Clinical records

Rhinoentomophthoromycosis

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ENTOMOPHTHORA CORONATA is known to be the causative agent of nasal granuloma in horses (Emmons and Bridges, 1961; Bridges *et al.*, 1962). Bras *et al.* (1965) reported the first human case.

Until 1971 a total of 33 cases of the disease in human beings have been reported/observed (Martinson, 1971).

The aim of this communication is to report a typical case of rhinophycomycosis entomophthora which has been confirmed by mycological studies. This appears to be the 34th case in the world literature and the first mycologically proved case from this country.

Epidemiology

Phycomycosis entompthorae caused by Entomophthora coronata occur in tropical areas of America, Africa and Asia. It occurs often in adult males. Though the other types of phycomycosis usually occur secondary to diabetes mellitus, this particular type is unrelated to it.

Source of infection

The fungi which cause the phycomycosis are commonly present in man's environment. Entomophthora coronata are commonly present in decaying vegetation overlying soil, leaf mould and on the dung of herbivorous and omnivorous animals, or decaying fruits and other substrates high in sugar content. Man's exposure to spores of these fungi must be frequent.

Mycology

Entomophthora coronata grows rapidly on agar. Colonies are first glabrous, and short serial hyphae are produced in great abundance as the colony matures. No sporangia are formed, but hyphae bear conidia 10–12 μ in diameter which are forcibly discharged from the tips of conidiophores. They are capable of replication and the conidium which falls on a moist surface produces a short conidophore, at the tip of which a secondary conidium is borne. This process may continue until stored nutrients are exhausted or one of them falls on a substratum containing exogenous nutrients.

Case report

Male, 27 years, from the Quillon district in Kerala, was posted in the Assam area from 1968. The place of posting has a hot climate, an abundance of rainfall and extensive areas of jungle.

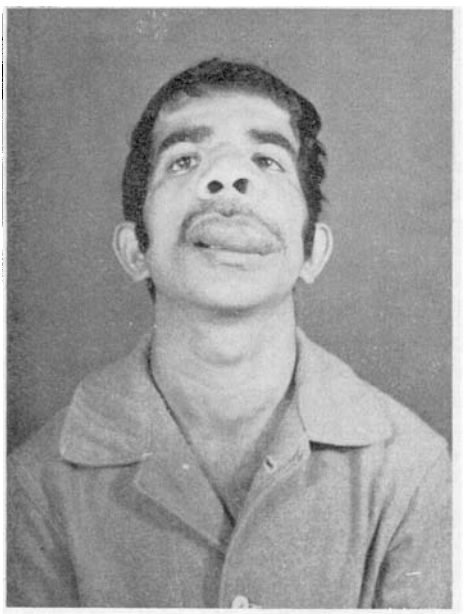
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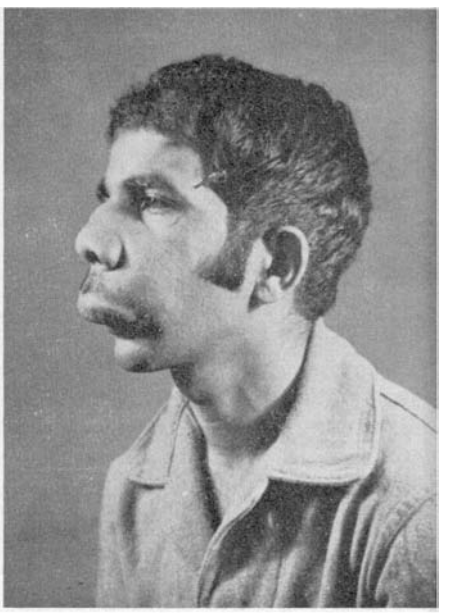
He noticed progressively increasing nasal obstruction in November 1971. Polypoid masses were removed from the left nasal cavity and histopathologically reported as scleroma. A course of 90 streptomycin injections was given without any improvement.

He again reported in March 1972 with increasing nasal obstruction. The inferior turbinates and palate were swollen, and granulomatous masses were filling both nasal fossae. The masses were removed, and histology of the material revealed a mycotic granuloma. The patient developed CSF rhinorrhea and meningitis on the day after the removal of the masses. Bifrontal craniotomy and closure of defects in the anterior cranial fossae was done with a fascia lata graft. Thereafter, he developed osteomyelitis of the frontal bone, which had to be subsequently removed and an acrylic plate fitted.

He was given an injection of Amphotericin B, but the patient developed severe drug reaction, so that the drug had to be stopped. Subsequently, gradually increasing doses of potassium iodide 5 grains daily to 30 grains three times a day was given for 11 months. The patient showed some initial improvement in the nasal obstruction and swelling over the palate, but later the symptoms increased in severity.

Figures 1 and 2 show the appearance of the patient when he came under our care on 7 February 1975. He had marked broadening of the nose and swelling of the left cheek and upper lip. The skin over these lesions was freely mobile. The inferior turbinates were irregularly enlarged and firm in consistency and the nasal airway was completely blocked.





FIGS. 1 AND 2.
Showing swelling of upper lip and left cheek before treatment.

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Routine laboratory investigations were non-contributory, and there was no diabetes mellitus. Biopsy was repeated from the upper lip and the material sent for mycological studies.

Histology

The tissue showed a granulomatous infiltrate with fibrosis. The granuloma contained a large number of eosinophils and giant cells adjoining nonseptate hyphae of mucor (Fig. 3).

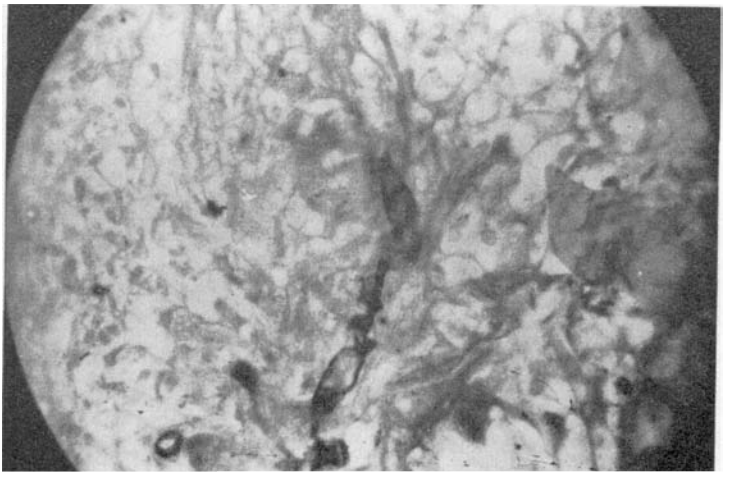


FIG. 3.

Non-septate hyphae of E. coronata. They show irregular folding. The round structure is a hypha cut across the long axis. Grocott-Gomori Methenamine silver stain. (×600).

Culture

The fungus was identified as Entomophthora coronata.

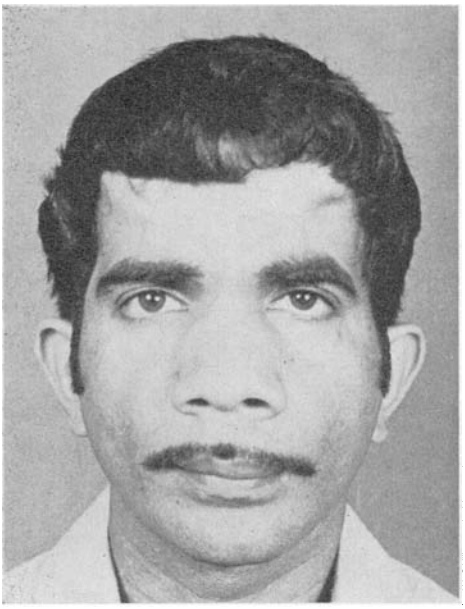
Treatment

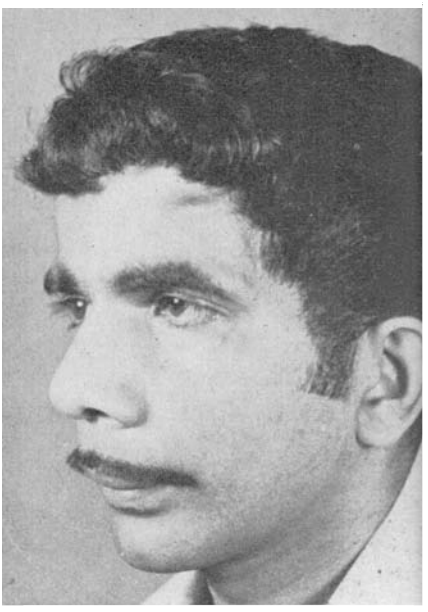
The patient was put on Bactrim two tablets twice a day (Trimethoprim 320 mgm.+Sulpha methoxazole 1·5 G daily), and prednisolone 20 mgm. daily for one month. After one month potassium iodide 90 grains daily was also added to the therapy. The combination of these three drugs was continued for one month and the patient showed remarkable improvement. Subsequently, the Bactrim was discontinued and the steroids tapered off, and he is still being given potassium iodide. Figures 4 and 5 (taken on 7 October 1975), show the remarkable improvement with the above line of management.

Discussion

Entomophthora coronata is a member of the family entomophthorae; it is widely distributed in nature. It is primarily a parasite on insects. A review of

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FIGS. 4 AND 5.
Same patient after therapy.

the literature shows that 33 cases have been reported/observed from different parts of the world and only three have been reported from India (Klokke *et al.*, 1966). These three cases were not proved on culture and diagnosis was retrospective. The diagnosis of the present case has been confirmed by culture.

The majority of cases reported in the literature have occurred in males (27 out of 33 cases) and in patients over the age of 20 years (30 out of 33 cases).

It has not been possible to trace the source of infection in this particular case. He denies any history of contact with horses. There is no history of trauma. It is possible that infection in this particular case has been transmitted by inhalation, or by insect bite, since insects are abundant in the area where he was serving.

Surgery has no role in the management of this disease. Surgical interference may result in intra-cranial complications as seen in this case. Further transgression of the disease by surgery is known (Martinson and Clark, 1967).

Our patient has shown a rewarding response to the administration of potassium iodide along with Bactrim and steroids as seen earlier by Martinson (1971).

Summary

A rare case of Rhinophycomycosis entomophthora treated with a combination of Bactrim, potassium iodide and steroid is reported. Clinical features, epidemiology, mycology and management are discussed.

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