Summary

Background Dysphagia aortica is an umbrella term to describe swallowing obstruction from external aortic compression secondary to a dilated, tortuous, or aneurysmal aorta. We performed a systematic literature review to clarify clinical features and outcomes of patients with dysphagia aortica.

Materials and methods We searched PubMed, EMBASE, Web of Science, and the Cochrane Library. The terms “aortic dysphagia,” “dysphagia aortica,” “dysphagia AND aortic aneurysm” were matched. We also queried the prospectively updated database of our esophageal center to identify patients with aortic dysphagia referred for diagnosis and treatment over the past two decades.

Results A total of 57 studies including 69 patients diagnosed with dysphagia aortica were identified, and one patient from our center was added to the database. The mean age was 72 years (range 22–98), and the male to female ratio 1.1:1. Of these 70 patients, the majority (n=63, 90%) had an aortic aneurysm, pseudoaneurysm, or dissection. Overall, 37 (53%) patients received an operative treatment (81.1% a vascular procedure, 13.5% a digestive tract procedure, 5.4% both procedures). Thoracic endovascular aortic repair (TEVAR) accounted for 60% of all vascular procedures. The postoperative mortality rate was 21.2% (n=7/33).

The mortality rate among patients treated conservatively was 55% (n=11/20). Twenty-six (45.6%) studies were deemed at a high risk of bias.

Conclusion Dysphagia aortica is a rare clinical entity with high morbidity and mortality rates and no standardized management. Early recognition of dysphagia and a high suspicion of aortoesophageal fistula may be lifesaving in this patient population.

Keywords Aortic dysphagia · Thoracic aortic aneurysm · Aortic pseudoaneurysm · TEVAR · Aortoesophageal fistula

Main novel aspects

- There is lack of evidence regarding definition, interpretation and management of aortic dysphagia.
- Most patients reported in the literature were diagnosed with aortic aneurysm, pseudoaneurysm, or dissection.
- Underestimation of dysphagia in this patient population may lead to death from aortoesophageal fistula.

Introduction

Dysphagia is a common symptom reported by 10–33% of elderly individuals in the community and nursing home settings [1, 2], although the true prevalence is likely underestimated because many patients adapt through behavioral changes [3]. The most frequent causes are neurogenic, mechanical obstruction, primary motility disorder, or external compression. The term dysphagia aortica was first introduced by Pape [4] in 1932 to describe dysphagia caused by external aortic compression from an aneurysmal, dilated, or tortuous aorta [5]. In 1997, Wilkinson wrote, “The condition of dysphagia aortica is reminiscent of the Churchillian paraphrase—a riddle wrapped in a mys-
Dysphagia aortica is rarely mentioned in standard gastroenterological and surgical textbooks and has received little attention in the literature. Dysphagia arises when the aorta pushes the esophagus anterolaterally and against the crural diaphragm. Primary aortoesophageal fistula (AEF) is the most feared complication [7], typically in the setting of untreated thoracic aortic aneurysm (TAA) that occurs in 5–10 per 100,000 person years [8]. This may be asymptomatic and diagnosed incidentally, or it may present with symptoms due to mediastinal compression or with dissection or rupture in the worst-case scenario. Secondary AEF can occur after surgical or endovascular repair of thoracic aortic aneurysms. The typical presentation of AEF was first described by Chiari [9] as a triad of chest pain, sentinel hematemesis, and final massive hemorrhage with exsanguination after a symptom-free interval.

To date, several single case reports of aortic dysphagia have been reported, the majority in women over 70 years old with short stature, hypertension, and kyphoscoliosis [5], often in association with left ventricular enlargement and congestive heart failure [7]. The aim of the present study was to perform a literature review on dysphagia aortica, to add a case recently seen at our institution, and to highlight the diagnostic features and outcomes of this rare syndrome.

**Materials and methods**

A systematic literature review was conducted to identify patients with dysphagia aortica reported from 01 January 1997 to 31 December 2020 using the PubMed, EMBASE, Web of Science, and the Cochrane Library databases. The search was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) statement [10]. The following MeSH terms were used: “dysphagia AND aortic aneurysm,” “dysphagia aortica,” and “aortic dysphagia.” Two independent investigators (SG and PM) performed the literature search to identify all English-written reports. The full text of the selected studies was assessed by one investigator (SG) and classified as relevant, not relevant, or unclear. The reference lists of eligible studies were manually searched to identify additional studies. The methodological quality of the studies was assessed according to Murad et al. [11], based on a global evaluation of the most critical factors that increase the risk of bias in the specific clinical context. Disagreements at either stage were solved by discussion and arbitrated by a senior author (LB).

Data extracted included first author name, country, year of publication, number of patients included in the report, age, sex, symptoms at presentation, diagnostic methods, imaging findings, characteristics of the aneurysm, type of treatment, and short- and long-term outcomes.

![Fig. 1 PRISMA flowchart](image-url)
| First author (year) | Country | Risk of bias | Age | Sex | Characteristics of aorta | Symptoms | Treatment | Outcome/follow-up |
|---------------------|---------|--------------|-----|-----|--------------------------|----------|-----------|-------------------|
| Wilkinson JM [6] (1997) | UK | High | 47 | F | NR | Dysphagia | Esophageal dilation with Maloney bougies | Symptom relief/NR |
| Ribrago G [43] (1999) | Spain | Low | 62 | M | TAA (MD 10cm) | Dysphagia | Open graft repair | Symptom relief/15 months |
| Lau H [44] (2001) | China | Low | 69 | M | DTAA | Dysphagia, weight loss | NR | Death (AEF/1 day) |
| Taylor CW [45] (2001) | UK | Low | 86 | F | TAA (MD 6.5cm) | Dysphagia, weight loss | Liquid diet | Partial symptom relief/1 year |
| Chocron S [46] (2002) | France | Low | 79 | M | TAA (MD 9.4cm) | Cough, dysphagia, weight loss | TEVAR | Death (AEF/55 days) |
| Wedekind H [12] (2002) | Germany | High | 91 | F | Dissecting TAAA | Dysphagia, weight loss, dyspnea | Dietary advice and antihypertensive therapy | NR |
| Chiesa R [47] (2004) | Italy | Low | 78 | M | TAA (MD 9cm) | Dysphagia | Open graft repair + TEVAR | Symptom relief/1 year |
| Jovancević L [20] (2005) | Serbia | High | 63 | M | TAA | Dysphagia | NR | NR |
| Kutay V [21] (2005) | Turkey | High | 56 | M | Thoracic aortic pseudoaneurysm (6 × 8cm) | Hemoptysis, dysphagia, chest pain | Open graft repair | NR |
| Contini S [48] (2006) | Italy | Low | 77 | F | TAA (MD 9.7cm) | Hematemesis, dysphagia, chest pain | NR | Death (AEF/3 days) |
| Ebihara T [22] (2006) | Japan | High | 73 | M |rupted TAA | Cough, dysphagia | NR | NR |
| Petrov I [49] (2006) | Bulgaria | Low | 22 | F | TAA (MD 7.5cm) | Dysphagia, voice loss | TEVAR | Symptom relief/1 year |
| Antón E [50] (2007) | Spain | Low | 75 | F | TAA (MD 4cm) | Dysphagia, weight loss | TEVAR | Dysphagia to solids/6 months |
| Attaran R [23] (2007) | USA | High | 56 | M | TAA (MD 5.6cm) | Dysphagia, chest pain, dysphagia | NR | NR |
| Hiller HG [51] (2007) | UK | Low | 67 | F | TAA (MD 8.3cm) | Dysphagia, weight loss | NR | Death (aneurysm rupture)/NR |
| Sebastian J [52] (2007) | India | Low | 66 | F | TAA | Dysphagia, weight loss, dyspnea, pneumonia | Nasogastric tube | Death (pneumonia)/4 days |
| Coelho-Prabhu N [34] (2009) | USA | High | 87 | F | TAA (MD 4cm) | Dysphagia, weight loss | Esophageal self-expandable metal stent | Symptom relief/NR |
| Kim JH [5] (2009) | Korea | High | 86 | F | TAA (MD 6cm) | Nausea and vomiting, dysphagia | Liquid diet | NR |
| De Pretarete H [53] (2010) | Belgium | Low | 72 | M | TAA (MD 7.1cm) | Thoracic pain, nausea and vomiting, dysphagia | TEVAR | Death (sepsis from esophageal necrosis)/24 days |
| Higuchi T [54] (2010) | Japan | Low | 75 | M | TAA (MD 6cm) | Dysphagia | TEVAR | Symptom relief/3 months |
| Prince M [24] (2010) | Tennessee USA | High | 79 | M | Dissecting TAA | Dysphagia, heartburn | Open graft repair | NR |
| Kische S [55] (2011) | Germany | Low | 75 | F | Thoracic aortic pseudoaneurysm | Dysphagia, weight loss | TEVAR | Symptom relief/2 years |
| Siddiqui J [56] (2011) | UK | Low | 55 | M | TAA (MD 7.2cm) | Dysphagia, heartburn, dysphagia | TEVAR | Symptom relief/9 months |
| Cao D [57] (2012) | China | Low | 69 | M | Thoracic aortic pseudoaneurysm | Dysphagia, back pain | TEVAR | Symptom relief/1 month |
| First author (year) | Country | Risk of bias | Age | Sex | Characteristics of aorta | Symptoms | Treatment | Outcome/follow-up |
|---------------------|---------|--------------|-----|-----|---------------------------|----------|-----------|-------------------|
| Hori D [58] (2012)  | Japan   | High         | 68  | M   | TAA with “Shaggy aorta”  | Dysphagia, back pain | TEVAR     | Partial symptom relief/NR |
| Song S [59] (2012)  | South Korea | Low         | 85  | F   | TAA (MD 7 cm)             | Dysphagia, chest pain, dyspnea, nausea | Soft diet and antihypertensive therapy | Symptom relief/4 weeks |
| Godar M [60] (2013) | China   | Low          | 35  | F   | Two TAA (aortic arch and DTAA) | Dysphagia, chest pain, dyspnea | TEVAR     | Mild dysphagia/2 months |
| Badia E [25] (2014) | Romania | High         | 93  | F   | Dissecting TAA complicated with DIC | Dysphagia, weight loss | NR        | NR                |
| Hua SR [61] (2014)  | China   | Low          | 40  | F   | Ruptured TAA              | Dysphagia | TEVAR     | Symptom relief/6/5 months |
| Skeik N [62] (2014) | USA     | Low          | 71  | M   | TAA (MD 16 cm)            | Dysphagia, cough | Bilateral arm compression and elevation | Death (aneurysm rupture)/1 month |
| Wang YP [63] (2014) | Taiwan  | High         | 82  | F   | Tortuous aorta            | Dysphagia, weight loss | Antihypertensive therapy | Partial symptom relief/NR |
| Abdul Haziz SR [64] (2015) | Brunei | High         | 70  | F   | Tortuous aorta            | Dysphagia, weight loss | Soft diet and antihypertensive therapy | Intermittent transient dysphagia/NR |
| Al-Quthami A [65] (2015) | USA     | High         | 29  | M   | Two descending thoracic aortic pseudoaneurysms | Dysphagia | Aneurysmectomy with descending thoracic interposition graft placement | Symptom relief/NR |
| Karavelioglu Y [32] (2015) | Turkey | Low          | 98  | F   | TAA (MD 4.3 cm)           | Dysphagia, weight loss | Soft diet and antihypertensive therapy | Symptom relief/4 weeks |
| Liao CY [66] (2015)  | Taiwan  | Low          | 86  | M   | TAA (MD 9.8 cm)           | Dizziness, dysphagia, chest pain, nausea, dyspnea, acute respiratory failure | TEVAR | Death (respiratory failure, ventricular tachycardia)/2 days |
| Laube R [67] (2015)  | Australia | Low         | 86  | M   | AAA (MD 3.7 cm)           | Dysphagia, weight loss | NR        | Death (aneurysm rupture)/2 days |
| Okamura K [68] (2015) | Japan   | Low          | 87  | M   | TAA                        | Dysphagia, regurgitation, aspiration pneumonia | TEVAR + esophageal self-expandable covered stent | Symptom relief/1 year |
| Savlania A [69] (2015) | India   | High         | 62  | M   | TAA                        | Dysphagia | Open graft repair | Symptom relief/NR |
| Chan YH [26] (2016)  | Taiwan  | High         | 78  | F   | Tortuous aorta            | Dysphagia | Prokinetic agents | Death (respiratory and renal failure)/1 year |
|                     |         |              | 63  | F   | Tortuous aorta, atherosclerosis | Dysphagia | Soft diet | Symptom relief/NR |
|                     |         |              | 72  | M   | Tortuous aorta, atherosclerosis | Mild dysphagia | No treatment | NR |
| Ma X [70] (2016)    | China   | Low          | 22  | M   | Ruptured traumatic TAA    | Dyspnea, dysphagia | NR        | Death (aneurysm rupture)/14 days |
| Pitchai S [71] (2016) | India   | Low          | 68  | M   | DTA A                     | Dysphagia, chest pain | Open graft repair | Symptom relief/6 months |
|                     |         |              | 62  | M   | TAA                       | Dysphagia, chest pain | Open graft repair | Symptom relief/6 months |
|                     |         |              | 62  | M   | Penetrating aortic ulcer | Dysphagia | Open graft repair | Symptom relief/6 months |
|                     |         |              | 40  | F   | DTA A (MD 6 cm)           | Dysphagia | Open graft repair | Symptom relief/6 months |
|                     |         |              | 59  | M   | DTA A                     | Dysphagia, chest pain | TEVAR     | Symptom relief/6 months |
| First author (year) | Country | Risk of bias | Age | Sex | Characteristics of aorta | Symptoms | Treatment | Outcome/follow-up |
|---------------------|---------|--------------|-----|-----|--------------------------|----------|-----------|------------------|
| Wang JY [27] (2016) | China   | High         | 65  | M   | Dissecting TAA (MD 13.2) | Dysphagia, hoarseness | TEVAR     | NR               |
| Beqari J [72] (2017) | USA     | High         | 82  | F   | TAA (MD 5.6 cm)          | Chest pain, dysphagia, weight loss | Laparoscopic myotomy, division of the crura and anterior diaphragm | Symptom relief/NR |
| Kampitakis E [19] (2017) | Greece | High         | 85  | F   | TAA (MD 14.8 cm)         | Dyspnea, dysphagia | Dietary advice | NR               |
| Mouawad NJ [13] (2017) | USA     | High         | 82  | M   | TAA (MD 7.8 cm)          | Dysphagia, weight loss, nausea | PEG        | NR               |
| Choi H [73] (2018) | Korea   | High         | 82  | M   | TAA (MD 7 cm)            | Dysphagia, nausea, vomiting | Liquid diet | Partial symptom relief/NR |
| Georgiadis GS [74] (2018) | Greece | Low          | 81  | M   | DTAA (MD 13.8 cm)        | Dysphagia, weight loss, dyspnea, back pain | TEVAR     | Death (pneumonia)/40 days |
| Gravito-Soares M [75] (2018) | Portugal | Low          | 78  | F   | TAA (MD 3.4 cm)          | Dysphagia, chest pain | TEVAR     | Symptom relief/6 months |
| Kyaw WA [76] (2018) | Brunei  | Low          | 64  | F   | TAA (MD 4.6 cm)          | Dysphagia, dysphonia, weight loss | No treatment | Death (sepsis from S. aureus)/4 months |
| Sharma M [14] (2018) | India   | High         | 94  | M   | TAA                       | Dysphagia, hematemesis | No treatment | Death (AEF)/2 months |
| 74 M TAA (MD 5 cm) | Dysphagia, hematemesis | NR | NR |
| 68 M Dissecting TAA | Dysphagia, hematemesis | Cardiothoracic surgery ns | Death (sepsis)/10 days |
| 54 M Dissecting TAA | Dysphagia, hematemesis | Cardiothoracic surgery ns | Symptom relief/9 years |
| Choi SH [7] (2019) | Canada  | Low          | 74  | F   | TAA (MD 7.4 cm)          | Dyspsnea, dysphagia, retrosternal chest pain | Visceral debranching and TEVAR | Symptom relief/3 years |
| Elsamman MK [77] (2019) | Egypt   | Low          | 30  | M   | TAA (para-aortic hematoma | Dysphagia | TEVAR     | Symptom relief/3 days |
| Wang ID [15] (2019) | Taiwan  | High         | 54  | F   | TAA (MD 5 cm)            | Dysphagia, vomiting | NR         | NR               |
| Dejaeger M [78] (2020) | Belgium | Low          | 84  | F   | Dissecting TAA           | Anorexia, weight loss, dysphagia to solids | PEG        | Death (pneumonia and cardiac failure)/2 weeks |
| Meng Z [16] (2020) | Canada  | High         | 89  | M   | TAA (MD 6.7 cm)          | Weight loss, dysphagia | Soft diet | NR               |
| Mir AS [17] (2020) | USA     | High         | 52  | F   | TAA (MD 8.3 cm)          | Dysphagia, nausea and vomiting, abdominal pain | Naso-duodenal feeding tube | NR |
| Shrestha N [18] (2020) | Nepal   | High         | 76  | F   | TAA                       | Dysphagia, weight loss | Liquid diet | NR               |
| Present case (2021) | Italy   | Low          | 80  | M   | TAA (MD 6.2 cm)          | Dysphagia, chest pain, weight loss | Semi-liquid diet | Death (aneurysm rupture)/4 weeks |

MD maximum diameter, NR not reported, TAA thoracic aortic aneurysm, TAAA thoracoabdominal aortic aneurysm, AAA abdominal aortic aneurysm, DTAA descending thoracic aortic aneurysm, AEF aortoesophageal fistula, DIC disseminated intravascular coagulopathy, ns not specified
The prospectively updated database of our tertiary care esophageal center was also queried to identify all patients with dysphagia as a predominant symptom referred for consultation between 2002 and 2021.

**Results**

**Literature review**

The search strategy identified 1252 articles (918 from registers and 318 records from databases). After duplicates were removed, 725 records were screened. Two reviewers independently screened the titles and abstracts of all papers, leading to exclusion of 984 records. A total of 57 studies were eligible for analysis (Fig. 1). There was a total of 70 patients, 33 women and 37 men, with a median age of 72 years (range 22–98). Dysphagia was associated with aortic aneurysm (n = 53), aortic dissection (n = 7), tortuous aorta (n = 5), or aortic pseudoaneurysm (n = 3). The main patient characteristics are summarized in Table 1. All patients complained of intermittent or chronic dysphagia associated with weight loss in 32.9% of cases, chest pain in 18.6%, and dyspnea in 15.7%. About half of the patients (n = 33, 47.1%) were considered unfit for any endoscopic or surgical approach due to elderly age and multiple comorbidities, and were mainly treated conservatively with antihypertensive therapy and a modified oral diet or through a feeding tube.

The majority (53%) of patients underwent some form of vascular, digestive tract, or combined endoscopic or surgical procedure (Table 2). A vascular procedure was performed in 30 patients and consisted of thoracic endovascular aortic repair (TEVAR) in 18, open aneurysm repair in 11, and TEVAR plus open bypass graft in 1 patient. Relief of dysphagia was noted in 20 patients (66.7%). Among the remaining patients, 5 died, 2 complained of persistent dysphagia, and 3 were lost to follow-up.

**Case report**

An 80-year-old man, body mass index (BMI) 20.1 kg/m², non-smoker, was referred to our emergency department in November 2020 during the second wave of the COVID-19 pandemic. He complained of progressive dysphagia, chest pain, and 15 kg weight loss over the past 6 months. Medical history included appendectomy, prostatectomy, and prosthetic replacement of the ascending aorta via sternotomy in 2006. Laboratory tests showed hemoglobin 12.1 g/dL (normal value [n.v.] 14–18 g/dL), total protein 5.95 g/dL (n.v. 3.50–5.20 g/dL), albumin 3.1 g/dL (n.v. 3.50–5.20 g/dL), C-reactive protein 12.6 mg/dL (n.v. <0.5 mg/dL). A transthoracic echocardiogram showed dilatation and systolic dysfunction of the left ventricle (ejection fraction 33%), and mild aortic insufficiency.

A barium swallow study revealed a marked extrinsic compression at the level of the lower third of the esophagus, with a filiform contrast flow and dilatation above. Esophagastroduodenoscopy confirmed a pulsatile extrinsic compression with luminal narrowing from 38 cm to 42 cm from the dental arch (Fig. 2). A computer tomography (CT) scan performed with oral contrast medium showed distal esophageal compression due to a giant thoracic aortic aneurysm (Fig. 3a). Magnetic resonance angiography (MRA) confirmed a giant aneurysm extending from the ascending aorta to the infrarenal region, with signs of intravascular thrombosis and perivascular reaction. The diameter of the aorta was 51 × 57 mm in the ascending thoracic portion, 48 × 46 mm at the aortic arch, 57 × 62 mm in the mid-third of the descending aorta, and 36 × 35 mm below the level of the renal arteries (Fig. 3b).

**Table 2** Type of surgical and endoscopic procedures performed in 37 patients with dysphagia aortica

| Vascular procedure | n  | Mortality |
|--------------------|----|-----------|
| TEVAR              | 30 | 5/27      |
| Open aneurysm repair | 18 |           |
| TEVAR + bypass graft | 11 |           |
| Digestive tract procedure | 1 | 1/4       |
| PEG                | 2  |           |
| Esophageal stent   | 1  |           |
| Heller + crural myotomy | 1 |           |
| Esophageal dilation | 1 |           |
| Combined vascular and digestive procedure | 2 | 1/2 |
| TEVAR + esophageal stent | 1 |           |
| TEVAR + esophagectomy | 1 |           |
| TEVAR Thoracic Endovascular Aortic Repair | 1 |           |

Digestive tract procedures consisted of percutaneous endoscopic gastrostomy (PEG; n = 2), endoscopic esophageal stent (n = 1), Maloney bougie dilatation (n = 1), and laparoscopic Heller myotomy and crural myotomy (n = 1). The procedure was successful in 3 patients, 1 patient died, and 1 was lost to follow-up. Combined vascular and digestive procedures consisted of TEVAR and esophageal stent (n = 1) and TEVAR and esophagectomy. The latter was complicated by AEF and sepsis.

Follow-up data were missing for 17 (24.3%) of the patients [5, 12–27]. For the remaining 53 patients, the median follow-up was 3 months (range 2 days–9 years) and the overall mortality rate 34%. The 30-day mortality rate after TEVAR and/or open aneurysm repair was 60% (3/5). The reported reasons for death were the following: aneurysm rupture (n = 5), aspiration pneumonia (n = 5), primary AEF (n = 3), secondary AEF (n = 2), and sepsis (n = 3). Based on the criteria of methodological quality proposed by Murad et al. [11], 26 (45.6%) studies were considered to be at a high risk of bias.
Based on the above findings, further diagnostic work-up with high-resolution esophageal manometry was considered to exclude concomitant achalasia. However, on the second day of the hospital stay, the patient acutely complained of dyspnea at rest with 90% of SpO₂ in ambient air. Oxygen therapy was started at 2 L/min. Arterial blood gas analysis showed pH = 7.43, pCO₂ = 36.3 mm Hg, pO₂ = 59.5 mm Hg, HCO₃ = 24 mmol/L, and sO₂ = 89.1%. Laboratory tests for *Legionella pneumophila*, *Streptococcus pneumoniae*, and SARS-CoV-2 RNA swab and IgG and IgM were negative. A chest CT scan revealed...
Fig. 5 Proposed management algorithm for patients with aortic dysphagia. GERD Gastroesophageal reflux disease, TEVAR Thoracic Endovascular Aortic Repair, PEG Percutaneous Endoscopic Gastrostomy

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to undergo esophageal manometry. Therefore, enteral nutrition through a nasogastric tube or percutaneous endoscopic gastrostomy was recommended, but the patient declined any invasive procedure. He was then discharged on a semi-liquid diet. The patient died at home 4 weeks after hospital discharge due to probable aneurysm rupture.

Discussion

In the present systematic review, dysphagia aortica was associated with thoracic aortic aneurysm in most patients. Interestingly, 21 of 63 (33.3%) patients underwent TEVAR as a single treatment modality or combined with other vascular or digestive tract procedures.

The prevalence of dysphagia aortica is neither well reported nor well studied [7]. It has been suggested that external compression of the esophagus may not represent the major pathophysiological mechanism, but rather an incidental finding. As in dysphagia lusoria, an underlying esophageal motility disorder may be present in some of these patients, particularly in those without evidence of aneurysm [28, 29]. It has also been speculated that long-lasting esophageal compression may evolve into esophageal pseudoachalasia, a rare condition accounting for less than 5% of patients with achalasia-like syndrome [30, 72, 78]. Reported findings at esophageal manometry are low-amplitude propagated peristaltic waves in the proximal esophagus and a localized high-pressure zone at the site of vascular compression. Wilkinson [6] investigated 5 patients complaining of dysphagia to solids associated with a localized high-pressure zone on esophageal manometry. None of the patients had an aneurysm, and videoradiographic assessment with a solid bolus supported the diagnosis of dysphagia aortica.

Considering the rarity of dysphagia aortica, there is no gold standard for diagnosis and therapy. A history of aortic aneurysm or prior aortic graft or TEVAR is key for diagnosis. Radiological and endoscopic imaging provides a high index of suspicion [5]. The diagnostic work-up should include chest X-ray, upper gastrointestinal endoscopy, barium or videofluoroscopic swallowing study, chest CT scan with oral and intravenous contrast, and esophageal manometry. No single diagnostic tool can definitively prove the diagnosis of dysphagia aortica. Radiographic findings may be inconclusive because a dilated and tortuous aorta is frequently seen in elderly patients in the absence of a true aneurysm. Upper gastrointestinal endoscopy has the potential to exclude other possible causes of upper gastrointestinal bleeding, and to detect signs of AEF such as small mucosal erosions, oozing from a pin-hole erosion, ulcer with adherent clot over a pulsatile mass, or graft exposure [31].

The treatment of dysphagia aortica depends on the severity of symptoms and the patient’s comorbidi-
Since the occurrence of secondary AEF complicating TEVAR is unpredictable, it would be paramount to establish the criteria for an early diagnosis. Unfortunately, the association of dysphagia with thoracic aortic aneurysm remains elusive in most reported series, often because the symptom is mild, intermittent, or neglected by both the patient and the physician. Further studies are needed to establish the prevalence of subclinical dysphagia aortica by using specific symptom questionnaires before and after aneurysm repair. Moreover, dysphagia should be rightfully included in the Chiari’s triad that originally reported chest pain and subclinical dysphagia aortica by using specific symptom questionnaires before and after aneurysm repair. It is possible that with increasing worldwide adoption of the endovascular procedures, the reported incidence of dysphagia and AEF may increase as well. This may temper the enthusiasm for TEVAR, which should instead represent a bridge to definitive aortic and esophageal reconstruction in patients who are fit for a staged procedure.

This review has several limitations, including reporting bias and the fact that all studies were case reports including up to 5 patients. Therefore, a significant gap in clinical evidence for both diagnostic and therapeutic outcomes remains due to the heterogeneity and the average low methodological quality of the case reports.

Conclusion

Dysphagia aortica is a rare entity with a high mortality rate and no standardized management. Lack of awareness and symptom underestimation may contribute to diagnostic delay. A thorough investigation is recommended to exclude other causes of dysphagia. With modern diagnostic technologies, dysphagia aortica should no longer represent an clinical enigma. One- or two-stage aneurysm repair is feasible in selected patients and may prevent AEF. Surveillance of patients with thoracic aortic aneurysms, early recognition of dysphagia, and a high suspicion of AEF may be lifesaving.

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Declarations

Conflict of interest S. Grimaldi, P. Milito, A. Lovece, E. Asti, F. Secchi, and L. Bonavina declare that they have no competing interests.

Ethical standards All procedures performed in studies involving human participants or on human tissue were in accordance with the ethical standards of the institutional and/or national research committee and with the 1975 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study. Internal review board approval HSD 2021-087.

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