

**(Refer to page 210)**

**Answer: Eumycetoma (Madurella mycetoma or Maduramycosis)**

Mycetoma is an uncommon localised chronic infection of the skin and subcutaneous tissue that can be due to fungus (eumycetoma) or bacteria (actinomycetoma). It is characterised by a triad of tumefaction, draining sinuses (usually in late stage) and presence of the exudates containing colonial grains. Mycetoma infection is classified based on the aetiological agents and colour of the grains (Refer to supplementary text).<sup>1</sup>

Madurella species accounts for the majority of eumycetoma encountered in clinical practice.<sup>1</sup> This fungal infection (Madurella mycetoma or Maduramycosis) is particularly endemic to the tropical and subtropical regions. Infections usually occur after traumatic implantations of the fungus and the foot is the most commonly affected site (70%).<sup>3</sup> The incubation period varies from several months to several years. The predisposing factors include walking barefoot, agricultural work, poor hygiene, poor nutrition, diabetes mellitus and being immunosuppressed.

Initially, the infection is limited to skin and subcutis layer. This manifests with blisters which gradually ulcerates and forms eschar. This can spread in the facial plane to affect the muscles, bones, vascular and lymphatic systems. The condition typically lead to chronic inflammation resulting in swelling,

indurations, deformities and in the late stages discharging sinuses. The condition is usually painless, but can become painful with involvements (osteomyelitis) and superadded bacterial infections.

Diagnosis of eumycetoma can be made by either direct microscopy of the granules, fungal culture and features of the isolates or histology.<sup>3</sup> Histopathology examination typically shows zones of suppurative granulomas with round to oval or bi/trilobed granules embedded in cement matrix (**Panel A**). An eosinophilic fringe-like Splendore-Hoeppli phenomenon (asteroid bodies) is usually seen around the grains. These grains contain septate interlacing hyphae (2-4µm) embedded in interstitial brownish matrix towards the centre (**Panel B**) and radially arranged hyphae with club-shaped swelling towards the periphery (**Panel C**) and bear round to oval chlamydospores at the tip. The fungal hyphae stain pink with Periodic Acid Schiff (PAS) stain and black in Grocott (Silver) stain. Identification of Madurella species is by culture and chemical reaction.<sup>1, 2</sup> The differential diagnoses include tuberculosis, sporotrichosis, squamous cell carcinoma, syphilis, verrucous carcinoma and yaws.<sup>3</sup>

Maduramycosis is managed by surgical excision and antifungal treatment (usually the imidazoles; ketoconazole, fluconazole or itraconazole).

**REFERENCES**

- 1: Weedon D. Infections and infestations: Mycoses and Algal infections. In Weedon's Skin Pathology. 3<sup>rd</sup> Ed. Churchill Livingstone. 2010. Pg 600-3.
- 2: Frey D, Oldfield RJ, Bridger RC. A colour atlas of pathogenic fungi: Wolfe Medical Publications Ltd. London 1979. Pg 126-8.
- 3: Turiansky G. Eumycetoma (Fungal mycetoma). Medscape Reference. Available from <http://emedicine.medscape.com/article/1090738-overview> (Accessed 30th June 2011).