms of the Toxocara species live in the small intestine of dogs. Humans typically ingest the eggs via oral contact with contaminated hands. The other routes are through the soles when a person walks barefoot or through the skin when a person in the water. Then inflammation caused by the immune response against the excretory-secretory antigens of larvae causes epithelioid cells to surround each larva, and a dense fibrous capsule invests each granuloma.

The recommended diagnostic test for toxocariasis is enzyme immunoassay (ELISA) using the larval stage antigens extracted from embryonated eggs or released in vitro by cultured infective larvae. It has a sensitivity of 91% and a specificity of 86%.

In our case, there was a diagnostic conundrum where the result for Toxocara IgG was available earlier than the fungal culture. However, in view of site of involvement and associated risk factor, he was treated as rhino-facial zygomycosis with Toxocara infection. After commencement of antifungal treatments, he showed marked improvement. Infectious diseases team decided to continue antifungal therapy for 1 year duration.

REFERENCES