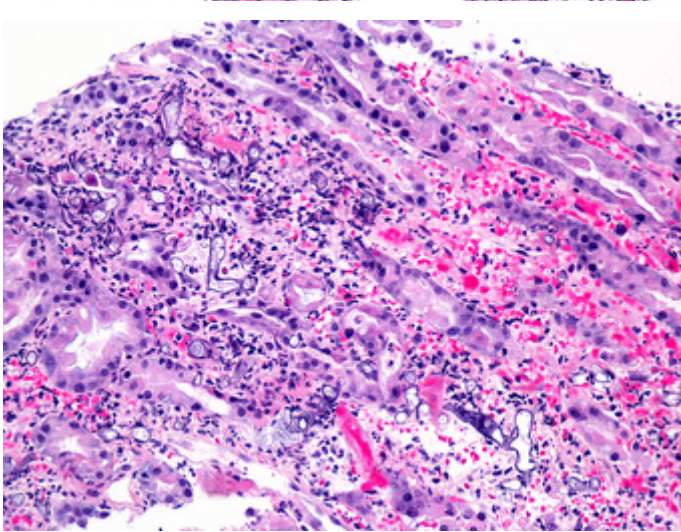
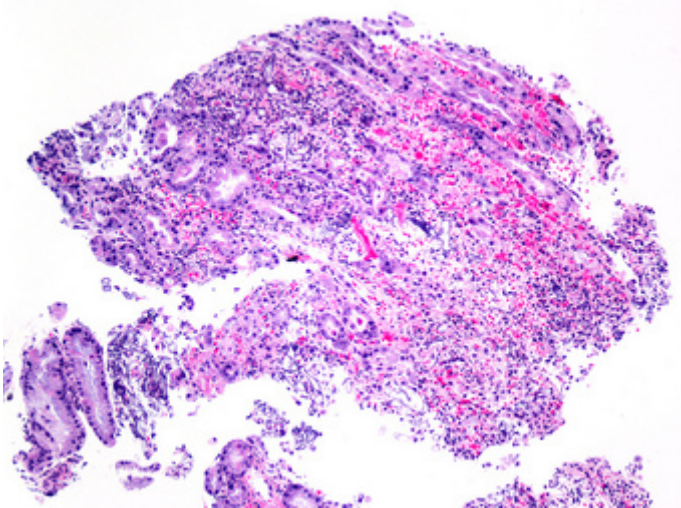
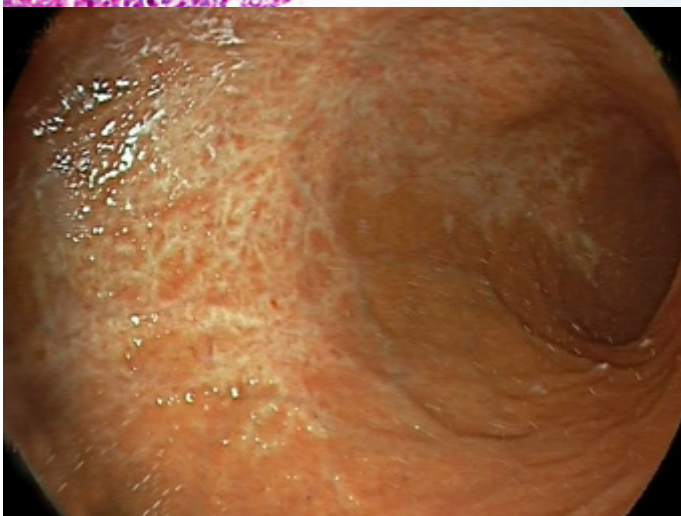
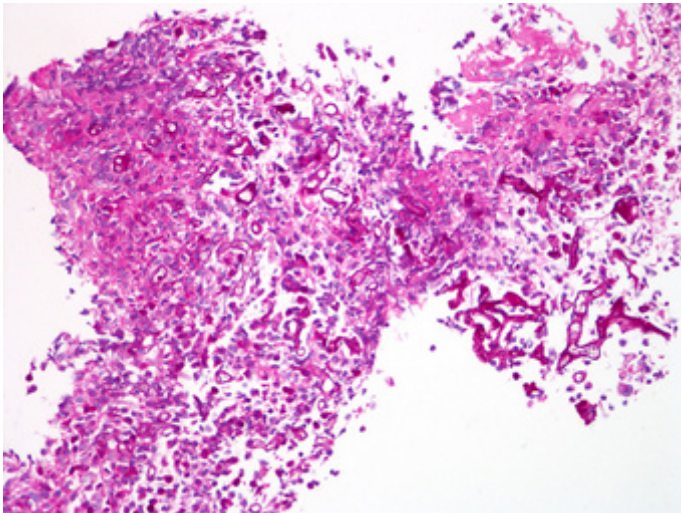
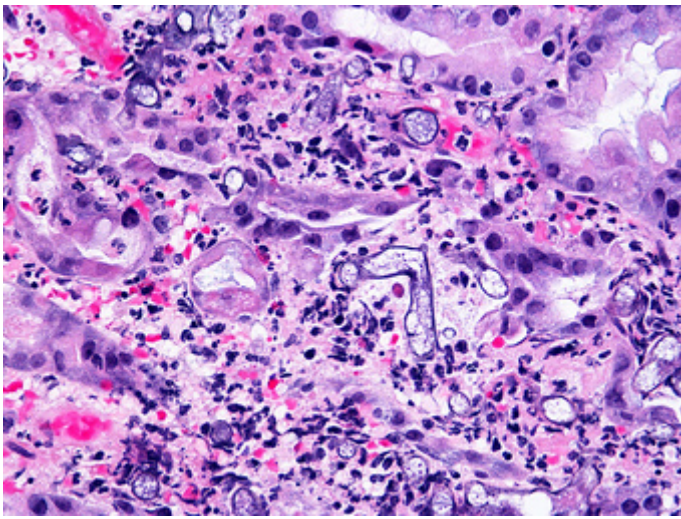


# December 2019

64-year-old male with transplanted lungs due to idiopathic lung fibrosis, with a large ulcer in the stomach.

What is your diagnosis?





### Diagnosis:

Mucormycosis of the stomach in a patient with transplanted lungs.

### Comment:

Gastroscopy revealed a large ulcer on the lesser curvature with raised, irregular margins, suspicious for malignancy (Panel A). Histopathology demonstrated gastric mucosa with acute inflammation, necrotic debris, inflammatory exudate and granulation tissue. Broad, thin-walled, non-septated fungal hyphae with right angle branching were found in the exudate and within the mucosa, consistent with mucormycosis (Panels B, C and

D). They stained with periodic acid-Schiff (PAS) (Panel E). Immunohistochemistry for CMV was negative. The diagnosis of mucormycosis was later confirmed by PCR. The patient was treated with amphotericin B and the ulcer healed within a few weeks (Panel F).

Mucormycosis is a life-threatening opportunistic fungal infection, primarily affecting immunocompromised patients, e.g., patients with transplanted organs, hematological malignancies, diabetes mellitus, etc. Infection can manifest as a rhino-cerebral, pulmonary, cutaneous, gastrointestinal or disseminated disease.

Gastrointestinal (GI) mucormycosis is uncommon, accounting for 5-15 % of cases. The most frequent site of GI involvement is the stomach, followed by the colon and small bowel. It presents with nonspecific clinical symptoms and signs, including abdominal pain, nausea, vomiting, bleeding and perforation.

Mucormycosis can be diagnosed by biopsy. Hallmark histological features of *Mucor* include broad, non-septated PAS-positive fungal hyphae, branching at right-angles. Histopathology is only suggestive of the diagnosis as morphology of fungi may overlap. The main differential diagnosis is aspergillosis. *Aspergillus* can be distinguished from *Mucor* by thinner, septated hyphae, branching at acute angles.

*Mucor* can invade the blood vessels, disseminate and/or cause thrombosis and ischemic injury, resulting in high morbidity and mortality. Patients' outcome strongly depends on an early diagnosis and treatment, including antifungal therapy and surgical debridement.

### For further reading:

- › Alfano G, Fontana F, Francesca D, Assirati G, Magistri P, Tarantino G, et al. Gastric mucormycosis in a liver and kidney transplant recipient: case report and concise review of literature. *Transplant Proc.* 2018; 50: 905-909.
- › Dioverti MV, Cawcutt KA, Abidi M, Sohail MR, Walker RC, Osmon DR. Gastrointestinal mucormycosis in immunocompromised hosts. *Mycoses.* 2015; 58: 714-718.
- › Kaur H, Ghosh A, Rudramurthy SM, Chakrabarti A. Gastrointestinal mucormycosis in apparently immunocompetent hosts - a review. *Mycoses.* 2018; 61: 898-908.
- › Termos S, Othman F, Alali M, Al Bader BMS, Alkhadher T, Hassanaiah WF, et al. Total gastric necrosis due to mucormycosis: a rare case of gastric perforation. *Am J Case Rep.* 2018; 19: 527-533.

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