

Dysphagia aortica: Emerging role of endoscopic ultrasound (with videos)

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ABSTRACT

Dysphagia can occur due to extrinsic compression on esophagus. Dysphagia due to intrathoracic vascular causes is rare. Most reported cases of vascular etiology are due to dysphagia lusoria. Dysphagia due to any anomaly of aorta is called dysphagia aortica. In an emergency setting, endoscopic ultrasound (EUS) has been found to be superior and more sensitive for detection of abdominal aortic aneurysms over conventional radiological methods. We present a series of four cases of dysphagia aortica where the diagnosis was made by endoscopic ultrasound.

Key words: Aorta, dissecting aneurysm, endoscopic ultrasound (EUS)

INTRODUCTION

Dysphagia can be caused by intraluminal, intramural, or extramural pathologies of the esophagus. Among the extramural causes, dysphagia due to intrathoracic vascular cause is rare. Most reported cases of vascular etiology are due to dysphagia lusoria, which occurs due to compression by aberrant right subclavian artery.^[1] Dysphagia due to any anomaly of aorta is called dysphagia aortica and can occur due to aortic aneurysm, aortic dissection or aorto-esophageal fistula. Clinical presentation of dysphagia aortica is varied ranging from asymptomatic cases diagnosed only at the time of autopsy to frank dysphagia and catastrophic hematemesis.^[2] A high index of suspicion

and accurate diagnosis by appropriate imaging results in early management.^[3] There is no gold standard diagnostic procedure for dysphagia aortica and the general diagnostic approach includes standard esophagogastroduodenoscopy (EGD), contrast-enhanced computed tomography (CECT) of the thorax and abdomen or magnetic resonance imaging (MRI).^[4] Transesophageal echocardiography (TEE) has been considered as the first choice diagnostic tool in aortic aneurysm.^[5] In an emergency setting, endoscopic ultrasound (EUS) has been found to be superior and more sensitive for the detection of abdominal aortic aneurysms over conventional radiological methods.^[6]

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How to cite this article: Sharma M, Singh P, Kirnake V, Toshniwal J, Chopra A. Dysphagia aortica: Emerging role of endoscopic ultrasound (with videos). *Endosc Ultrasound* 2018;7:343-6.

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DOI:

10.4103/2303-9027.193571

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Received: 2014-09-15; **Accepted:** 2015-12-01 ; **Published online:** 2016-11-08

We present a series of four cases of dysphagia aortica who presented with dysphagia and in whom EUS made a quick and accurate diagnosis after preliminary EGD.

CASE REPORTS

Case 1

A 94-year-old gentleman came to the emergency department in the evening with a history of choking during afternoon meals with a bout of hematemesis. EGD revealed an extrinsic compression in the upper esophagus with oozing of blood from the central part of the extrinsic compression [Figure 1a]. The scope could be negotiated into the stomach and the rest of the examination was normal. A EUS showed aneurysm of aorta extending from the aortic arch to the level of celiac artery [Figure 1b and c and videos 1 and 2]. CECT of the thorax showed the same findings [Figure 1d]. The patient was referred for surgery to a cardiothoracic surgery center where the cardiothoracic surgeons discussed the risk of surgery with the relatives. The relatives refused surgery and the patient expired 2 months later after an episode of massive hematemesis.

Case 2

A 74-year-old gentleman was referred for evaluation of sudden dysphagia with a bout of hematemesis. EGD revealed a bulge in the middle of the esophagus with the presence of ulceration on the central part of the bulge and a blood clot over the ulcerated area [Figure 2a]. EUS revealed a saccular aneurysm of 5 cm diameter near the middle of esophagus, with the neck of the aneurysm of 2-cm diameter communicating with the thoracic part of the aorta. The aneurysm showed presence of turbulent flow in the central part and presence of thrombus in the peripheral part [Figures 2b-d, Videos 3 and 4]. The patient was referred for surgery to a cardiothoracic surgery center but was lost to follow-up.

Case 3

A 68-year-old gentleman was referred for evaluation of dysphagia to solids for 2 days with a bout of hematemesis. EGD revealed an extrinsic compression with a smooth bulge and a linear ulcerated area on the central part of the bulge at 30-cm distance in the middle of the esophagus [Figure 3a]. The scope was easily negotiated beyond the narrowed part of the esophagus and the rest of the examination was normal. EUS revealed a dissecting aneurysm extending from the ascending aorta to the level of the renal arteries [Figures 3b and c, Videos 5 and 6]. There

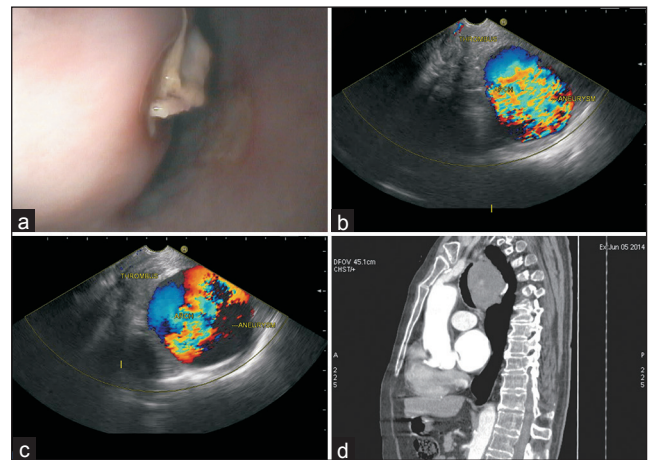


Figure 1. (a) Bulging aneurysm compressing the esophagus with overlying ulcer (b) Endoscopic ultrasound (EUS) image of aneurysm (c) EUS image of aneurysm with thrombus at the level of arch (d) Computed tomography (CT) scan showing thrombus and dissection

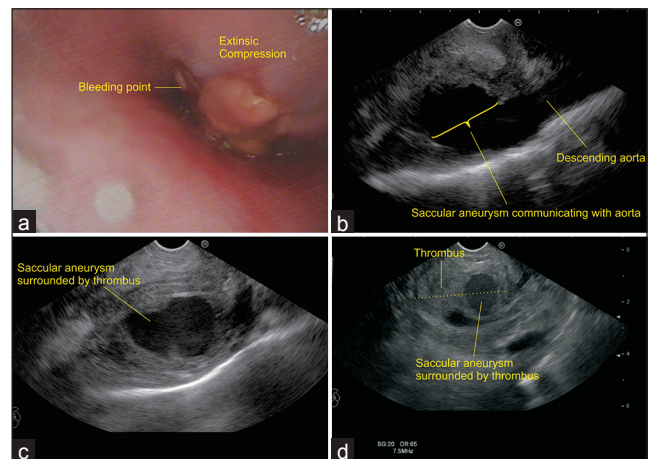


Figure 2. (a) Extrinsic compression with visible bleeding point (b) EUS image of saccular aneurysm communicating with descending aorta (c) EUS image of aneurysm surrounded by thrombus (d) Another EUS image of aneurysm with thrombus

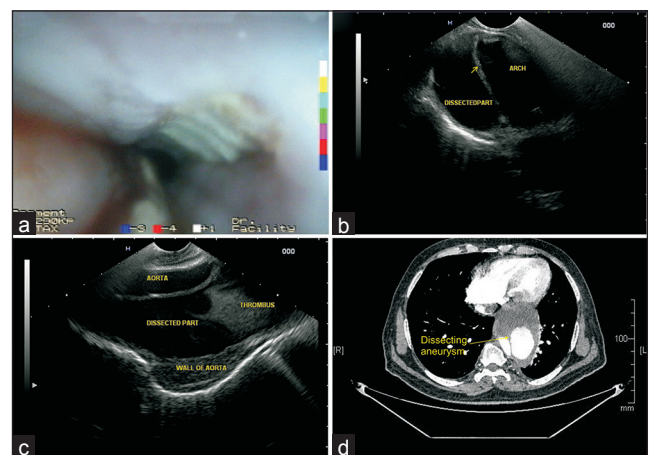


Figure 3. (a) Linear ulceration on the central bulge in the middle of the esophagus (b) EUS image of dissecting aneurysm at the level of arch (c) EUS image of aneurysm with thrombus (d) CT image of the dissecting aneurysm

was thrombosis in the dissected part of the aorta. Computed tomography (CT) scan also confirmed the findings [Figure 3d]. The patient was referred for surgery to a cardiothoracic surgery center where he expired on the 10th postoperative day due to sepsis.

Case 4

A 54-year-old man presented to the emergency department due to hematemesis. He had a history of difficulty in swallowing for 2 days. Upper gastrointestinal (GI) endoscopy showed an extrinsic narrowing with a smooth bulge in the middle of the esophagus and presence of a clot over the bulge. The scope could be negotiated with slight difficulty into the stomach and the rest of the examination was normal. EUS showed the presence of dissection limited to the thoracic aorta below the level of arch of the aorta. The dissected part of the lumen showed absence of flow with presence of thrombosis and the patent part showed presence of blood flow in a compressed lumen [Figure 4a-c]. The patient was referred for surgery to a cardiothoracic surgery center and has remained well for 9 years after surgery.

DISCUSSION

All the four cases presented with dysphagia due to aorto-esophageal fistula with a herald bleed and hematemesis. The classical description of aorto-esophageal fistula includes Chiari's Triad of mid-thoracic pain, sentinel or herald arterial hemorrhage, and exsanguination after a symptom-free interval. The fistulous connection between the esophagus and the aorta in the aorto-esophageal fistula has been described due to primary or secondary causes. The primary causes

are thoracic aortic aneurysm without previous repair, atherosclerosis, infectious disease, carcinoma, foreign bodies, or a complication of prolonged nasogastric tube intubation. The secondary cause is due to surgical repair of thoracic aortic aneurysm.^[7,8] Aneurysms of the aorta can be saccular or fusiform. Saccular aneurysm carries ominous prognosis and fusiform aneurysm includes dissecting aneurysms, which are broadly classified as proximal or ascending aorta (Stanford type A) and distal or descending aorta (Stanford type B).^[9,10] In this series, one patient had saccular aneurysm of the middle part of the thoracic aorta and three patients had fusiform aortic dissection of type B.

A high index of suspicion is required for identifying this entity. The role of transesophageal echocardiography in assessing the thoracic aortic disorders is described by cardiologists and the role of EUS in differentiating mediastinal masses and has been described by gastroenterologists.^[5,11-14] The role of EUS in the setting of dysphagia with hematemesis, which is a clinical emergency, has been less recognized due to the lack of generalized availability of EUS. This series illustrates the role of simultaneous EUS with EGD in diagnosing this catastrophic condition, thus minimizing the time lag for definitive surgical management.

CONCLUSION

EGD is currently the investigation of choice for evaluation of dysphagia and hematemesis. EUS is currently available as a diagnostic tool in a large number of centers where EGD is performed. Simultaneous EUS, along with EGD, can be a useful diagnostic tool in cases where an extrinsic compression is found. If EGD shows a bleeding point over the extrinsic compression, the presence of dissection and aortoenteric fistula should be suspected. Simultaneous EUS, along with EGD, should be routinely considered in all cases of dysphagia due to extrinsic compression.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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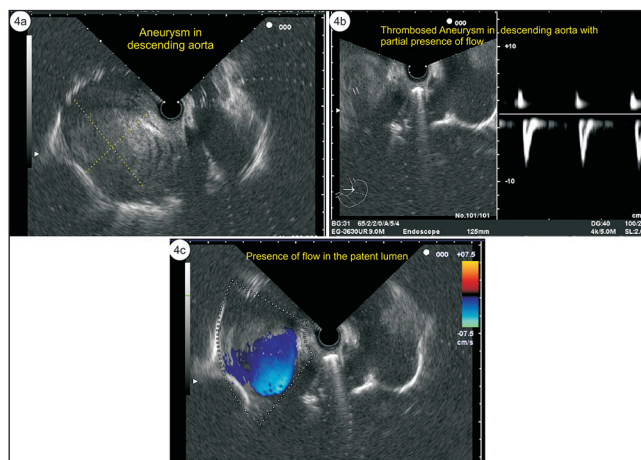


Figure 4. (a) Aneurysm with a large thrombus in the descending aorta (b) EUS image of thrombosed aneurysm (c) Doppler EUS image of aortic dissecting aneurysm

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