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CASE REPORT | ESOPHAGUS

Recurrent *Candida*-Associated Esophageal Strictures in an Immunocompetent Patient

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ABSTRACT

Esophageal stricture due to *Candida* esophagitis is a rare complication reported among immunocompromised patients in only limited case reports. We describe a unique case of a 36-year-old man with chronic mucocutaneous candidiasis without underlying immunocompromise who experienced over 10 years of recurrent dysphagia due to esophageal strictures from candidiasis. His symptoms were initially believed to be due to eosinophilic esophagitis; however, numerous biopsies from the esophagus were negative for eosinophils. Several upper endoscopies, however, did reveal fungal elements consistent with *Candida* spp. He experienced recurring episodes of dysphagia and persistent esophageal stricture, requiring multiple antifungal courses and endoscopic balloon dilatations.

INTRODUCTION

Candida albicans is a normal organism of the gastrointestinal tract that typically does not exhibit pathogenicity in those with preserved immunity. Individuals predisposed to *Candida* esophagitis are those with stasis or underlying immunocompromise due to malignancy, diabetes, or use of antibiotics or corticosteroids. Case reports of esophageal moniliasis without underlying comorbidities are scarce.[1] Complications such as esophageal stricture are rare and have only been reported in limited cases, mainly in patients with underlying immunocompromise; only 2 previously reported cases occurred in immunocompetent patients.[1–7]

CASE REPORT

A 36-year-old man presented with difficulty swallowing. He reported recurrent dysphagia occurring over the past 16 years. During his mid-20s, he developed angular cheilitis presumed to be due to candidiasis and was successfully treated with antifungals. He then developed recurrent oral candidiasis nearly bimonthly, which improved with fluconazole. Over subsequent years, his symptoms progressed to dysphagia because of esophageal strictures, requiring esophagogastroduodenoscopy (EGD) with dilatation. Reportedly, he was treated with fluticasone and proton-pump inhibitor (PPI) at 1 time without symptom improvement; however, no biopsy data were available from his previous procedures performed at outside facilities. On presentation to our facility, he reported ongoing dysphagia with solids, anorexia, and 20-pound weight loss. Medical history was negative for diabetes, cancer, alcoholism, or human immunodeficiency virus. There was no reported recent use of antibiotics, corticosteroids, or immune-modulating medications.

His initial EGD at our facility, performed after cessation of PPI therapy, revealed a ringed upper esophagus with stricture, without evidence of furrows, edema, or exudates; stricture was dilated to 11 mm. Findings were highly suspicious for eosinophilic esophagitis (EoE); however, biopsies were negative for eosinophils. He underwent repeat EGD 2 months after, notable for a prominent ring at 20 cm from incisors requiring dilation to 11 mm (Figure 1). Esophageal biopsies were again negative for eosinophils but showed *C.*

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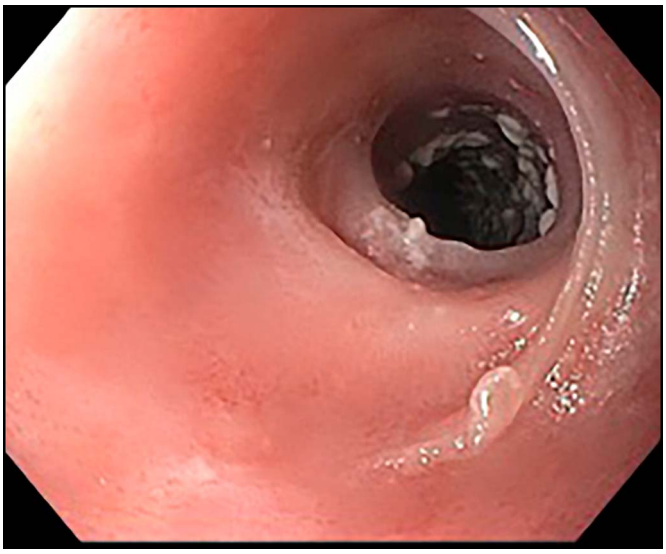

Figure 1. Esophageal ring located 20 cm from incisors.

albicans, and he was treated with 14 days of fluconazole. After 5 weeks, EGD was performed again, showing a dominant esophageal ring at 20 cm from incisors and several rings in the proximal esophagus; balloon dilation was performed to 7 mm. Biopsies taken were again negative for EoE; however, he was empirically treated with PPI due to high suspicion.

After that, he underwent weekly endoscopic dilatations for 6 weeks. During the initial 4 weeks, EGD showed recurrent proximal esophageal strictures with pseudodiverticula near the esophageal rings. Strictures were refractory to balloon dilation. Therefore, Savary dilation was used to dilate to 30 French, 39 French, 48 French, and 51 French, respectively. The subsequent 2 EGDs exhibited white exudates throughout the esophagus without obvious stricture; biopsies confirmed *Candida* (Figures 2–4).

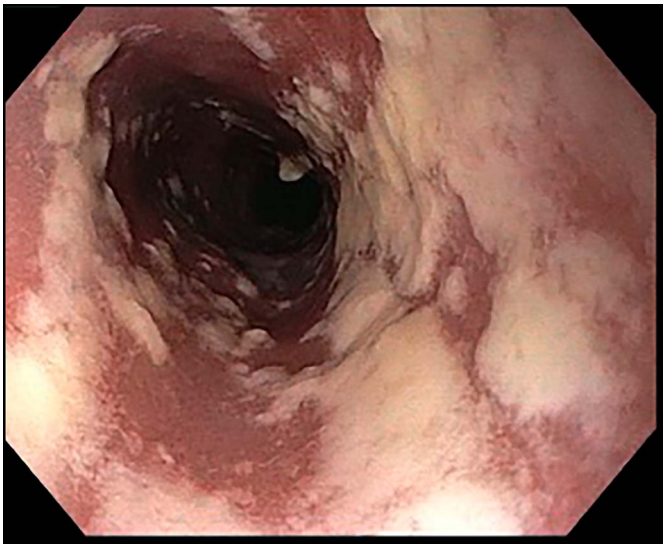

Figure 2. Endoscopy showing esophageal candidiasis.

Return of dysphagia symptoms prompted repeat EGD 3 months later. He was found to have severe candidiasis and esophagitis in the proximal and midesophagus and a dominant incomplete ring 18 cm from incisors. There was no lumen compromise requiring dilation. He was prescribed a second course of fluconazole. Despite antifungal therapy, he continued to have recurrence. Culture data confirmed *C. albicans* susceptibility to fluconazole. He was referred to an infectious disease specialist and diagnosed with chronic mucocutaneous candidiasis. A thorough immunodeficiency evaluation to assess for a signal transduction pathway defect was completed and ultimately negative. He was prescribed fluconazole and clotrimazole troches to be used as needed for recurrence of oral candidiasis, with good resolution of symptoms, and referred for evaluation by an immunology specialist. To date, he has been free of dysphagia symptoms for approximately 6 months.

DISCUSSION

C. albicans is part of the normal flora of the oropharynx and lower gastrointestinal tract and generally not pathogenic. Those at risk of *Candida* esophagitis as an opportunistic infection are individuals with comorbidities such as malignancy, diabetes, human immunodeficiency virus, alcoholism, or prolonged use of antibiotics or corticosteroids.[1–3] Typical symptoms of infectious esophagitis are dysphagia and odynophagia, and oral examination reveals lesions in approximately 50% of patients.[6] Clinical diagnosis is based on characteristic symptoms in at-risk patients, with endoscopic findings of white plaque-like membranes in the esophagus; definitive diagnosis is contingent on biopsy findings of *Candida*.[1] The acute phase of esophagitis involves mucosal erythema with white pseudomembranes consisting of necrotic debris and fungal species, which progresses to granulated friable mucosa and ulcers.[6] Stricturing may result from ongoing inflammation. Rarely, dilatation of submucosal glands may appear as intramural pseudodiverticulum.[8,9] Although *Candida* has been reported to have a tendency of infiltration in the middle and distal thirds of the thoracic esophagus, the few cases describing monilial esophageal stricture (including ours) have involved stricture in the upper and middle thirds.[10]

Esophageal stricture is a rare complication of *Candida* esophagitis. There are limited reports of individuals with candidiasis-associated esophageal stricture with concurrent diseases such as diabetes, malignant thymoma, leukemia, and glycogen storage disease.[2–6] Our case was unique because of the absence of underlying immunodeficiency or predisposing conditions. Candidiasis-associated esophageal stricture in immunocompetent patients has only been reported in 2 previous cases.[1,7] Chronic mucocutaneous candidiasis (CMC) describes a syndrome of recurring or persisting mucocutaneous infections caused by *Candida*.[11] Most cases are secondary to immunocompromise, from comorbidities or medications, while primary CMC is due to intrinsic immunodeficiency disorders and

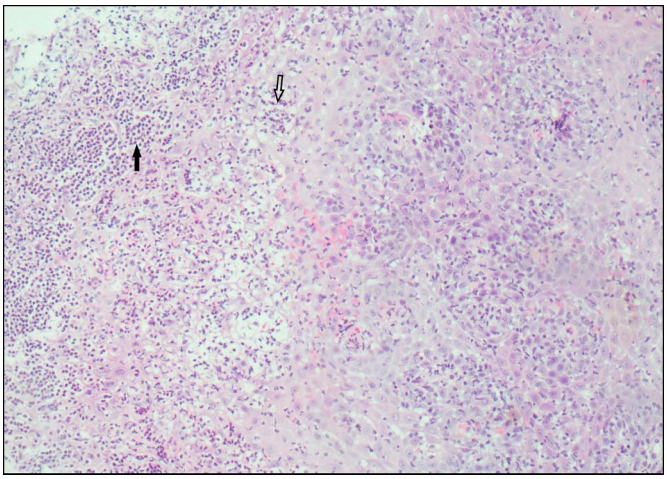

Figure 3. Esophageal squamous mucosa with acute and chronic inflammation. No eosinophils are visualized. Neutrophils (white arrow) and lymphocytes (black arrow) (hematoxylin and eosin stain, 10× magnification).

often accompanied by endocrine disorders.[11,12] Evidence of esophageal stricture among this patient population is scare; however, there have been a few cases describing patients with CMC who developed esophageal cancer. A case series of patients with concurrent autoimmune polyendocrinopathy-candidiasis-ectodermal dystrophy described a high prevalence of esophageal or oral cancer, possibly a result of the chronic candidiasis those patients experienced.[13] A subsequent series described 3 cases of esophageal cancer in patients with CMC but without autoimmune polyendocrinopathy-candidiasis-ectodermal dystrophy, suggesting the genetic defect responsible for altered T-cell function in CMC could be the critical factor in the advancement to esophageal cancer in these patients.[12]

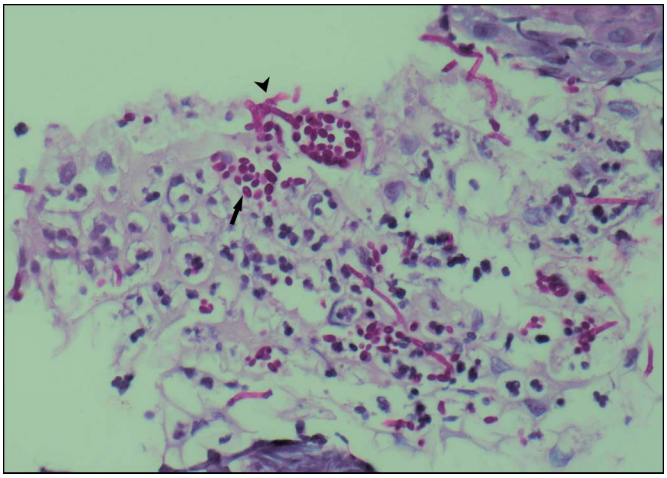

Figure 4. Periodic acid–Schiff stain highlighting spores (single arrow) and pseudohyphae (arrowhead) consistent with *Candida* spp. in esophageal tissue biopsy.

An alternate explanation for our unique case is that this patient's recurrent strictures may be attributable to underlying eosinophilic esophagitis. Over the course of his endoscopic evaluations, he only intermittently had white pseudomembranes, and *Candida* noted on biopsy, despite recurrent stricturing. We believe that this patient was treated as EoE in the past given his reported medication history, although pathology reports from the outside facilities were unavailable. This patient had multiple signs and symptoms consistent with EoE, ie, onset in the third decade of life, solid food dysphagia, and esophageal rings and narrowing.[14] However, multiple biopsies performed were persistently negative for eosinophilia. He did not have evidence of gastroesophageal reflux, caustic ingestion, esophageal motility disorder, or medication-induced strictures to provide an alternate explanation. Notably, our patient had recurrent stricturing despite antifungal treatment and multiple endoscopic dilatations. It remains unclear whether he developed recurring acute *Candida* infections or lacked appropriate response to fluconazole despite repeated treatment. This case suggests the importance of including candidiasis in the differential diagnosis of esophageal strictures, even in immunocompetent patients. In addition, it proposes that combined management with serial endoscopic dilatations and repeated antifungal therapy may be indicated for appropriate management of patients with recurrent episodes.

DISCLOSURES

Author contributions: All authors contributed equally to this manuscript. Y. Alishahi is the article guarantor.

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Informed consent was obtained for this case report.

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