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Invasive Gastric Mucormycosis with Splenic Invasion-a Rare Abdominal Complication

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ABSTRACT

This case report presents a rare and challenging instance of invasive gastric mucormycosis with splenic invasion in a 57-year-old female patient who had been living with uncontrolled diabetes mellitus for 15 years. The patient arrived with acute symptoms, including shortness of breath, abdominal pain, and intermittent constipation, all of which pointed to a potentially severe underlying condition. Upon admission, initial assessments indicated diabetic ketoacidosis accompanied by severe metabolic acidosis and electrolyte imbalances, a combination that further complicated the patient's clinical picture. Advanced imaging using CECT abdomen revealed critical findings, including the occlusion of the splenic artery, an infarcted spleen, and a significant gastric perforation, necessitating immediate surgical intervention. During an emergency laparotomy, extensive necrosis of the posterior wall of the stomach and spleen was observed, leading to the performance of a total gastrectomy, splenectomy, and Roux-en-Y oesophagojejunostomy to manage the invasive condition. The postoperative course was carefully monitored in the ICU, where the patient received conventional Amphotericin-B, a potent antifungal therapy essential for controlling mucormycosis. Gradual improvement was noted, with the patient tolerating oral feeds by the fifth postoperative day, marking a significant recovery milestone. The histopathological confirmation of invasive gastric mucormycosis with splenic involvement underscores the complexity and severity of this infection, particularly in immunocompromised individuals such as those with uncontrolled diabetes. This case emphasizes the critical need for early recognition and aggressive treatment, including radical surgery and antifungal therapy, to improve survival outcomes. The rarity of such presentations calls for increased clinical vigilance and a proactive approach in similar cases to ensure timely diagnosis and effective management, thereby enhancing patient prognosis and reducing mortality.

INTRODUCTION

Mucormycosis is a life-threatening infection caused by fungi of the subphylum Mucoromycotina, order Mucorales, with high mortality in immunocompromised individuals[1]. Traditional risk factors for the development of invasive mucormycosis include diabetes, defects in host phagocytes, corticosteroid use, organ or stem cell transplantation[2]. In recent years, the disease has also increasingly been described in patients without traditional risk factors. Mucormycosis can affect any organ system, but the most common presentations involve either the nasal sinuses, orbit, and brain (rhino-orbital-cerebral) or the lung[3]. For many years, gastrointestinal mucormycosis was quite rare, especially in industrialized nations. However, there has been a substantial increase in the number of cases of gastric and gastrointestinal muc-ormycosis over the past 2 decades. The diagnosis of invasive gastrointestinal mucormycosis may be made by biopsy of the suspected area during surgery or endoscopy.

Here we present a case of gastric mucormycosis with splenic invasion causing gastric perforation and splenic abscess in an uncontrolled diabetes patient.

CASE REPORT

57 years old lady who is a known case of Diabetes Mellitus since 15 years presented with complaints of acute onset of shortness of breath since 1 day and abdominal pain and constipation on and off for the past 5 days to EMD. Patient on general examination was drowsy, had tachypnea and tachycardia. Per abdomen examination revealed epigastric tenderness. Patient random blood sugar was 465 mg/dl and HbA1c was 15 and her urine routine showed presence of ketton-

-es. ABG was done revealed metabolic acidosis with dyselectrolemia. Patient was initially diagnosed to have diabetic ketoacidosis, was admitted in ICU and was managed accordingly. Patient still had tachycardia, uncontrolled blood sugars, elevated lactates. She was evaluated further with CECT abdomen to rule out GI sepsis. CECT Abdomen done was suggestive of occlusion of splenic artery with infarcted spleen and air pocket extending upto the left subdiaphragmatic region with small fluid collection at that level with communication of these air pocket to the stomach lumen which was avascular for a length of 30mm in the posterior fundus with a 10mm perforation in the centre [Fig 1.1, 1.2].

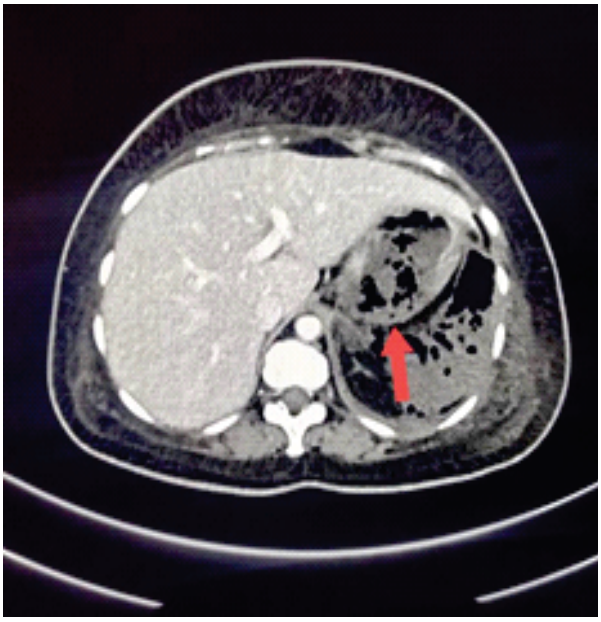

Figure 1.1

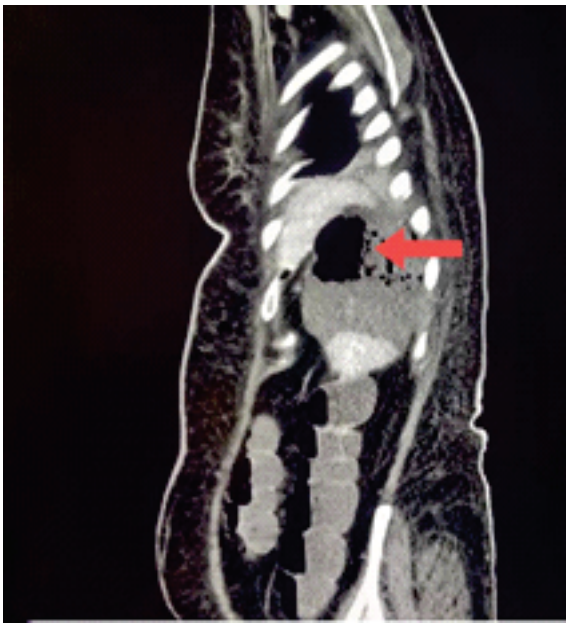

Figure 1.2

The above pictures of CECT Abdomen showed infarcted spleen with air Pockets extending upto the left sub-diaphragmatic region with communication to the stomach lumen

Patient was taken up for Emergency Laparotomy, lesser sac was opened and on visualization of the stomach, necrosis of posterior wall of size 5x 4 cm with perforation at its centre covered by omentum was noted along with necrosis of spleen with pus collection around it. Since extent of necrosis was upto 1 cm distal to OG junction and vascularity was doubtful, so we proceeded with Total Gastrectomy + Splenectomy + Roux-en-y oesophagojejunostomy + Feeding jejunostomy.

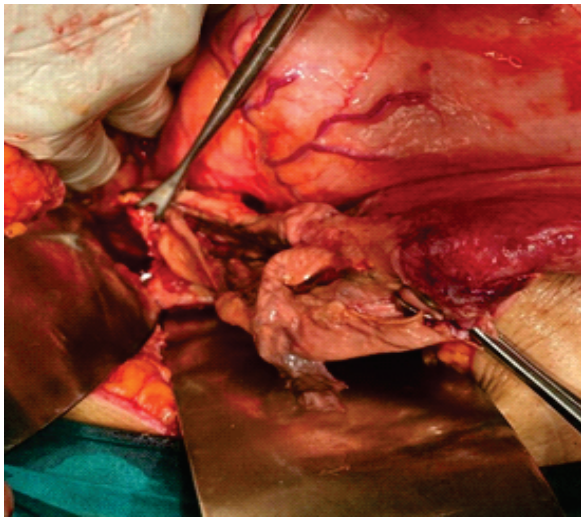

Figure 2: Necrosed part of the stomach

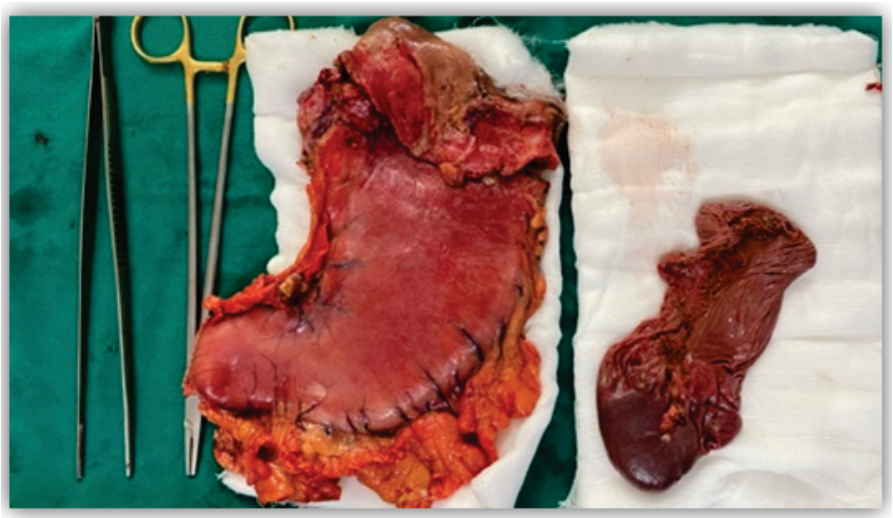

Figure 3: Left Necrosed part of stomach excised. Right: Excised spleen due to the invasion

and other supportive measures. Oral gastrograffin study done on postop day 5 showed no anastomotic leak. Patient was started on orals gradually.

Biopsy report received was suggestive of Invasive gastric mucormycosis with splenic invasion [Fig. 4.1, 4.2]. The patient was started on conventional Amphotericin-B post operatively. Her electrolytes and renal profile were monitored cautiously while on Amphotericin B.

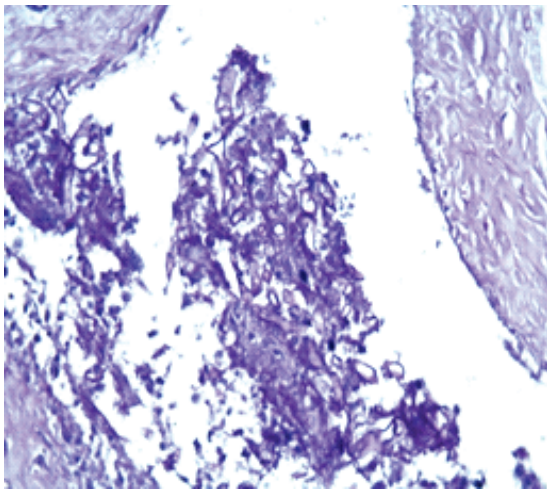

Figure 4.1 Total Gastrectomy specimen shows - Transmural necrosis with invasive mucormycosis. (Resection margins viable)

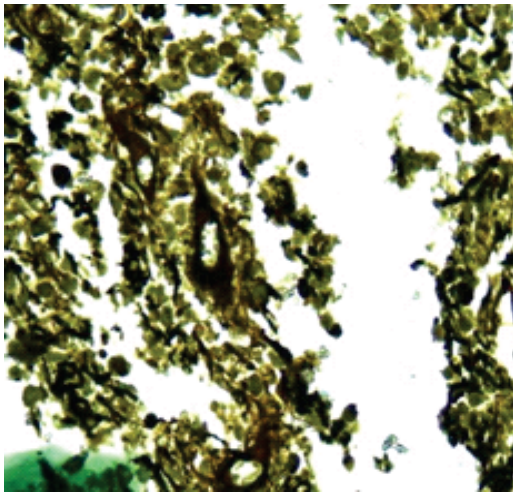

Figure 4.2 Splenectomy Specimen - Abscess with invasive mucormycosis

DISCUSSION

Primary gastric mucormycosis is a rare but potentially lethal fungal infection due to the invasion of Mucorales into the gastric mucosa. It may result in high mortality due to increased risk of complications in immunocompromised patients[4-5]. The stomach is the most common site of gastrointestinal mucormycosis, followed by the colon and ileum. The symptoms of gastrointestinal mucormycosis are varied and depend on the affected site. Nonspecific abdominal pain and distention associated with nausea and vomiting are the most common symptoms. Fever and hematochezia may also occur[6]. The patient is often thought to have an intra-abdominal abscess. The diagnosis of invasive gastrointestinal mucormycosis may be made by biopsy of the suspected area during surgery or endoscopy.

Antifungal therapy alone is typically inadequate to control mucormycosis, and surgery to debulk the fungal infection and/or resect all infected tissue is often required to effectcure[7]. Furthermore, in multiple case series, patients who did not undergo surgical debridement of mucormycosis had a far higher mortality rate than patients who underwent surgery.

In this case report, we had discussed about an uncontrolled diabetes patient initially diagnosed and managed as DKA and on subsequent evaluation was found to have Gastric perforation with splenic abscess. Patient underwent Total Gastrectomy with Splenectomy. Biopsy report was suggestive of invasive mucormycosis. Since the ideal treatment for invasive gastrointestinal mucormycosis is Radical Surgery and parenteral antifungals, this patient who had already underwent a radical surgery was started on parenteral antifungals postoperatively. Patient improved we-

-ll and was tolerating oral feeds.

CONCLUSION

From this case report and the outcome of this patient it is evident that while gastric mucormycosis is a potentially deadly fungal infection, extensive surgical resection along with parental anti fungals is the treatment of choice and leads to the optimum outcome for the patient.

Ethics Approval

All necessary approval including ethical approval has been taken from the Institutional Human Ethics Committee before conducting this study.

Conflict of Interests

Authors declared that there is no conflict of interest.

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