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Esophageal Tear with Pneumomediastinum Secondary to Esophageal Candidiasis in a Patient with Autoimmune Polyendocrinopathy-Candidiasis-Ectodermal Dystrophy (APECED)

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Abstract

Autoimmune Polyendocrinopathy-Candidiasis-Ectodermal Dystrophy (APECED) is a rare condition that diffusely affects many organ systems. Chronic mucocutaneous candidiasis is one of the features of APECED, which needs to be treated and monitored to prevent severe complications. This case demonstrates esophageal structuring and resultant esophageal perforation, in the setting of chronic mucocutaneous candidiasis.

Learning Points

- Chronic mucocutaneous candidiasis (CMC) can be present without overt esophageal thrush
- CMC can result in esophageal lesions causing significant morbidity.
- APECED patients with dysphagia should be assessed for chronic candida esophagitis and treated accordingly.
- Patients with recurrent candida esophagitis should be considered for intermittent topical and systemic antifungal prophylactic therapy.
- Esophageal perforation due to candidiasis is most often seen in the setting of immunocompromised states.

Background

Autoimmune polyendocrinopathy-candidiasis-ectodermal dystrophy (APECED) is a rare autosomal recessive disease caused by mutations of the AIRE (autoimmune regulator) genes [1, 2, 6, 7]. It is characterized by the clinical trial of chronic mucocutaneous candidiasis (CMC), hypoparathyroidism, and adrenal insufficiency [7]. APECED has been reported worldwide, but is more prevalent in some historically- isolated homogeneous populations in Finland (1/25000), Sardinia, and Iranian Jews (1/9000) [7]. APECED is also seen at a lower incidence in Norway, Sweden, Slovenia, Great Britain, Italy, Ireland, and North America [7]. Most patients have CMC from early childhood [2, 3]. Rarely, untreated esophageal candidiasis may lead to complications such as esophageal stricture, rupture and or fistula formation [4, 5].

Case Presentation

A 31-year-old male, originally from Puerto Rico, with a past medical history significant for APECED presented to the Emergency Department with dysphagia and globus sensation after eating a large piece of meat his endocrinopathies included hypothyroidism, hypoparathyroidism (diagnosed at the age of 5 years when he presented with severe hypocalcemia and seizure), adrenal insufficiency (diagnosed at the age of 21 years), and childhood chronic mucocutaneous candidiasis. This was his 4th presentation with globus sensation requiring food dysimpaction over a 20-month time period. During his first two prior visits, emergent Esophagogastroduodenoscopy (EGD) allowed for food bolus removal, with note of mild esophagitis without biopsy being performed. During his 3rd visit with acute globus sensation, EGD was performed, food bolus was removed, and esophageal narrowing was newly present, biopsies were obtained, and patient was discharged. 2 days later, he presented with a 4th acute food impaction, dysphagia and stabbing chest pain. The patient was noted to be afebrile, with a blood pressure of 90/70 mmHg and a leukocytosis of 17,000 on admission.

Investigations

The patient underwent emergent EGD with a large meat bolus identified and removed at approximately 20 cm. A discrete esophageal tear at 19-20 cm was identified and clipped. The esophagus was noted to be friable and corrugated. Biopsy of the esophagus showed evidence of esophageal candidiasis and lymphocytosis. A chest CT scan demonstrated diffuse pneumomediastinum and soft tissue emphysema throughout the

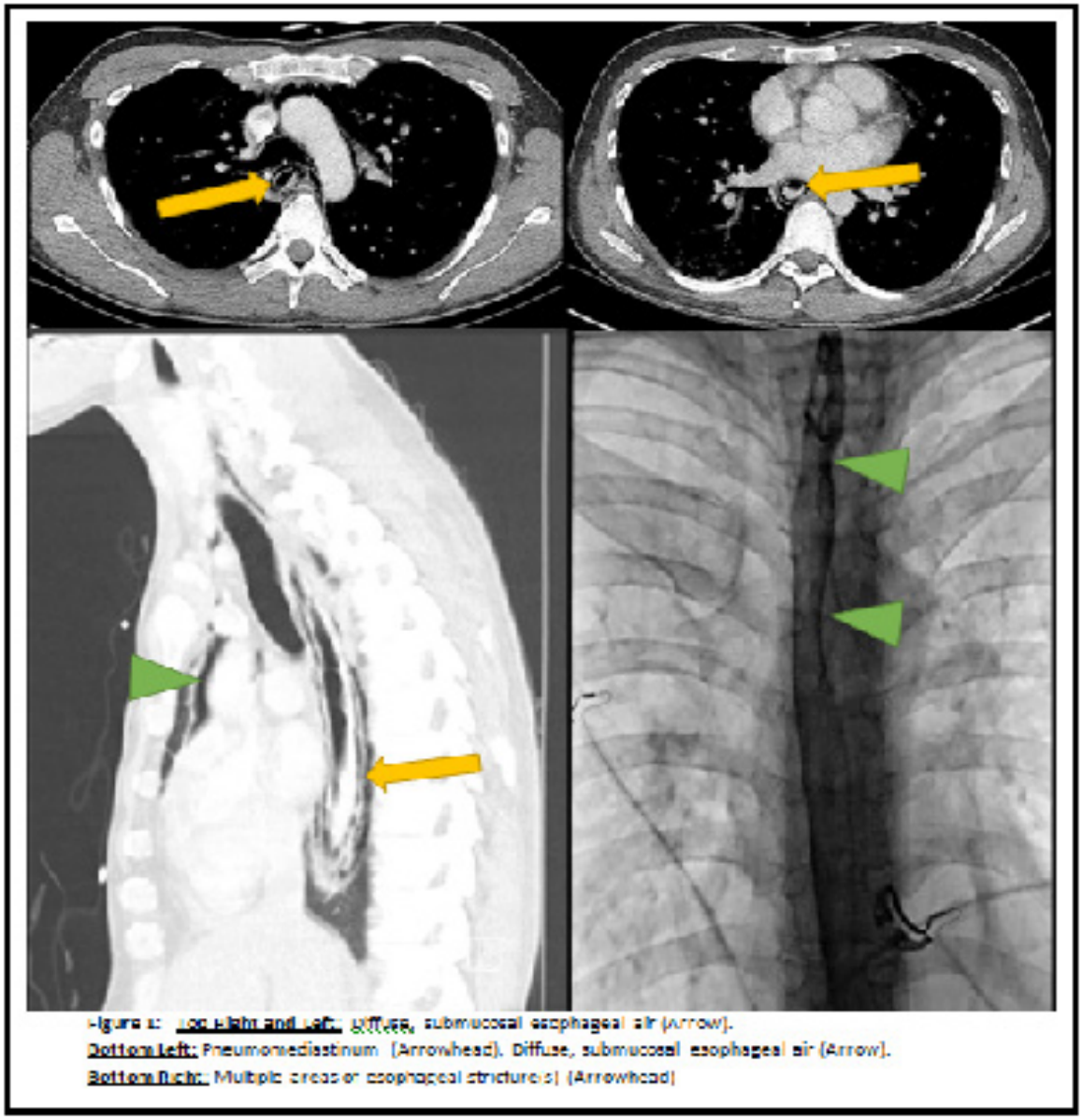
esophagus, suspicious for a tear. Fluoroscopic esophagogram was performed following emergent EGD and mucosal clipping, showing mild narrowing of the upper third of the esophagus and a small area of extravasation in the proximal thoracic esophagus.

Treatment

The patient was placed on nothing by mouth (NPO) diet which was continued for 13 days and supplemented with total parenteral nutrition. He was treated with IV piperacillin and tazobactam for 7 days and IV Fluconazole for 10 days with transition to oral Fluconazole for a total of 21 days, with improvement. The patient was able to advance to liquid diet beginning on day 14.

Outcome and Follow-up

Subsequent repeat fluoroscopic esophagogram and CT chest showed absence of extravasation at the previously identified level of the esophagus, and resolution of the previously noted pneumomediastinum. The plan was for the patient to undergo repeat EGD in 3 months following this encounter, to assess for candida and lymphocytosis resolution, unfortunately this patient has not maintained follow-up with GI service and has not yet undergone repeat EGD to date.



Discussion

Chronic mucocutaneous candidiasis (CMC) is the most common infection occurring in APECED patients (77–100%), except in persons of Iranian Jewish descent (17%) [1, 7]. CMC is also the most common first clinical manifestation of APECED syndrome (40–93%), with most cases caused by the yeast C. albicans in APECED patients [1, 6, 7]. Due to the high prevalence of CMC in APECED patients and the risk of secondary squamous cell carcinoma, lifelong management of candidiasis with antifungal treatment is necessary [2,6,7]. In general, topical treatment is more frequently prescribed than systemic antifungals, which are restricted to periods of severe symptoms and systemic candidiasis, with azole agents being restricted to 2–3 courses per year in order to avoid decreased susceptibility [7]. This treatment can be followed by prophylactic treatment consisting of 1 week of a polyene antifungal every 3 weeks, and 1 week of chlorhexidine mouth rinse twice a day, if CMC becomes recurrent. In the event that symptoms persist, prophylactic treatment should be administered more frequently, up to daily antifungal treatment [7].

Esophageal perforation is a severe disease state that, if not treated efficiently and appropriately, leads to a high mortality rate of between 10-40% [8]. Esophageal perforation may be iatrogenic (secondary to endoscopic procedures or prior radiation therapy), spontaneous, or secondary to aneurysmal dissections, esophageal carcinoma or trauma [8,9]. A lesser reported cause is in the setting of CMC, with the translocation of candida infection throughout the esophageal wall likely resulting in chronic inflammation and esophageal degeneration with potential for tear or rupture. While candida can be part of the microbiome in a small portion of healthy individuals, it is known to be pathologic in immunocompromised patients [10]. Hence, a number of candida-associated esophageal perforation case reports have been described in patients with untreated HIV, hematologic malignancy or status-post transplant [9,11]. Similarly to these cases, our patient, with APECED, has a chronic immunocompromised state, which potentially lead to the development of both esophageal stricture and predisposed him to an esophageal perforation. Although the episode occurred in the setting of recent esophagogastroduodenoscopy (EGD), the presence of chronic Candida, evident on esophageal biopsy, likely resulted in a loss of esophageal wall integrity making esophageal tear more likely during endoscopic evaluation. Thus, it is hard to acknowledge with certainty whether or not the perforation was the result of solely chronic candida inflammation, but what is most probable is the combination of chronic infection and the acute instrumentation.

Conclusion

This case report represents a patient that had a non-fatal esophageal perforation in the setting of chronic esophageal infection. However with the known high mortality of esophageal perforations, it is imperative to remember that immunocompromised states, predisposing to chronic candida infection, can result in esophageal wall weakening, with potential for severe complications.

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Declaration of Interest

There is no conflict of interest that could be perceived as prejudicing the impartiality of the research reported, with regard to any of the above authors.

Patient consent

Written patient consent was obtained prior to submission of this manuscript.

Author contributions and Acknowledgments

Dr. Timothy Johnson & Dr. Chheki Sherpa prepared the case description, learning objectives and discussion.

Dr. Ilan Gabriely reviewed the author contributions and provided guidance with expert knowledge regarding the above case.

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