CASE REPORT

Oesophageal intramural pseudodiverticulosis presenting as non-resolving pneumonia: A sinister cause diagnosed by EUS-B-FNA

Sharad Joshi1 | Subhasish Majumdar2 | Ankit Bhatia1 | Nitesh Tayal1

1Department of Pulmonary Medicine, Max Super Specialty Hospital, Ghaziabad, India
2Department of Gastroenterology, Max Super Specialty Hospital, Ghaziabad, India

Correspondence
Ankit Bhatia, Department of Pulmonary Medicine, Max Super Specialty Hospital, Vaishali, Ghaziabad, India.
Email: ankitbhatia85@gmail.com

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Abstract
We report a case of an oesophageal intramural pseudodiverticulosis leading to a mediastinal collection caused by Candida glabrata presenting as a non-resolving pneumonia and mimicking an oesophageal mass. The patient was a 60-year-old diabetic male who was referred from another hospital and presented with a history of low-grade fever and breathlessness. His computed tomography (CT) of the chest disclosed a mediastinal mass alongside the oesophagus with pleural collection. Endobronchial ultrasound scope was inserted through the oesophagus (EUS-B) and fine-needle aspiration was taken from the mass. The cultures of specimen from the mediastinum grew drug-resistant C. glabrata. The patient was managed with oral voriconazole along with oesophageal stenting after which he showed remarkable recovery. Repeat CT revealed a near-complete reduction of the mediastinal infection. The case highlights the need of a high degree of suspicion, right approach to diagnostic work-up and appropriate histopathological and microbiological examination of clinical specimens.

KEYWORDS
endobronchial ultrasound, pneumonia, pseudodiverticulosis

INTRODUCTION
Oesophageal intramural pseudodiverticulosis (EIP) is a rare benign disease characterized by multiple small outpouching lesions on the oesophageal wall. This condition was described by Mendl et al. in 1960 and the cases present with dysphagia and food impaction that usually resolve spontaneously.1 It is a very rare entity that there are only about 200 reports published all around the world.2

Here, we report a patient who suffered from a non-resolving pneumonia and was ultimately diagnosed as EIP leading to a chest infection.

CASE REPORT
A 60-year-old diabetic gentleman was referred to our centre for a non-resolving pneumonia. He had previously received two courses of broad-spectrum antibiotics (amoxicillin-clavulanate + azithromycin and piperacillin + tazobactam) in the past 3 weeks. His high-resolution computed tomography (CT) of the thorax showed bilateral lower lobe consolidation with associated pleural collection (Figure 1A). The patient was admitted to our centre and a contrast CT of the chest showed bilateral pleural effusion with minimal parenchymal infiltrates in both lower lobes with an associated paroesophageal collection with thick-walled oesophagus. On further questioning, the patient revealed dysphagia to solids for 2 months. Positron emission tomography-CT showed diffuse fluorodeoxyglucose uptake in oesophageal wall and at GE junction (Figure 1B). A differential of oesophageal carcinoma with tracheoesophageal fistula was made. The patient then underwent upper gastrointestinal endoscopy which showed few mucosal sinuses of various sizes ranging from 3 to 7 mm with plaques but no other mucosal lesion indicative of malignancy or tracheo-oesophageal fistulas (Figure 2A). Gastrografin study was conducted which demonstrated multiple false luminal diverticula and irregular oesophageal lumen that helped clinch the diagnosis (Figure 3).
A bronchoscopy with endobronchial ultrasound (EBUS) was performed. EBUS study was non-contributing; therefore, EUS-B-fine-needle aspiration (FNA) was done that showed a homogenous diffuse collection in para-oesophageal space (Figure 2B). Fine-needle aspirate yielded small quantity of dirty white material that was sent for cytological and microbiological analyses. The EUS-B-FNA culture subsequently grew drug-resistant *Candida glabrata*. The patient was started on voriconazole therapy as per sensitivity pattern. His fever and appetite improved in few days. Endoscopic dilatation and stenting were done. The stent was removed after 4 weeks. The patient was allowed oral feeds which he tolerated well. Subsequent endoscopy showed a clear oesophageal lumen and the patient had no dysphagia along with complete radiological resolution.

**DISCUSSION**

This patient presented as a case of non-resolving pneumonia with fever and was found to have para-oesophageal mass. These characteristics should prompt differentials of neoplasm including lymphoma or metastatic disease, tracheal or oesophageal tumours, bacterial abscesses, foregut duplication cysts and lymphadenopathy from infections such as tuberculosis or histoplasmosis.3
Our patient was initially treated with antibiotics upon suspicion of pneumonia, without clinical effect, and a bacterial infection was never documented.

The aim in this condition should be to obtain tissue biopsy to rule out neoplasm and to send it for fungal and mycobacterial smears and cultures and also concomitantly obtain appropriate serological and urinary microbiological assays to rule out the possible fungal or mycobacterial aetiology.

The mechanism in this case was oesophageal fistulas, which led to mediastinitis and recurrent aspiration causing a non-resolving pneumonia. An out-of-the-box approach using EUS-FNA helped to tissue diagnosis and definitive management.

The exact mechanism and pathogenesis for EIP are not yet understood. It is postulated that inflammation/oesophagitis and motility disorders lead to diverticular formation. Oesophageal stricture as a cause is still not clear and it may be the effect of EIP. Similarly, association of fungal esophagitis with EIP is inconsistent in all reported cases. Fungal oesophagitis is possibly one of the causes of EIP and antifungals along with serial dilatations of oesophagus have been successfully used to treat similar cases in the literature.4

EIP commonly presents with symptoms of dysphagia and/or regurgitation while some patients may also present with chest heaviness or odynophagia. It has also been seen to exist with other conditions such as diabetes mellitus, HIV disease, Chron’s disease, alcohol abuse, corrosive injury, fungal esophagitis and carcinoma of oesophagus.2 Oesophageal imaging is the prime modality to establish a diagnosis. A single thin barium contrast is better in evaluation than the double contrast study. An oesophagoscopy or endoscopic evaluation also helps establishing the diagnosis.2

Ultrasound imaging of mediastinum has become part of the armamentarium for pulmonologists. EBUS-guided transbronchial needle aspirate plays an important role in the evaluation of lesions adjacent to major airways. Dual use of EBUS, through the respiratory tract and oesophagus, is feasible and can be performed in the same sitting. This was proved in 2010 through two landmark papers.5 The EBUS scope has been increasingly used in the gastrointestinal tract (EUS-B). Use of EUS-B-FNA for the establishment of aetiology of EIP is yet not published in the literature.

Fine-needle aspirate from thickened para-oesophageal collection demonstrated C. glabrata on fungal culture. This supported the fungal oesophagitis as one of the causes for EIP. We propose the use of EUS-B-FNA for evaluation of oesophageal and para-oesophageal pathologies.

CONFLICT OF INTEREST
None declared.

AUTHOR CONTRIBUTION
All authors contributed their part in either the management of patient and/or preparation of the manuscript.

ETHICS STATEMENT
The authors declare that appropriate written informed consent was obtained for the publication of this manuscript and accompanying images.

ORCID
Sharad Joshi https://orcid.org/0000-0001-9780-4985
Ankit Bhatia https://orcid.org/0000-0002-0713-4103

REFERENCES
1. Mendl K, McKay JM, Tanner CH. Intramural diverticulosis of the esophagus and Rokitanski-Aschoff sinuses in the gallbladder. Br J Radiol 1960;33:496–501.
2. Levine MS, Moolten DN, Herlinger H, Laufer I. Esophageal intramural pseudodiverticulosis: a reevaluation. Am J Roentgenol. 1986;147:1165–70.
3. Fujimoto K, Hara M, Tomiyama N, Kusumoto M, Sakai F, Fujii Y. Proposal for a new mediastinal compartment classification of transverse plane images according to the Japanese Association for Research on the Thymus (JART) General Rules for the Study of Mediastinal Tumors. Oncol Rep. 2014;31:565–72.
4. Chiba T, Iijima K, Koike T, Uno K, Asano N, Shimosegawa T. A case of severe esophageal intramural pseudodiverticulosis whose symptoms were ameliorated by oral administration of anti-fungal medicine. Case Rep Gastroenterol. 2012 Jan;6(1):103–10. https://doi.org/10.1159/000336846
5. Hwangbo B, Lee GK, Lee HS, Lim KY, Lee SH, Kim HY, et al. Transbronchial and transoesophageal fine-needle aspiration using an ultrasound bronchoscope in mediastinal staging of potentially operable lung cancer. Chest. 2010;138:795–802.

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