Subcutaneous entomophthoromycoses

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ABSTRACT

Subcutaneous entomophthoromycoses is a zygomycosis caused by *Basidiobolus ranarum* that is endemic in southern India. We report the case of a 63-year-old male from central India who presented with a nontender subcutaneous hyperpigmented plaque on his leg with mild discharge that yielded *Basidiobolus ranarum.*

Key words: Basidiobolomycosis, *Basidiobolus ranarum*, entomophthoromycoses

Access this article online

Website: www.idoj.in

DOI: 10.4103/2229-5178.169730

Quick Response Code:

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INTRODUCTION

Basidiobolus species are filamentous fungi belonging to the order Entomophthorales. Unlike other zygomycetes, *Basidiobolus* species can cause subcutaneous zygomycosis in healthy individuals.[1] Subcutaneous zygomycosis is a common presentation reported from many tropical countries. It is low endemic in southern India, including Pondicherry.[2,3,4,5] The disease usually occurs in children, less often in adolescents, and rarely in adults.[6] Males are much more frequently affected than females.[6]

It is mainly isolated from the extremities, trunk, intestinal tract, and rarely other parts of the body.[7] Herein we report a case of subcutaneous basidiobolomycosis caused by *Basidiobolus ranarum* in a male executive residing at Bhopal, central India.

CASE REPORT

A 63-year-old man presented to the dermatology department of AIIMS, Bhopal, with a chronic, nonhealing, nodular, hyperpigmented plaque with superficial erosions and oozing on his left leg since three years with a history of unspecified casual trauma. He was a nonsmoker and a teetotaller. On local examination, there was a solitary nodule 5 cm in size and a nonindurated, nontender, hyperpigmented, and superficially eroded plaque covering almost three fourths of his leg with scanty non-foul smelling pus discharge on its surface [Figure 1]. Systemic examination was within normal limits. His routine hematologic and biochemical parameters including complete hemogram, liver and kidney function tests, fasting, and postprandial blood glucose levels, serum proteins, and erythrocyte sedimentation rate were in normal range. Chest radiography and local limb radiography did not reveal any significant abnormalities. A provisional diagnosis of a soft tissue fungal infection was made. The hematoxylin and eosin stained sections after skin biopsy revealed inflammatory granulation tissue. Tissue material and several skin scrapings from the plaque were examined in 10% potassium hydroxide preparation, that showed broad, hyaline, thin-walled, infrequently septate mycelia. Samples were inoculated in two sets of Sabouraud dextrose agar (SDA). One set was incubated at 37°C and another at 25°C. Growth was observed within 5 days at both temperatures and as creamy white, waxy, and glabrous colonies with many radial folds and a few satellite colonies [Figure 2]. On performing lactophenol cotton blue wet mount of the fungus, infrequently septate hyphae, and numerous globose, smooth-walled zygospores with conjugation beaks were observed characteristic of *Basidiobolus ranarum* [Figures 3-5]. The patient was started on oral itraconazole 400 mg/day and placed on follow up.

DISCUSSION

Subcutaneous zygomycosis, the commonest clinical form of basidiobolomycosis, is a low endemic fungal infection in southern India.[2,3,4] There are scarce case reports from other parts of India, including north-eastern India (a 11-year-old girl) and Chattisgarh (a 58-year-old female patient).[8,9] Our patient belonged to

Figure 1: Subcutaneous hyperpigmented plaque

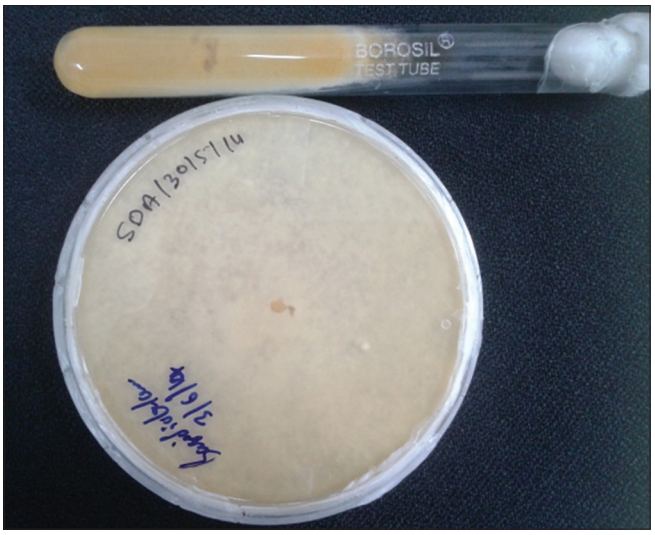

Figure 2: Sabouraud dextrose agar at 35°C and 25°C with creamy white, waxy, and glabrous colony with many radial folds and few satellite colonies

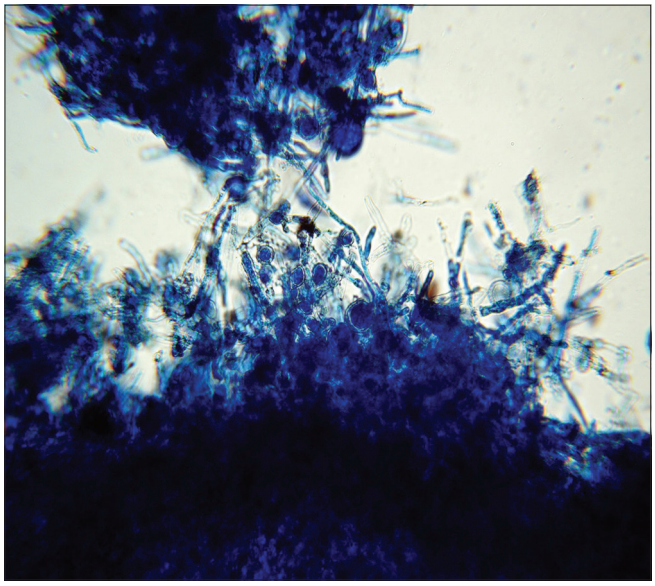

Figure 3: Lactophenol cotton blue mount showing aseptate hyphae and numerous globose, smooth-walled zygospores

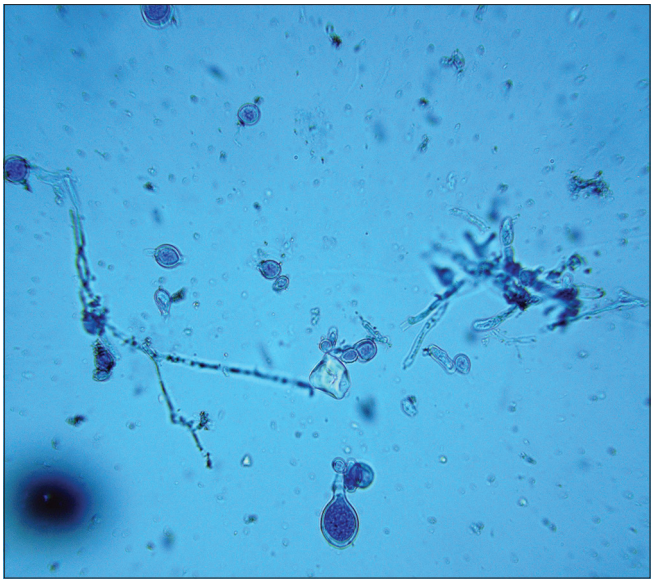

Figure 4: Zygospores with characteristic conjugation beaks

Bhopal, central India. No predisposing factor identifiable in this case, although traumatic implantation was the likely mode of entry.[5] Histologically, basidiobolomycosis is associated with eosinophilic infiltration. It has been postulated that the predominant Th2 type of immune response with the release of the cytokines IL-4 and IL-10 recruits eosinophils to the affected site.[5] Basidiobolus can be cultured on routine media such as Sabouraud dextrose agar (SDA), potato dextrose agar, or cornmeal agar. The colonies are typically flat and furrowed, with a wavy texture, a yellow-gray surface with pale reverse, and a musty odour. Microscopically, the colonies produce large vegetative hyphae, which become increasingly septate as they mature. The role of KOH smear cannot be underestimated and is a valuable aid in diagnosis.[10] In our case also, KOH mount and culture on SDA were valuable in the diagnosis.

Most patients with basidiobolomycosis respond well to oral potassium iodide as also to azoles, particularly itraconazole. [11,12] Treatment with amphotericin B has given unsatisfactory results, with some strains even showing *in vitro* resistance to this drug.[13] Our case also responded to oral itraconazole.

ACKNOWLEDGMENTS

The authors thank Dr. Kajal Gupta, Mr. Suneel Bhooshan, and Mr. Pradeep Kumar Gupta for their technical work.

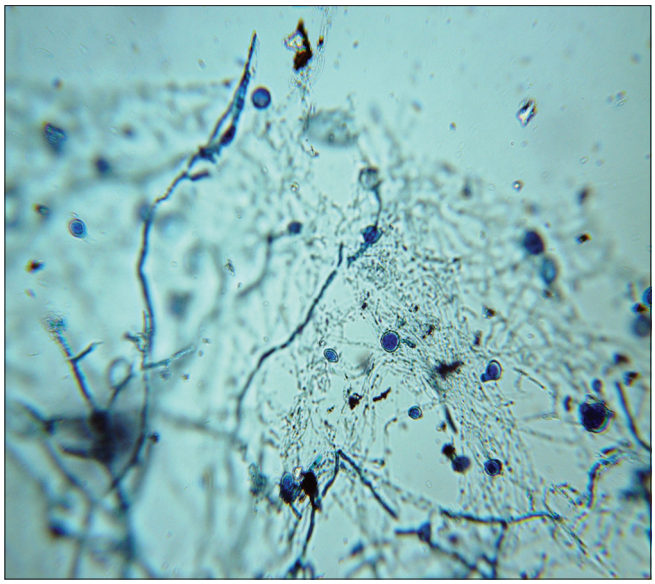

Figure 5: Globose primary conidia with a few clavate-shaped secondary conidia

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Cite this article as: Karuna T, Asati DP, Biswas D, Purwar S. Subcutaneous entomophthoromycoses. Indian Dermatol Online J 2015;6:410-2.

Source of Support: Nil, **Conflict of Interest:** None declared.