SUBCUTANEOUS SPOROTRICHOSIS IN INDIA

MAYA SANYAL, N. BASU, A. THAMMAYYA,
M. A. TUTAKNE * AND M. L. GAIND *

Summary

A case of subcutaneous sporotrichosis in an Indian male, who spent several years in forest, has been presented with data of histopathological and mycological studies and treatment. The diagnosis was confirmed by isolation of *Sporothrix schenckii* followed by animal pathogenicity test. Oral potassium iodide therapy completely cured the patient.

Sporotrichosis a chronic subcutaneous mycosis caused by *Sporothrix schenckii* was first reported by Schenck in 1898 from U.S.A. In contrast to the other tropical countries with high temperature and relative humidity, where this fungus has established itself as one of the important species causing human mycoses (Londero, 1963; Silva & Nazarre, 1966; Findlay, 1970), authentic reports of sporotrichosis from India are scanty. The first case of sporotrichosis here was reported by Ghosh (1932) where the causative organism was *Sporotrichum beurmanni* (*S. schenckii*). Between 1932 and 1947, twelve cases were clinically diagnosed at the Calcutta School of Tropical Medicine, and Panja *et al.* (1947) reported a case caused by *Sporotrichum tropicale*. Since then only a few cases have been reported from India. Dey *et al.* (1958 reported two cases involving the upper extremities of two females from Assam. In both these cases, fungus could be demonstrated in the tissue and both responded to treatment with potassium iodide. *S. schenckii* was, however, isolated only from one case and the other remained unconfirmed. Dharampal & Singh (1962) diagnosed a case on the basis of histopathology. The cases of Banerjee & Dutta (1967), and Banerjee *et al.* (1971) were confirmed by culture and animal pathogenicity test.

The present paper deals with a case of subcutaneous sporotrichosis.

Case Report

B.K.P., a male military automobile driver aged 23 years, who lived for several years in the forest of Assam, had a chronic, non-healing, ulcerated nodule just above the left elbow joint and several nodules on the same cubital region for 6 months without any prior injury of the skin. Treatment with various antibiotics failed to improve the condition, but there was no general illness.

Clinical examination revealed no impairment of general health. The ulcer was circular, 5 cm. in diameter, painless, covered with slough, and situated just above the elbow. Distal to the ulcer, there were four subcutaneous nodules on the medial side of the flexor surface of the elbow joint (Fig. 1). Draining lymph nodes and lymphatics were not enlarged.

Department of Medical Mycology
Calcutta School of Tropical Medicine, Calcutta
* Base Hospital, Barrackpore, West Bengal
Received for Publication on 31—10—1972

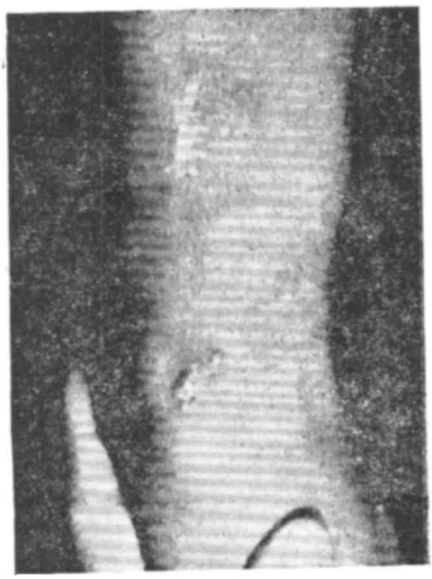

Fig. 1

Ulcer and nodules

Complete haemogram, erythrocyte sedimentation rate, urinalysis and X-radiography of the chest were within normal limits.

Histopathology

Biopsy taken from the nodule revealed, on staining with haematoxylin and eosin, numerous microabscesses and infiltration with epithelioid and foreign body giant cells (Fig. 2). Periodic acid Schiff's (PAS) stain showed no fungus.

Mycology

Direct examination : Smear of pus from the lesions stained by Gram's method revealed no fungus.

Culture : Pus was inoculated on Sabouraud's dextrose agar (SDA) with chloramphenicol (0.05 mg./ml.) and cycloheximide (0.5 mg./ml.), and incubated at 25°–28°C. Growth occurred in 2 weeks.

The primary culture on SDA was moderately growing, moist, at first

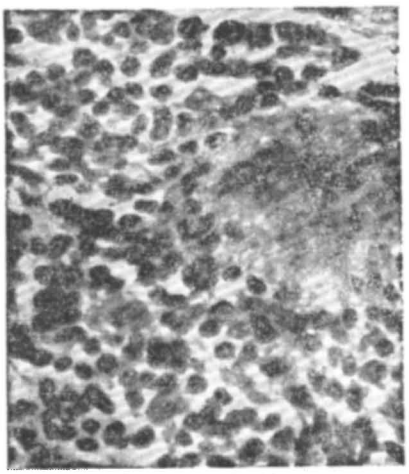

Fig. 2

Microabscess and a giant cell in biopsy tissue of the patient. Haematoxylin and eosin stain. x 625

smooth, later short aerial hyphae formed ; folded to wrinkled (Fig. 3), white to deep cream becoming fuscous-black 5""k–Rayner, 1970). Reverse pale luteus (17f) becoming fuscous-black. Hyphae fine, branching and septate, 1–2μ in diameter. Spores numerous, globose to oval, measuring 2.0μ in diameter to

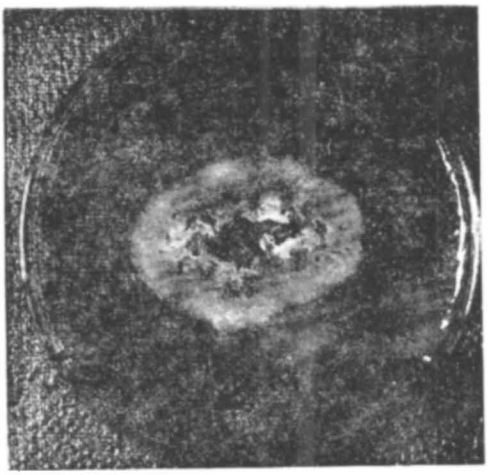

Fig. 3

Two-week-old growth of the primary subculture of *S schenckii* on Sabouraud's dextrose agar at 25° — 28°C

2–3 x 3.6μ respectivelv, borne on conidiophores or attached singly on the lateral sides of undifferentiated hyphae, and forming on the terminal ends of conidiophores, petal-like clusters typical of *S. schenckii* (Fig. 4).

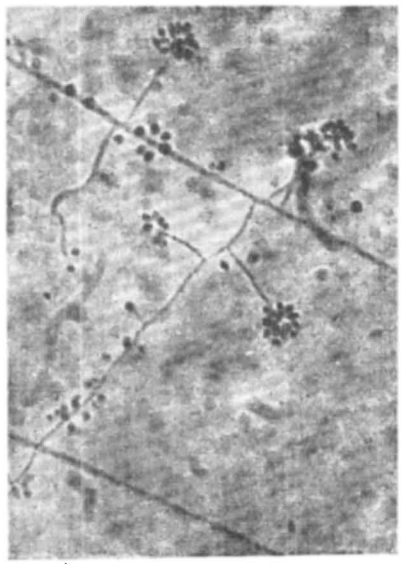

Fig. 4

Mycelium and Spores of *S.schenckii.* x 750

Conversion into yeast-phase: The mycelial form of the fungus was transferred on brain-heart-infusion-blood-agar and cystine-glucose-blood-agar and incubated at 37°C. Yeast-phase was obtained in the form of moist, smooth, dirty white colonies within 2 weeks after the third serial transfer on the same media. Microscopically, oval or elongated cells measuring 1.5–2.5 x 3.0–6.5μ and with budding were found in plenty.

Animal pathogenicity. A heavy suspension of the mycelial form of *S. schenckii* in physiological saline was inoculated intraperitoneally in 1 ml. aliquots into 4 white male mice with 2 controls. All the mice developed epididymo-orchitis leading to swelling of testes with pus formation, with one having superficial ulceration over the area, within 3 weeks. Smear of pus revealed plenty of Gram positive, round, oval or elongated yeastlike cells measuring mostly 1–3 x 3–8μ. Histopathology of the affected tissue showed areas of abscess formation with PAS positive yeast-like cells (Fig. 5). *S. schenckii* was recovered in pure culture from the pus. Control animals remained uninvolved.

Fig. 5

Yeast form of *S. schenckii* in tissue of experimental mouse. PAS stain. x 360

Treatment

The patient was put on oral potassium iodide 65 mg. thrice daily; and the dose was gradually increased upto 292 mg. thrice daily. The improvement was rapid in the first 4 weeks; but it took about 12 weeks for all the lesions to subside completely. A small keloidal scar developed at the site of biopsy. There was no side effect.

Discussion

The isolation of *S. schenckii* from the clinical material, successful animal pathogenicity test and a positive response to oral potassium iodide therapy led to the diagnosis of sporotrichosis in the present case, notwithstanding the absence of demonstrable fungal cells in the pus and the biopsy specimen.

The patient had to live in the forest of Assam for sometime. This may be taken as the predisposing factor in this case, if the ecology of sporotrichosis is considered. The absence of injury prior to the disease may be explained by the fact that minute skin injuries are usually overlooked in most cases.

The lesions were subcutaneous and in the upper extremity. It is interesting to note that most of the cases of sporotrichosis in India, including the present one, have been reported from the eastern part of the country (Banerjee *et al*[1]., Banerjee and Dutta[2], Dey *et al*[3]., Ghosh[6], Panja *et al*[8].,) and the reports are mostly of the subcutaneous involvement of the superior extremities.

The case needed 12 weeks to be cured with potassium iodide, the response being rather slow in the later part.

In conclusion, it is to be emphasized that favourable conditions for the growth of *S. schenckii*, a saprophyte of the soil and plants, are prevailing in many parts of our country suggesting that the number of cases occurring in India is probably more than what is recorded.

Acknowledgment

The authors are grateful to Lt. Gen. S. N, Chatterjee, Direcror-General, Armed Forces Medical Services, and Dr. J. B. Chatterjee. Director, Calcutta School of Tropical Medicine for giving permission to use the case records and laboratory data respectively; to Major V.S. Reddy, Pathologist, Hospital Laboratory and Dr. A. M. Mukherjee, Prof. of Pathology, Calcutta School of Tropical Medicine, for histopathology; to Shri A. K. Chakraborty and Shri R.K. Neogy for technical assistance; and to Shri N. K. Chakraborty for photography.

REFERENCES

1. Banerjee AK, Basu N, Sur Roy Choudhury D et al: Sporotrichosis, Bull. Calcutta Sch. Trop. Med., 19 : 56, 1971.
2. Banerjee BN and Dutta AK : Proceedings of the Clinical Meeting of the Dermatological Society, India, Indian J. Derm, 12 : 68, 1967.
3. Dey NC, Saikia T and Majumdar CT: Sporotrichosis in Assam, Indian J Derm 3 : 103, 1958.
4. Dharampal and Singh R Sporotrichosis Association activities, Indian J Derm Vener,, 28 : 106, 1962.
5. Findlay GH: The epidemiology of sporotrichosis in the Transvaal, Sabouraudia, 7 : 231, 1970.
6. Ghosh LM: An unusual case of sporotrichosis, Indian Med Gaz, 67 : 570, 1932.
7. Londero AT: A esporotricose em Criancas, Interior do Rio Grande do Sul. Hospital, Rioi De J., 67 : 1297, 1963.
8. Panja D Dey NC and Ghosh LM : Sporotrichosis of the skin in Iadia, Indian Med Gaz, 82 : 200, 1947.
9. Rayner RW : A Mycological Colour Chart. Kew, Surrey, Commonwealth Mycological Institute and British Mycological Society, 1970.
10. Silva D and Nazare, IP: Casos de esporotrichose no Para. (Observacoes em anos 1962/66). An Bras Derm 41 : 7, 1966.