CASE REPORTS

Esophagomediastinal fistula and esophageal stricture as a complication of esophageal candidiasis: a case report

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Candida species are the most common esophageal pathogens. Conditions predisposing to esophageal candidiasis in a host with normal immunity include antibiotic use, inhaled or ingested corticosteroids, antacid therapy or hypochlorhydric state, diabetes mellitus, alcoholism, old age, radiotherapy to head and neck, and esophageal motility disturbances. Complications from esophageal candidiasis are extremely uncommon. They include esophageal hemorrhage, lumenal obstruction secondary to fibrosis and stricture formation, and fistulization into the bronchial tree.[1-3] Only rarely does esophageal candidiasis result either in esophageal perforation into the mediastinum or in esophageal stricture. This is a report of a patient with both esophagomediastinal fistula and esophageal stricture, probably resulting from esophageal candidiasis.

CASE REPORT

A 57-year-old woman presented with a 2-week history of dysphagia, nausea, and vomiting without fever or chills. The patient was known to have suffered from diabetes mellitus for a period of 4 years. She was receiving oral hypoglycemic agents, which had controlled the diabetes well. There was no history of antacid therapy, alcoholic abuse, or radiotherapy to head and neck. About 3 weeks before admission, the patient had received antibiotic therapy (Cefixime 200 mg/day for 1 week) due to acute epiglottitis. Esophagography, performed due to complaints of a foreign body sensation, revealed no definitive abnormality at the time.

On admission, laboratory data included the following (normal values in parentheses): fasting glucose 235 mg/dL (70 to 110), total protein 5.3 g/dL (6.5 to 8.3), and albumin 2.2 g/dL (3.8 to 5.1). Hemoglobin A1c was 10.4% (<6%). The other hematologic and biochemical results were within normal limits.

EGD revealed an opening of a fistula in the distal esophagus (Fig. 1A), ulceration of the proximal and mid esophagus, and multiple ulcers in the gastric antrum. A barium-contrast esophagogram revealed an esophagomediastinal fistula in the distal esophagus (Fig. 1B). CT of the chest showed an abnormal air density in the mediastinum with thickening of esophageal mucosa (Fig. 2).

Candida was demonstrated in a biopsy specimen taken from the esophagus (Fig. 3), but granulomas were not detected. IgM antibodies to aspergillus, cytomegalovirus, and herpes simplex virus were all negative. Treatment was started with nystatin (4,000,000 units/day) and fluconazole (200 mg/day). Total parenteral nutrition was initiated.

Esophagography after 2 weeks revealed resolution of the esophagomediastinal fistula but there were multiple ulcerations and a stricture of the esophagus (Fig. 4A). Esophagoscopy, performed after 3 weeks, revealed that the opening of the esophagomediastinal fistula had disappeared; however, the ulceration had worsened and a newly formed stricture of the esophagus had appeared (Fig. 4B).

After anti-fungal therapy for 8 weeks, dilation was performed under fluoroscopy using polyvinyl over-the-guidewire dilators of 9, 11, and 13 mm at first and after 1 week using 13 and 15 mm dilators. Esophagography revealed dilatation of the stricture segment (Fig. 5). Currently, the patient's condition has improved and she tolerates solid food and is being followed up on an ambulatory basis.

DISCUSSION

Infections of the esophagus are unusual in the general population and the majority of patients with such infections have impaired host defenses. For all immunocompromised patients, the most frequently identified esophageal pathogens are Candida, cytomegalovirus, and herpes simplex virus.[4]

Esophagomediastinal fistula is a rare condition that develops mainly as a complication of trauma or surgery of the chest. However, it can also develop in immunocompromised patients, arising as a compli-

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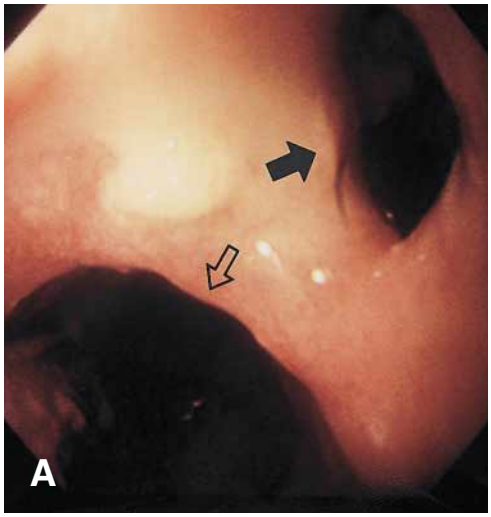

Figure 1. Before anti-fungal treatment. **A,** Endoscopic view of the opening into the esophagomediastinal fistula (*arrow*) in the distal esophagus. *Open arrow* indicates esophageal lumen. **B,** Barium-contrast esophagogram demonstrating esophagomediastinal fistula (*arrow*) with leakage of contrast into the mediastinum and "shaggy" appearance of the wall of the proximal and mid esophagus.

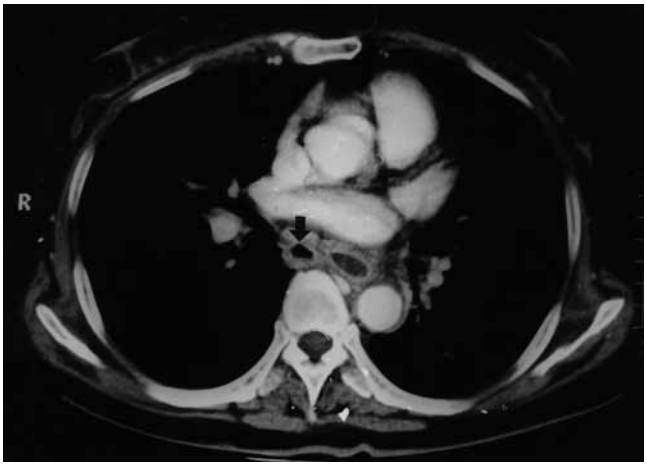

Figure 2. Chest CT showing abnormal air density space next to the distal esophagus (*arrow*) and a thickened esophagus wall.

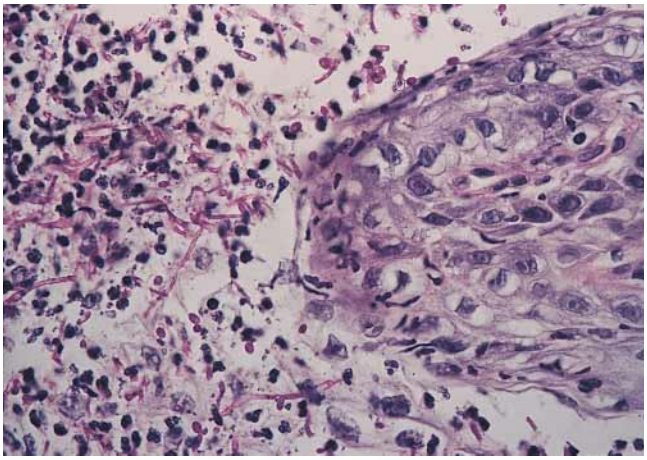

Figure 3. Photomicrograph of the esophageal biopsy specimen in which a number of hyphae are evident (PAS stain, orig. mag. ×200).

cation of infections such as tuberculosis. There are reports of esophagomediastinal fistula as a complication of tuberculosis.[5,6] Sclerotherapy is another cause of esophagomediastinal fistula.

Benign esophageal strictures are usually caused by an inflammatory process, the most common of which is gastroesophageal reflux.[7] Other causes include caustic stricture caused by the ingestion of lye or other chemicals, medication-induced strictures, and those resulting from disease processes such as tuberculosis, and Crohn's disease. Several viral infections, including herpes simplex and cytomegalovirus, also can cause esophageal strictures. However, the occurrence of an esophageal stricture in association with candida esophagitis has rarely been reported in English language publi-

Figure 4. Two weeks after anti-fungal therapy. **A,** Esophagogram showing disappearance of the esophagomediastinal fistula with development of an esophageal stricture. The narrowest region is about 3 mm in diameter (*arrows*). **B,** Endoscopic view of esophagus showing ulceration and stricture formation.

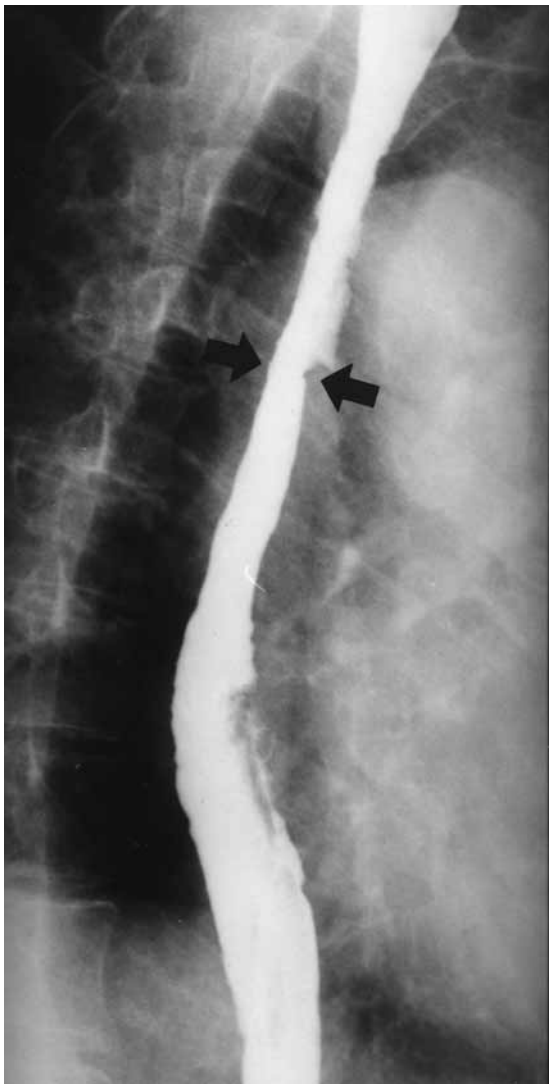

Figure 5. Esophagography after dilatation showing the narrowest region to be about 9 mm in diameter (*arrows*).

cations. This case suggests that severe candida esophagitis may result in esophagomediastinal fistula and esophageal stricture. To our knowledge, this is the first reported case of esophageal candidiasis complicated by esophagomediastinal fistula and esophageal stricture.

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