

SPOROTRICHOSIS IN NORTH WESTERN INDIA (Report of 5 cases)

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Five women with lympho-cutaneous sporotrichosis with a mean age of 46.8 years, were seen over the last 3 years. Four belonged to rural Himachal Pradesh and one to Saharanpur, Uttar Pradesh. Upper extremity was affected in three patients. *Sporotrichum schenkii* was isolated from 3 patients and confirmed by the micc pathogenicity test. *S. schenkii* was demonstrated in the histopathology specimen in one patient. All the patients responded to oral potassium iodide, complete clearance occurring after a mean period of 3.5 months. One patient developed mild iodism and another had erythema nodosum like eruption during treatment. Himachal Pradesh seems to be harbouring pockets of sporotrichosis.

Key words : Lympho-cutaneous sporotrichosis, *Sporotrichum schenkii*.

Sporotrichosis is a subacute or chronic non-contagious mycosis of skin and regional lymphatics that results from the percutaneous introduction of dimorphous yeast-like fungus *Sporotrichum schenkii*. Not only humans but horse, mule, dog, cat, cattle, camel, fowl, swine, rat, mice, hamster and chimpanzee may also be affected.¹ Animals however, are not an important source of infection for the humans, though several cases occurring after handling infected cats have been described recently.² Human to human spread does not occur. *S. schenkii* exists as a saprophyte in nature and is found on the timber, bark, thorns, leaves, straw, sphagnum moss, soil and several types of insects. All professions dealing with vegetable material, including florists, foresters, gardeners, farmers, nursery workers and cooks are at risk.³ Gold miners, veterinarians, rarely laboratory workers and even meat handlers may contract the infection. *S. schenkii* has also been isolated from cold stored sausages.⁴ Sub-clinical infections are commoner than clinical disease. Skin test with a specific capsular polysaccharide antigen (sporotrichin) was positive in 58%

workers employed for more than 10 years in nurseries in Louisiana, and in 11.2% controls in the same geographic area.⁵ No such studies have been carried out in India.

Cutaneous sporotrichosis can be broadly classified into three types, namely : (a) lympho-cutaneous usually seen over the extremities and rarely on the face and other parts of the body, (b) fixed cutaneous or localised variety (10-32% of all cases), rosacea-like variant has also been described,⁶ and (c) disseminated cutaneous sporotrichosis which may be confined to the skin, or occur as a manifestation of wide-spread systemic infection.⁷ Extra-cutaneous sporotrichosis is a well established entity that may be localised or multi-focal, a primary pulmonary form is also known. Sporotrichosis is rare in India.⁷⁻¹⁰ In the present communication we describe five cases of sporotrichosis seen over the last 3 years.

Case Reports

Case 1

A 41-year-old urban housewife from Saharanpur (Uttar Pradesh), had a six-month history of asymptomatic nodulo-ulcerative lesions over the left forearm and upper arm. The lesion started as a subcutaneous nodule in the middle of extensor surface of the left forearm.

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Subsequently, the overlying skin became erythematous and the nodule softened and finally ulcerated discharging purulent material. Three weeks later, new subcutaneous nodules developed in a linear fashion over the forearm and upper arm and later evolved into ulcers as described above. There was no history of trauma preceding the skin lesions and no constitutional symptoms. She had received repeated courses of antibiotics without significant improvement. Examination revealed multiple, 0.5-1.5 cm size, firm, mobile, subcutaneous nodules with normal overlying skin, and in the line of the nodules there were ulcerated and crusted lesions over the forearm and upper arm. Draining lymphatics and regional lymph nodes were not enlarged. General physical and systemic examination was normal.

Case 2

A 46-year-old housewife from a village in Mandi (Himachal Pradesh), also had a six-month history of asymptomatic longitudinally arranged nodulo-ulcerative lesions over the right upper extremity. The evolution of the lesions was similar to the first case. Examination showed 7-8 ulcerated crusted plaques present over the medial side of the upper extremity extending from the lower half of the forearm to almost upto the anterior axillary fold (Fig. 1). There

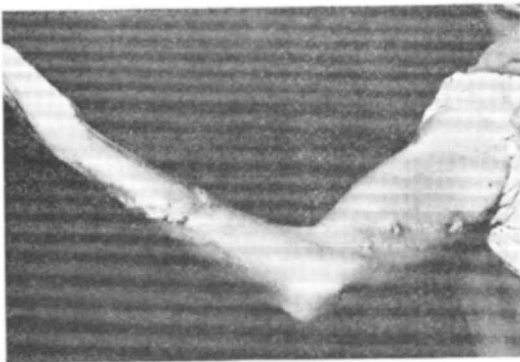


Fig. 1. Ulcerated crusted plaques in a linear distribution over the upper extremity (case 2).

were no regional lymphadenopathy or thickened lymphatics. No history of trauma could be elicited. General physical and systemic examination was normal.

Case 3

A 32-year-old housewife from rural Kasauli (Himachal Pradesh), presented with two-year history of nodulo-ulcerative lesions over the right upper extremity. Two years ago, she had injured her right middle finger while cutting grass in the fields. One month later, she had developed a nodule 1 cm in diameter at the site of injury. Subsequently, the nodule softened, became livid and ruptured in about four weeks time. Three months after the first nodule, she developed another similar lesion over the dorsum of the hand, just above the previous lesion. During the next one year lesions spread over the entire length of the forearm and the lower half of the upper arm (Fig. 2). There was no regional lymphadenopathy or thickened lymphatics. General physical and systemic examination was normal.

Case 4

A 50-year-old housewife from rural Kangra (Himachal Pradesh), had a 9 month history of



Fig. 2. Nodulo-ulcerative lesions in a linear distribution over the upper extremity (case 3).

nodulo-ulcerative lesions over the right ankle. It had developed 3 months after an injury with an iron rod. Injury resulted in ulceration which healed in one month. Three months after the initial trauma, she developed a tender, erythematous nodule over the dorsum of the foot which ulcerated, discharging sero-sanguineous material. Over the next 6 months, lesions appeared in a linear fashion over the lower leg almost upto the knee joint. There was no regional lymphadenopathy but thickened lymphatic cords in between the lesions were palpable.

Case 5

A 65-year-old housewife from a village in Una (Himachal Pradesh), presented with 20 days history of linear nodulo-ulcerative lesions over the right lower leg. She had sustained an injury on the right little toe while walking in the fields. It was followed by a diffuse painful swelling of the forefoot, and 10 days later she noticed three nodules over the dorsum of the foot. During the next 10 days, she developed similar lesions in a linear fashion over the lower leg. Popliteal lymph nodes were palpable and tender but there were no thickened lymphatic cords. General physical examination showed multi-nodular goitre with no signs of hyperthyroidism.

Routine haemogram, urinalysis, serum biochemistry, liver function tests, chest skiagrams, Mantoux test, skin biopsy for histopathology and fungal culture were carried out in all patients. Tissue for fungus culture was sent from intact nodules, and processed as described in a previous communication.¹¹

All the investigations were normal except the finding of right paratracheal lymph nodes in case 3, and calcification in the thyroid region in case 5. T3, T4, PBI, and radio-iodine uptake in case 5 were normal. There was no evidence of tuberculosis or lymphoma in case 3. *Sporotrichum schenckii* was isolated (Fig. 3) in cases 1, 4 and 5, and confirmed by pathogenicity in

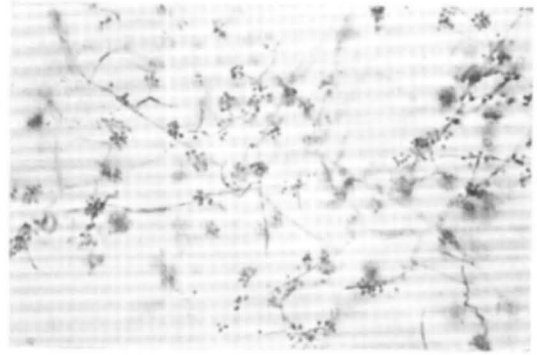


Fig. 3. Photomicrograph of slide culture mount of *Sporotrichum schenckii* (Lactophenol cotton blue X 400).

the mice. In one case, the specimen was lost in transport. Histopathology in all the five cases, showed a spectrum of findings consisting of a non-specific inflammatory infiltrate in the dermis. Granulomas were seen in 3 specimens. One specimen showed a characteristic arrangement of the infiltrate in three zones, the central suppurative zone being composed of neutrophils, surrounded by a tuberculoid zone of lymphocytes and plasma cells (Fig. 4). This case also showed the presence of a few spores of *Sporotrichum* (Fig. 5) in diastase-PAS stained preparation (Case 3). The spores stained more strongly

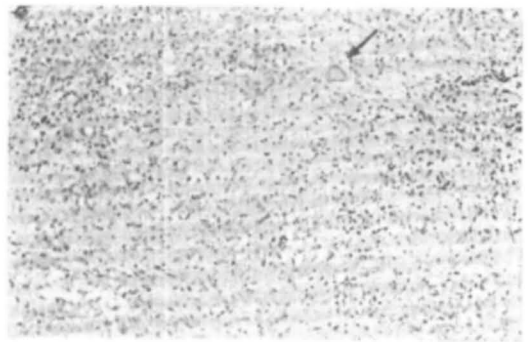


Fig. 4. Photomicrograph showing mixed inflammatory infiltrate in the dermis including acute inflammatory cells, epithelioid cells and Langhan's giant cells. Haematoxylin-Eosin X 150)

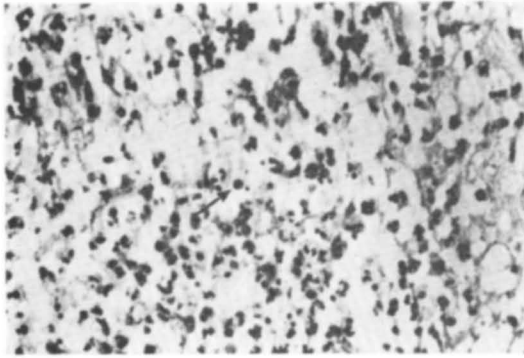


Fig. 5. Photomicrograph showing acute inflammatory infiltrate and fungal spore (arrow) (Diastase-PAS X550).

at the periphery than at the centre. Spores were not visualized in the other four specimens.

All the patients were treated with saturated potassium iodide solution (1.2 gm/ml) administered orally. After the initial test dose of 2-3 drops on the first day, five drops three times daily was administered. The dose was increased over the next ten days to 40 to 50 drops three times a day or the maximum tolerated dose and maintained till 4 to 6 weeks after the disappearance of the lesions.

Comments

Sporotrichosis is world-wide in distribution and is found both in temperate and tropical zones. It occurs sporadically in North, South and Central America, and Egypt. It occurred in an epidemic form in gold miners of Witwaters and (South Africa). *Sporotrichum schenkii* grows in a hot and humid atmosphere.¹²

In India, sporotrichosis has mostly been reported from the eastern parts like Assam and West Bengal and less than 60 cases have been described.^{9,10,13,14} Recently, 7 cases were reported from Himachal Pradesh.¹⁵ One case each has been reported from Madras,¹⁶ Andhra Pradesh¹⁷ and another in an army personnel from Chandigarh.¹¹ Four of our patients belonged to Himachal Pradesh and one to

Uttar Pradesh. Four of the five patients belonged to rural areas of Himachal Pradesh. Women in the rural areas commonly go to the jungle for collecting firewood, fodder, or for help in the fields. *S. schenkii* is frequently inoculated into the tissues by a penetrating injury. History of trauma was elicited in three of the five patients. It is likely that minor cuts and abrasions are not recollected by the patients. However, in the case belonging to Uttar Pradesh, the source of infection could not be elicited. She was an urban housewife neither engaged in gardening nor having any pets. She had not visited endemic areas like Assam or West Bengal.

Lymph node involvement was not seen except tender lymphadenopathy in case 5 with signs of secondary infection of the skin lesions. Similar observation was made by Allen and Rippon.⁸ In chronic cases, however, lymph nodes may be involved.¹⁸

Sporotrichotic chancre (ulcer) histopathologically presents a picture of mixed granuloma with a central necrotic liquefied tissue mixed with polymorphonuclear cells, surrounded by a granulomatous wall consisting of tuberculoid inner zone of epithelioid cells, multinucleated giant cells and small round cells. There is an outer syphilitic zone in which plasma cells and round cells prevail. Eosinophils are scattered in considerable numbers or may form small abscesses.¹⁹ The histopathology of fungal granuloma was seen in 3 specimens, while the other two showed non-specific chronic inflammatory infiltrate in the dermis. One specimen showed a characteristic picture with all the 3 zones described above and a few spores of *Sporotrichum schenkii*. The asteroid bodies are seen in Japan, South Africa and Australia in 39-65% and rarely in upto 98% of tissue sections but only exceptionally in United States.²⁰ *S. schenkii* has only occasionally been demonstrated in histopathology specimens in India.¹⁶ Thorough amylase digestion, an essential prerequisite before PAS staining,¹⁹ may have

not been carried out in all the cases. The fungus is obscured by the tissue debris in ordinary PAS stain. The demonstration of fungal elements is difficult and in the present series even after amylase digestion and PAS staining fungus could be seen in only one specimen.

Potassium iodide (KI) is still the treatment of choice for cutaneous sporotrichosis. All the patients, irrespective of the duration of disease, responded to potassium iodide. Clinical response was evident in two weeks and complete clearance occurred after a mean period of 3.5 months. Potassium iodide is a safe drug, side effects are mild and infrequent. However one patient developed rhinorrhoea, excessive salivation and flushing when on 50 drops of KI thrice a day. These symptoms disappeared when the dose was reduced to 30 drops thrice daily. This patient also developed actinic lichenoid eruption over the extensor surface of forearms. It subsided with protection from sunlight and use of topical corticosteroids, while KI was continued. Another patient (case 5) developed 5-6 erythematous mildly tender, 1-1.5 cm size nodules distributed over the trunk and extremities after 5 days of KI therapy. These lesions subsided in 7-10 days leaving behind mild hyperpigmentation and scaling. An occasional lesion continued to appear for two weeks and potassium iodide was continued without any worsening. The histopathology showed perivascular polymorphonuclear, lympho-mononuclear infiltrate in the deep dermis but no definite evidence of leucocytoclastic vasculitis.

Amphotericin B is recommended for disseminated sporotrichosis.⁷ Recently ketoconazole has been used for the treatment of cutaneous sporotrichosis but results are variable.^{6,21,22} Five of the eight cases described by Heal et al²¹ responded at a dosage of 600 mg daily in 8-13 weeks. Day et al⁶ treated one patient with rosacea like sporotrichosis with

ketoconazole 400 mg per day for 10 weeks with partial response. It however, healed with KI 10 drops thrice a day in 2 weeks time. Samorodin and Sina²² described a veterinarian with cutaneous sporotrichosis who improved with ketoconazole (400 mg/day) in 8 weeks. Ketoconazole was also found to be ineffective in the treatment of pulmonary sporotrichosis.²³ Ketoconazole is a potentially toxic drug²¹ and is recommended only in patients not responding to potassium iodide.

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