

## Indurated swelling on the thigh

A 55-year-old female presented with gradually progressive, painless, skin-colored swelling over the left thigh [Figure 1] of ten months duration. There was no history of trauma to the site. She was given antitubercular treatment for the same for 4 months without any response. The lump was surgically excised but recurred. Examination revealed a solitary, firm, nontender, subcutaneous swelling 7 x 8 inches in size. The edges were smooth and rounded and

the swelling could be undermined with fingers. The rest of the cutaneous and systemic examination was within normal limits. Routine hematological and biochemical investigations were within normal limits. A surgical biopsy was done. The histopathological findings with special stains are shown in Figures 2 and 3.

### WHAT IS YOUR DIAGNOSIS?



Figure 1: Subcutaneous plaque on the thigh

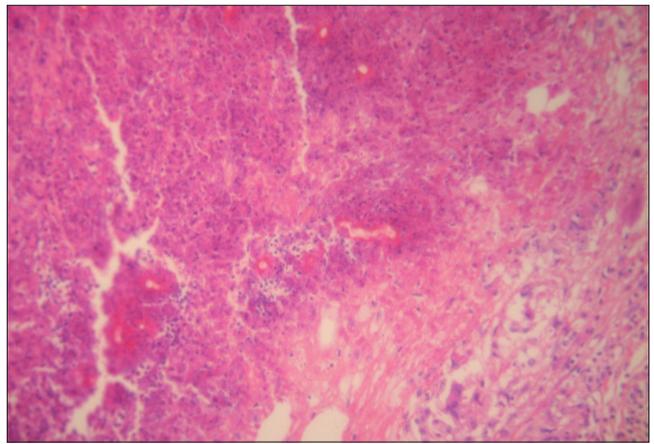


Figure 3: Close up of granuloma showing eosinophil degranulation

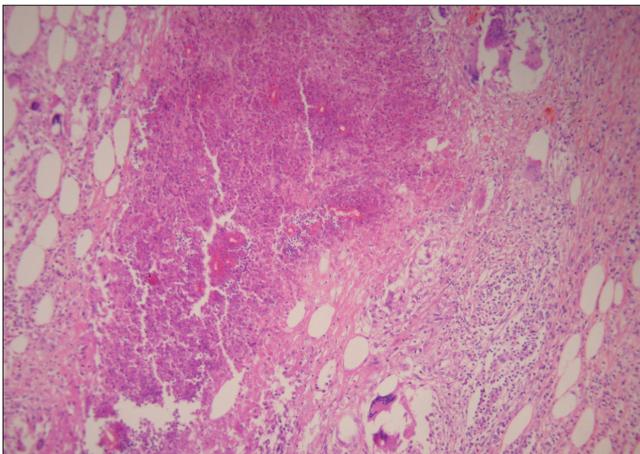


Figure 2: Surgical biopsy showing suppurative granuloma (H/E, 200x)

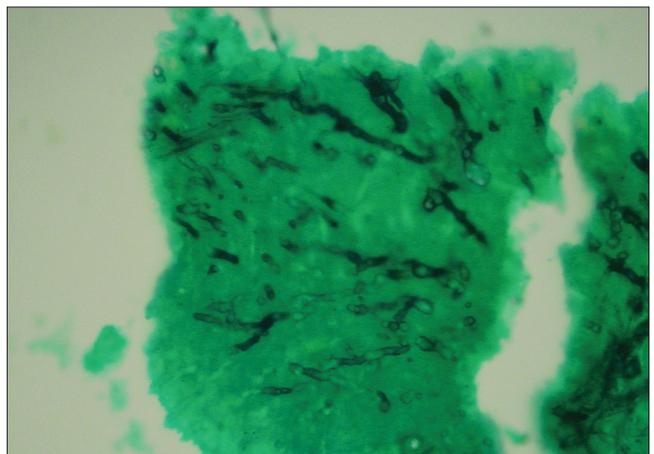


Figure 4: Methenamine silver staining of the biopsy (x400)

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## Diagnosis: Subcutaneous zygomycosis

### HISTOPATHOLOGICAL FINDINGS

Sections stained with hematoxylin and eosin showed foci of suppurative granulomatous infiltration in the dermis and subcutaneous tissue. Infiltration consisted of histiocytes, lymphocytes, multinucleated giant cells, plasma cells and numerous eosinophils along with flame figures. Gomori Methenamine Silver stain showed large, twisted, aseptate hyphae [Figure 4].

### DISCUSSION

Among the Zygomycetes there are two orders that are of medical importance - the Mucorales and Entomophthorales. These organisms are ubiquitous and saprophytic in nature. The agents of zygomycosis commonly are found in the environment on bread, fruit and in soil. The organisms are common components of decaying organic debris. They rarely cause disease in an immunocompetent host unless introduced into the body by a penetrating injury.

Subcutaneous zygomycosis is the commonest clinical form of Basidiobolomycosis, caused by the family Entomophthoraceae. It commonly occurs in tropical and subtropical countries and has been reported sporadically from India too.<sup>[1-4]</sup> Primary disease is due to local trauma or inoculation; secondary disease is due to hematogenous dissemination to the skin. There are usually no predisposing factors; traumatic implantation is usual mode of entry. In one case report, the mode of entry was postulated to be through an intra muscular injection with subsequent involvement of the muscle.<sup>[5]</sup> Subcutaneous zygomycosis may sometimes clinically mimic soft tissue sarcoma.

Earlier clinical isolates of Basidiobolus were classified as *B.ranarum*, *B.meristosporus* and *B.haptosporus*.<sup>[1]</sup> Recent taxonomic studies based on antigenic analysis, isoenzyme banding and restriction enzyme analysis of rDNA have identified *B.ranarum* to be the causative agent in all human infections. Zygomycosis may manifest as rhinocerebral, subcutaneous, cutaneous pulmonary, abdominal and disseminated forms. Cutaneous infections account for 16% of all forms of zygomycosis, with low mortality of 16% as compared to 67% for rhinocerebral, 83% for pulmonary and 100% for disseminated infection.<sup>[6]</sup>

Histologically, small stellate foci of suppurative granulomatous

inflammation are present. Loosely arranged hyphae with irregularly placed branches are present within the cavity and at its edge. Sometimes hyphae are demonstrable only on special stains such as methenamine silver stain and PAS stain. Presence of eosinophils in the infiltrate is fairly characteristic of subcutaneous zygomycosis leading to the description of infiltrate as "eosinophilic granuloma". The number of eosinophils may at times be so high that it is not infrequent to see flame figures due to their degranulation. Frequently such degranulation occurs around the large hyphae of the fungus and the appearance resembles that of "Splendore Hoeffli material" around the grains of mycetoma [Figure 3].

Surgical excision along with intravenous amphotericin B is recommended in severe cases but has given unsatisfactory results, with some strains being resistant.<sup>[7]</sup> Oral potassium iodide therapy is very effective for most patients Azoles particularly Itraconazole can be tried. The prognosis is related to the promptness in diagnosing the case and aggressiveness of treatment.

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