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Mucormycosis with diabetic and lupus nephropathy

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A 67-year-old woman with Stage 3 chronic kidney disease (CKD) due to systemic lupus erythematous (SLE). She was admitted to our hospital with a diagnosis of acute kidney injury. She had a past medical history of hypertension, acanthosis nigricans, obesity, obstructive sleep apnoea and type 2 diabetes mellitus with diabetic retinopathy.

Two months prior to admission she had presented with a deterioration in renal function with proteinuria, which was interpreted as a flare of her SLE and she had received treatment with cyclophosphamide and i.v. 6-methylprednisolone.

Five days after admission she presented with dyspnoea with bilateral pulmonary infiltrates. A diagnosis of heart failure was made and she underwent ultrafiltration with slight improvement.

On the 10th day after admission she developed a right third cranial nerve palsy. A brain CT scan and lumbar puncture were normal except for the findings suggestive of chronic maxillary sinusitis.

Fibrobronchoscopy showed necrosis of the nasal septum and infection due to Mucor genera was suspected. She underwent surgical debridement and initiated treatment with amphotericin B and caspofungin and was admitted to the ICU for respiratory support. The patient deteriorated despite treatment and died on her fourth day in the ICU.

Rhizopus spp was identified in the oral cavity biopsies (Figure 1).

As the number of immunocompromised patients increase, the frequency of mucormycosis [1] is increasing. Mucormycosis, also known as zygomycosis, is an opportunistic fungal infection caused by organisms of the mucorales order. The most frequent species are *Rhizopus*, *Mucor* and *Rhizomucor* (Figure 2).

Risk factors [2] for these infections include diabetes mellitus (especially in patients with ketoacidosis), haematologic malignancies, haematopoietic stem cell transplantation, solid organ transplantation, deferoxamine treatment and iron overload (Figure 3).

Mucormycosis may present with rhino-orbital-cerebral (which is the most common), pulmonary, gastrointestinal, cutaneous, renal and disseminated involvement [3].

The diagnosis is based on identification of organisms in the tissue by histopathology with confirmation by culture.

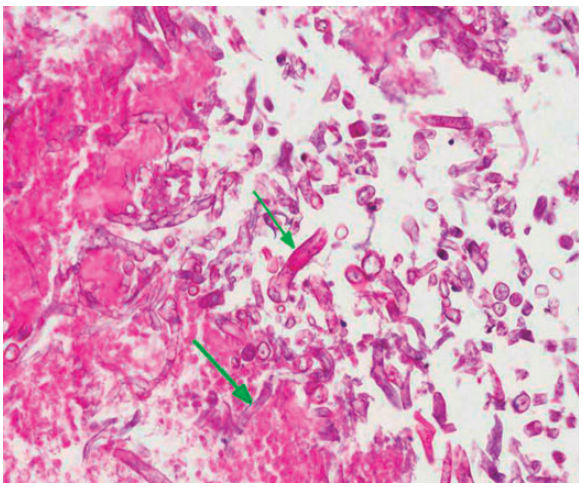

Fig. 1. Necrosis of the oral cavity due to *Rhizopus* (green arrows).

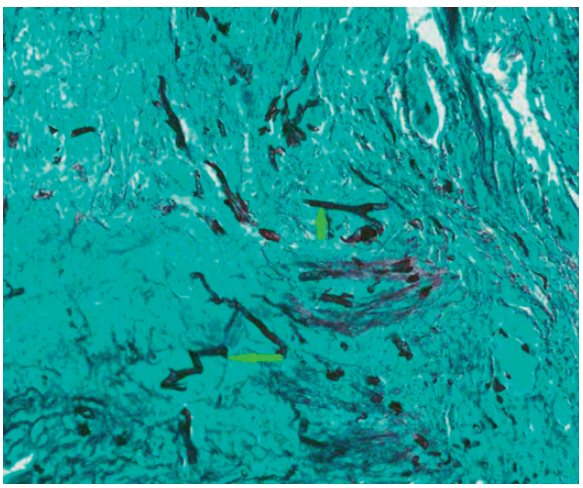

Fig. 2. *Rhizopus* in oral cavity biopsy (green arrows). Haematoxylin and eosin stain.

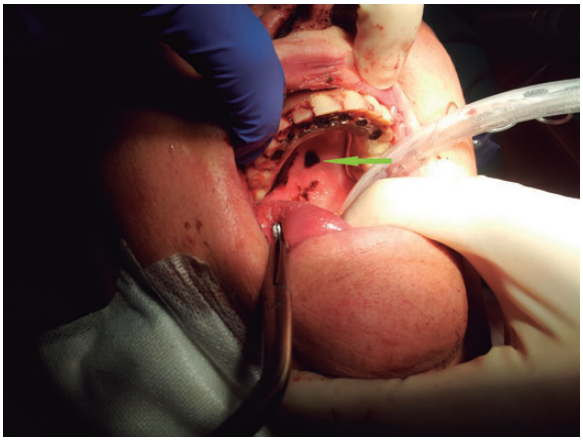

Fig. 3. *Rhizopus* in oral cavity biopsy (green arrow). Grocott's Methenamine Silver stain.

Treatment is based on a combination of surgical debridement with long-term amphotericin B therapy. Owing to the aggressive course of mucormycosis, even with treatment, many other treatments [4] have been considered such caspofungin (for rhino-orbital-cerebral disease), long-term posaconazol (as a step-down therapy) and deferasirox.

The prognosis is poor in all the presentations with mortality rates as high as 87% with pulmonary involvement.

Conflict of interest statement. None declared.

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