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SHORT COMMUNICATION

Basidiobolomycosis : A rare subcutaneous mycosis

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Basidiobolomycosis is a type of subcutaneous fungal infection caused by *Basidiobolus ranarum*. The occurrence of zygomycosis has been described in a 30 year old male, who presented to the OPD of Department of Dermatology with a hard swelling over the front of left thigh. Skin biopsy from the affected region revealed suppurative granulomas. The culture revealed fungal growth suggestive of *Basidiobolus ranarum.* Saturated solution of potassium Iodide (SSKI) for a period of 2 months lead to significant improvement of the lesion. *Basidiobolus ranarum* is a rare saprophytic fungus causing subcutaneous mycosis affecting immunocompetent patients. The relative lack of reports and rarity of the culture being positive prompted us to report this case.

Key words: Basidiobolomycosis, zygomycosis, entomophthoramycosis, potassium iodide

Subcutaneous fungal infections, also known as sub cutaneous zygomycosis or phycomycosis are caused by fungi belonging to the class Zygomycetes, order *Entomophthorales* and genera *Basidiobolus* and *Conidiobolus* (Pankajalakshmi *et al.*, *IADVL Textbook of Dermatology Vol. 1, 3rd ed*). They are saprophytes in soil, decaying vegetation and gastrointestinal tract of amphibians, causing infection in normal persons (Barton *et al.* , 2000). Basidiobolomycosis is caused by *Basidiobolus ranarum.* Rational management of such uncommon mycoses requires confirmation of diagnosis by demonstrating fungal elements on histopathology as cultures are not always positive (Pagano *et al.*, 2009). We describe the occurrence of zygomycosis over the front of the thigh in a 30 year old man.

Case Report

A 30 year old male from rural West Bengal, presented to the OPD of Department of Dermatology with a hard swelling over the front of left thigh. There was no preceding history of trauma. Cutaneous examination revealed a subcutaneous firm to hard mass 13 X 12 cm in size, which was mobile over underlying structures. It was minimally tender. The edges were smooth and rounded and finger insinuation beneath the mass was possible. Ipsilateral, solitary inguinal lymph node about 1cmX2cm which was non tender was present. Two discharging and one healed ulcer were seen on the surface of the swelling.

Routine hematologic examination was within normal limits with X-ray of the area showed no bony involvement. Skin biopsy from the affected region on hematoxylin and eosin stain showed acanthosis with inflammatory infiltrates in the upper and mid dermis consisting of neutrophils, eosinophils and lymphocytes. The culture in Sabourauds Dextrose Agar revealed fungal growth suggestive of *Basidiobolus ranarum.*

The patient was started oral saturated solution of Potassium Iodide (SSKI) starting with 3 drops thrice daily gradually escalating to 10 drops thrice daily for a period of 2 months. Thyroid profile was monitored closely for signs of hypothyroidism. The patient showed significant improvement.

Basidiobolomycosis is caused by *Basidiobolus ranarum* affecting immunocompetent patients. It is

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the most common cause of subcutaneous zygomycosis in an endemic pattern in south India (Sujatha , 2003).

A history of preceding trauma may be present (not present in the present case).One case has been described due to intramuscular injection (Kamalam , 1984). It mainly affects the limbs especially proximal extremity leading to disfigurement and restriction of limb mobility.

Histologically, Basidiobolomycosis is associated with eosinophilic infiltration. This has been postulated to be due to a predominant Th2 type of immune response with release of cytokines like IL-4 and IL-10 which in turn are helpful in recruiting eosinophils to the affected site (Sujatha , 2003).

In tropical areas, potassium iodide is used as a first line agent to treat entomophthoramycosis (Barton *et al*, 2000). The precise mechanism by which KI kills fungi is also unknown. It is unclear whether KI works against fungi by a fungicidal mechanism or by enhancing the body's immunologic and non-immunologic defence mechanisms. *Sporothrix schenckii* and *Basidiobolus* actually grow when plated in KI (Tio and de Vries 1977). However, it is proposed that potassium iodide has direct antifungal activity and also possess anti-fibrotic and proteolytic action and thereby concentrating the drug at tissue level (Thappa *et al.,* 2003).

Dosage of SSKI is 360-900mg/day, though higher doses may be used in tolerant patients (Heymann, 2000). Saturated solution of Potassium iodide (SSKI) which in the U.S.P generic formulation contains 1000 mg of KI per ml of solution. This represents 333 mg KI and about 250 mg iodide (I) in a typical adult dose of 5 drops, assumed to be 1/3 ml ("SSKI Drug Information, Professional". Drugs.com. retrieved 2011-03-23). Thus, each drop of U.S.P.SSKI is assumed to contain about 50 mg of iodine. This kind of dosage warrants strict monitoring of thyroid profile to rule out Wolff-Choikoff effect which is the inhibition of organification by exogenous iodide, leading to hypothyroidism. Generally SSKI is well tolerated but sometimes adverse cutaneous side effects are noted such as erythema, urticaria, acneform eruptions , nodular, perpuric, pustular, carbuncular lesions. Other effects include fever, fatigue, metallic taste, mouth sores, nausea vomiting, abdominal pain, sneezing swelling of parotid gland, salivation, increased lacrymation which are collectively and commonly referred to as iodism (Madke *et al.*, 2010).

The other drug which has shown promising results in treating the disease, which can be used alone or along with SSKI is Itraconazole. It acts by preventing the synthesis of ergosterol in fungal cell membranes by limiting C14 demethylation.

To conclude, Basidiobolomycosis is a disease which can be treated by making a prompt diagnosis and starting therapy with either SSKI and/or other systemic anti-fungal drugs.

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