# LETTERS TO THE EDITOR

## PROTOTHECOSIS

**To the Editor,**

Protothecosis is a rare type of human and animal infection caused by achloric algae.[1] In animals widespread visceral disease has been reported.[2] In human being, however, the infection mostly remain restricted to the skin, subcutaneous tissue, and regional lymphatics. Usually, the disease manifests as a single lesion or a few scattered lesions over a localized area.[3] Generalized lesions are quite rare. We hereby report such a case recently seen by us.

A 35-year-old man, a farmer by occupation, presented with papulonodular and ulcerated lesions over his face, trunk, upper and lower extremities of five years duration. The lesion started on the right foot as a small painful papule which gradually increased over six months. Subsequently more lesions developed over other parts of the body; many of them became ulcerated, and some showed a verrucous appearance. There was no history of fever, constitutional symptoms, weight loss, or medication with immunosuppressive drug (s).

Examination revealed multiple papulonodular lesions and ulcerated plaques of variable sizes distributed asymmetrically over the face, trunk, upper and lower extremities. A few plaques over the thighs and lower legs had verrucous surfaces. Anterior rhinoscopy revealed noduloulcerative lesions in both the nasal cavities. There was bilateral enlargement of the cervical, axillary and inguinal lymph nodes, measuring 2-3 cms in diametre, nonmatted and nontender. However, there was neither any organomegaly nor any evidence of olecranon bursitis. Examination of respiratory, cardiovascular and nervous systems revealed no abnormalities. The clinical diagnoses entertained were disseminated form of histoplasmosis, rhinosporidiosis and protothecosis.

Haemoglobin, packed cell volume (PCV), erythrocyte sedimentation rate (ESR), reticulocyte and platelete counts were normal. Total leucocyte count was 5, 800/cmm; differential count was polymorphs, 63%; lymphocytes, 30 ; eosinophile, 4%; monocytes, 3%, T and B lymphocytes, 77% and 23%; CD4 + and CD8 + 60% and 28% respectively. Mantoux, candidin and trichophytin skin tests were positive. All these parameters suggested an immunocompetent state of the patient. Serum biochemistry, liver function tests, renal function tests, urinalysis and skiagram of the chest were normal.

Histopathological examination of a nodule from the right foot showed an acanthotic epidermis, mixed inflammatory infiltrate in the dermis with focal necrosis and Langhan's giant cells on a hematoxylin and eosin (H&E) stained section. Macrophages showed some basophilic bodies inside. The etiological microorganism was represented as small oval undifferentiated forms showing nuclear and cytoplasmic cleavages. Higher magnification showed oval structures with hyaline refractile cell walls. On Periodic Acid-Schiff (PAS) staining, spherical spores measuering about 6-10 μm in diametre having many endospores were seen. Higher magnification revealed large sporangia containing many endospores mimicking a morula. This confirmed the diagnosis of protothecosis. Microbiological cultures were not done.

The patient was treated with oral ketoconazol in a dose of 400mg/ day. After two weeks, the ulcerated

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lesion showed crusting. He was subsequently lost to follow-up.

The genus *Prototheca* kruger encompasses microorganisms morphologically similar to those of the genus *Chlorella*. On the basis of the yeast-like morphology in culture, *Prototheca* was originally classified as a fungus. Subsequently it was found to sporulate in a manner identical to algae, *Chlorella*. The natural habitat of Protothecosis are the slime flux of trees and sewage systems. It may be found in soil, lakes, ponds and in dogs, cats and even cow milk. The organism has also been detected in human finger nails, skin scrapings. sputum and faeces.[5] Currently, four prothothecal species are recognized in the genus Prototheca e.g., *P. salmonis, P. staqmora, P. Wickerhami and P. Zopfi.*

The first human case of protothecosis was described by Davis et al in 1964.[6] Since then only 60 cases of protothecosis have been reported, 20 involving the skin.[7] The disease can present in any of the three clinical forms: cutaneous or subcutaneous infection, olecranon bursitis, and systemic disease.[1,2,7] Lesions confined to the skin and subcutaneous tissues are generally located on exposed parts of the body and may be associated with trauma, sometimes too trivial to be remembered by the patient.

The disseminated lesions usually occur in immunocompromised states. However, there was no evidence of immunosuppression in the present case.

Treatment of cutaneous protothecosis is difficult. Oral ketoconazole therapy has proved effective on occasions for localized and generalized protothecal infections.[7] The duration of treatment is approximately 3-4 months. In the present case, there was initial improvement. However, as the patient defaulted, no further evaluation of the efficacy of ketoconazole could be made.

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