Cardiovascular causes of dysphagia: a case series

Introduction

Dysphagia is one of the most common presenting symptoms to a gastroenterologist. Endoscopy and imaging are the first diagnostic steps in evaluation of dysphagia. The most common causes are luminal obstructions (complicated gastro-oesophageal reflux disease, oesophageal tumours or webs, foreign bodies, strictures, diverticula), intrinsic disorders of the oesophagus (such as eosinophilic or lymphocytic oesophagitis) and motility disorders (scleroderma, achalasia, diffuse oesophageal spasm), while cardiovascular or mediastinal extrinsic compressions are rare (Yuan, 2014; Lancaster, 2015; Saunsbury et al, 2018).

First described in 1995, cardiovascular dysphagia can be congenital (double aortic arch, right aortic arch, cervical aortic arch, Kommerell's diverticulum, aberrant subclavian artery, ligamentum arteriosum), acquired (aortic aneurysm or dissection, enlarged left atrium) or iatrogenic (aorto-oesophageal fistula, post-cardiovascular surgery) (Cappell, 1995). Being quite rare, cardiovascular dysphagia is frequently unrecognized.

This article presents a case series of patients with cardiovascular causes of dysphagia. These are rarely encountered in clinical practice but should be considered in the differential diagnosis when intrinsic causes are excluded.

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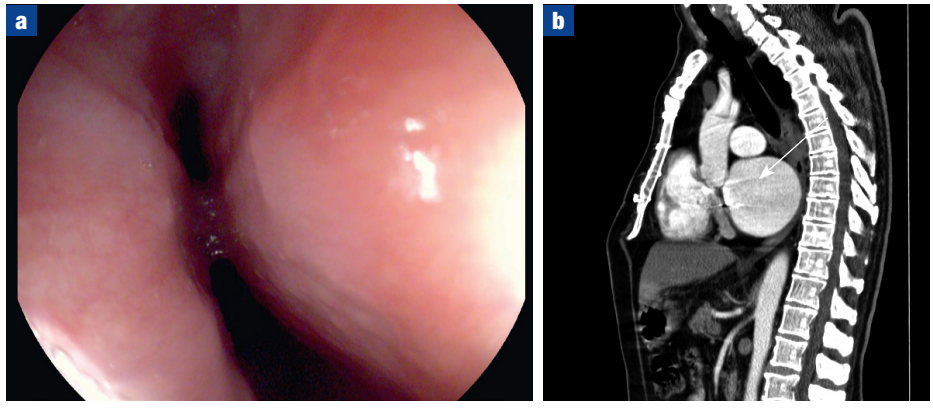
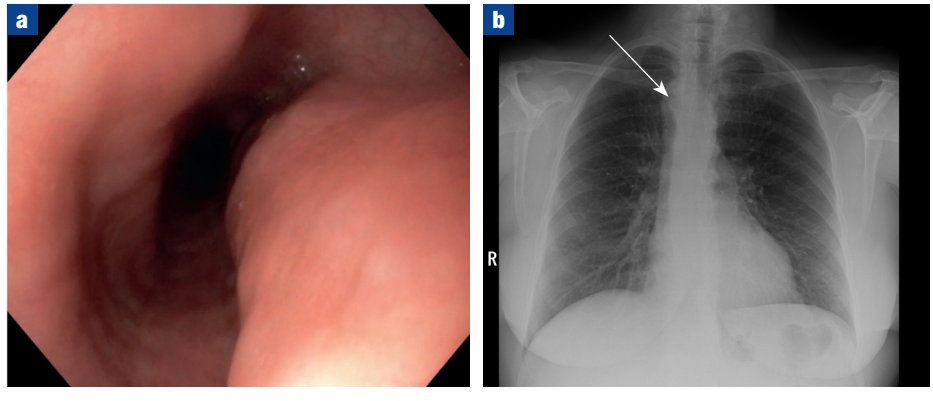
Figure 1. **a.** Endoscopy showing narrowed lumen of the oesophagus, by extrinsic compression, with partial distention on continuous insufflation but easily passed with an 8.8 mm calibre scope. **b.** Computed tomography scan of the thorax revealing enlarged left atrium (arrow) compressing the oesophagus.



CASE REPORT 1

The first case is a 62-year-old man, with a mitral valve prosthesis, who complained of solid food dysphagia for about 1 year. At endoscopy a narrowed lumen was found in the lower oesophagus, by extrinsic compression, which on computed tomography proved to be a large, dilated left atrium, of 120 mm craniocaudal and 80 mm anteroposterior diameter (*Figures 1a* and *b*). After optimization of medical treatment, an improvement in dysphagia was seen.

Figure 2. **a.** Endoscopy showing a narrowed mid-oesophagus. **b.** Chest X-ray demonstrating right-sided aortic arch and retro-oesophageal descending aorta (arrow).

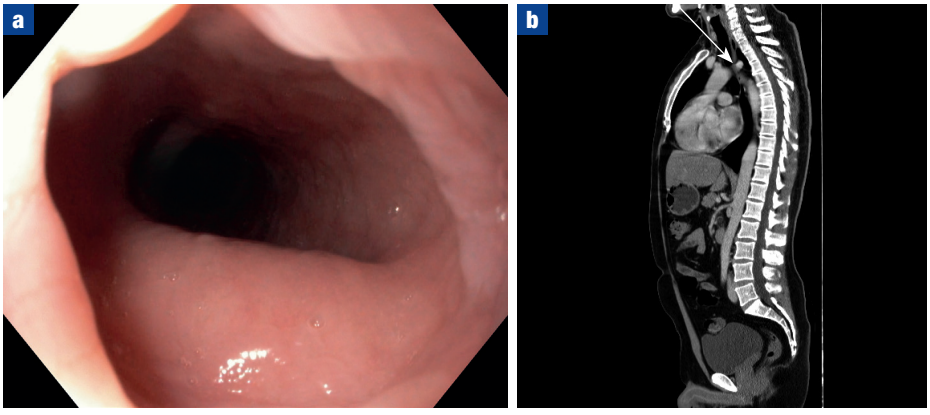


CASE REPORT 2

The second case is a 60-year-old woman who presented for evaluation of dysphagia and in whom endoscopy showed a narrowed mid-oesophagus. Imaging studies showed a right-sided aortic arch and retro-oesophageal descending aorta, compressing the oesophagus (*Figures 2a* and *b*).

Because aortic abnormalities are frequently described in association with congenital heart disease, echocardiography was performed to rule out congenital heart lesions. No other congenital heart lesions were seen in this patient. A conservative approach with dietary advice was recommended.

Figure 3. **a.** Extrinsic compression of the oesophagus seen on endoscopy. **b.** Computed tomography scan showing aberrant subclavian artery compressing the oesophagus.



CASE REPORT 3

The last case is a 45-year-old woman who underwent repeated endoscopy examinations with biopsies for intermittent solid food dysphagia. Computed tomography showed an aberrant subclavian artery, which compressed the oesophagus (dysphagia lusoria) (*Figures 3a* and *b*). Surgery was discussed as a treatment option, but the patient decided against it.

Discussion

As enlargement of the left atrium is usually the result of chronic pressure or volume overload in the setting of mitral valve disease (*Case report 1*), the conservative treatment mainly consists of reduction of preload by diuretics. Besides dysphagia, left atrial dilation can also cause compression atelectasis or hoarseness (as a result of left laryngeal nerve palsy, a condition called Ortner syndrome or cardiovocal syndrome).

Other than mitral valve disease, dysphagia as a result of an enlarged left atrium has also been reported in left atrial myxoma (Mishima et al, 2014). In these cases, but also in the case of symptomatic giant left atrium secondary to mitral valvulopathies, surgical treatment is considered (Apostolakis and Shuhaiber, 2008). Endoscopic dilation and stenting has also been advised (Frigy, 2018).

As dysphagia in cases of aortic abnormality (*Case report 2*) is usually mild, conservative treatment is preferred (De Caluwe et al, 2012).

As seen in *Case report 3*, this vascular anomaly implies that the right subclavian artery does not arise from the brachiocephalic trunk, but develops as a separate branch of the aortic arch distal to the left subclavian artery (Cappell, 1995). As with other vascular anomalies, dysphagia in the case of arteria lusoria is usually mild, intermittent and has a benign course. Management of an aberrant right subclavian retroesophageal artery is surgical (de Araújo et al, 2015), but this is rarely required as patients are frequently pauci-symptomatic.

Although rare, cardiovascular causes of dysphagia should be considered when endoscopy is negative for intrinsic causes and reveals a reduction in calibre of the oesophagus by extrinsic compression. Thoracic imaging is necessary to exclude bronchogenic or mediastinal malignant pathology. Cardiovascular dysphagia is usually mild, but can be severe in cases where oesophageal compression is significant. The diagnostic work-up and pre-therapeutic management includes endoscopy, thoracic imaging and echocardiography, in order to have good delineation of the anatomical structures and relationship with adjacent organs. Treatment can be conservative or surgical, depending on the severity of dysphagia and the nature of the cardiovascular disorder. **BJHM**

LEARNING POINTS

- This case series illustrates that clinicians should think outside the box when there is no 'inside' pathology to explain dysphagia.
- Although rare and usually mild, cardiovascular dysphagia should be considered, and workup should include cross-sectional imaging and echocardiography.
- Treatment options should be discussed with the patient in a multidisciplinary board with cardiologists and cardiovascular surgeons.

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