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THE GENUS CEPHALOSPORIUM AS A CAUSE OF MADURA FOOT IN MALAYA

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Madura foot is a distinct clinical entity presenting a uniform pathological and clinical picture although it may be caused by several species of fungi and by other micro-organisms, such as Actinomyces and Nocardia.

The fungi incriminated in the condition may be divided into two large groups, viz., I. **The Ascomycetes,** which are characterised by the formation of ascospores, and which have a sexual life-cycle. Members of this group are Allescheria, Aspergillus, Sterigmatocystis, and Penicillium; II. **The Fungi Imperfecti** which only show an asexual life-cycle, members of this group being Indiella, Glenospora, Monosporium, Cephalosporium and Phialophora.

Four different species of Cephalosporium are recognised as incitants of Madura Foot. They are **Cephalosporium recifei** (Leao & Lobo, 1934), **Cephalosporium granulomatis** (Weidman and Kligman, 1945), **Cephalosporium falciforme** (Carrion 1951), and **Cephalosporium infestans** (Gaind, Padhye, and Thirumalachar, 1962).

This report is the first recorded case demonstration of Madura Foot in Malaya caused by Cephalosporium falciforme.

Case History

The patient, a 47 year old male Indian labourer, was first admitted to an estate hospital in North Selangor 5 years ago with swelling of the right foot. He gave a history of injury with a thorn one year previously to the second toe of the same foot while clearing an oil palm estate in the district where he lived. The thorn was withdrawn from the site of penetration and the patient had forgotten about the incident till a year later when he noticed a small papule at the site of injury. This ruptured, discharged pus and soon healed spontaneously. Some weeks later another papule appeared, breaking down, discharging a serous fluid and then healing spontaneously. The condition progressed slowly over a period of 5 years characterised by remissions and relapses.

In November, 1963, he was admitted to the General Hospital, Kuala Lumpur, for further investigation. The right foot distal to the ankle was swollen and showed a number of healed scars, (Fig 1). No œdema was present and X-ray of the foot showed no bony involvement. Histopathological examination of a piece of tissue removed at biopsy revealed the presence of septate mycelium and fungus "grains" (Figs 2, 3 & 3a), surrounded by chronic inflammatory cells mainly lympho-

Fig. 1. Patient's foot 5 years after injury showing several healed scars and swelling.

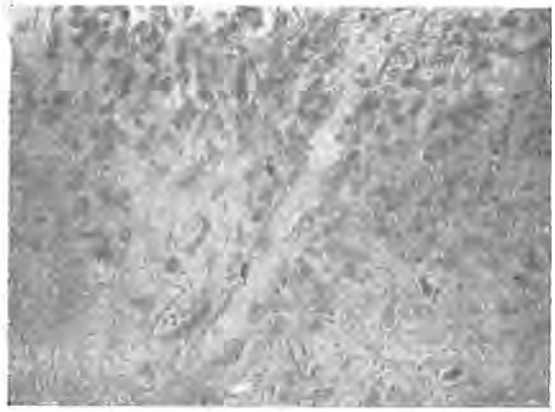

Fig. 2. Microscopic appearance of fungus in tissue showing septate mycelium.

Fig. 3. Gomori silver stain showing fungus 'grains.'

Fig. 3a. Fungus 'grain' magnified to show individual mycelium. (Gomori silver stain).

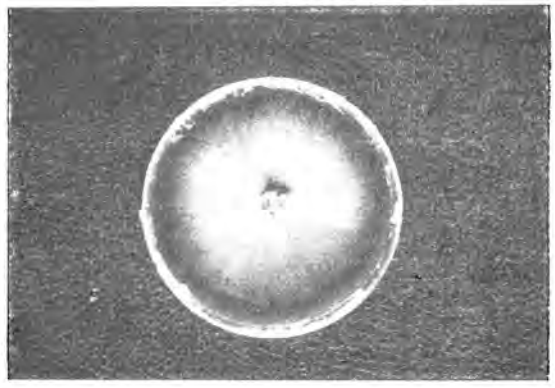

Fig. 4. A colony of Cephalosporium falciforme on Sabouraud dextrose agar—4 weeks old.

Fig. 5. A mount of the culture in hactophenol blue.

cytes, eosinophils, and macrophages. Gomori silver stain showed the mycelial wall and spores to be black. As the tissue was fixed in formalin, identification of the fungus was not possible. Examination of the pus showed the absence of the characteristic granules, and no fungus could be cultured. A repeat biopsy was carried out. The tissue was sliced into thin pieces and washed in several changes of sterile physiological saline. The granules were yellow in colour with a diameter of 2.5mm. These were surface sterilised and cultured onto Sabouraud dextrose agar containing 250 units of chloramphenicol per c.c. of the medium to inhibit the growth of bacteria.

Mycology. Cultures were maintained at room temperature. Growth on Sabouraud's dextrose agar was fairly rapid. About 10 granules were cultured and the same fungus was found in all instances. Young colonies were white later turning to brownish grey with deep radiating furrows extending from the centre to the periphery, (Fig. 4). The back of a mature colony of 4-5 weeks was brown to tan. A mount of the culture in lactophenol blue showed the presence of slender, unbranched conidiophores bearing a cluster of conidia at the tip (Fig. 5). Some of the conidia were sickle shaped (hence the name **C. falciforme).**

Treatment. This was not carried out as the patient discharged himself against medical advice. Amphotericin B has proved to be disappointing when given for 22 days in a case of arthritis of the knee due to Cephalosporium rosea-griseum as reported by Ward *et al* (1961) from the Mayo Clinic, Rochester.

Cases of Madura foot due to the genus Cephalosporium described in the literature are very few, and reports of treatment are still fewer in number. Gaind *et al* (1962) found treatment with large doses of penicillin, sulfa drugs, synermycin and griseofulvin without marked beneficial effect; potassium iodide given in increasing doses over a period of 4 weeks resulted in slight improvement; finally the whole area was excised and skin grafted.

ACKNOWLEDGEMENT

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