

## DYSPHAGIA AORTICA- A Case Report

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### Abstract

Dysphagia aortica is a rare cause of difficulty in swallowing resulting from extrinsic compression of the oesophagus by an aneurysm or by a tortuous and elongated thoracic aorta. Dysphagia aortica not related to an aneurysm is usually seen in the elderly, especially in female patients with hypertensive cardiomyopathy or kyphosis. However, it may occur in the aging population without underlying aneurysm or kyphosis. Here in, we present a case of an elderly female who came to our hospital with complaints of dysphagia of 2 months duration. We have attempted to grade the dysphagia aortica by Computed Tomography. This Grading is not described in the literature so far. We lay emphasis on the etiological factors and radiological findings and treatment of dysphagia aortica based on the grading. Computed Tomography of the neck, chest and abdomen revealed classical findings of dysphagia aortica.

*Keywords: Computed tomography; Dysphagia aortica; Oesophagus*

### 1. Introduction

Many elderly people feel discomfort or pain while swallowing food, there can be many causes, it's commonly described as dysphagia. Dysphagia in Greek "dys" means with difficulty and "phagia" means to eat is the subjective awareness of difficulty in the passage of solids or liquids from the oropharynx to the stomach [1,2].

The prevalence of dysphagia is higher in the elderly population than the general population. Dysphagia aortica is a rare cause of dysphagia resulting from extrinsic compression of the esophagus by the thoracic aorta which may be ectatic, tortuous, aneurysmatic or atherosclerotic [1,3].

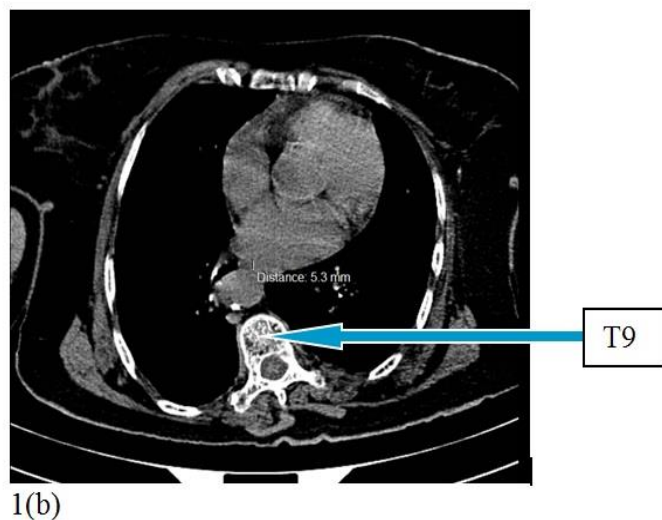
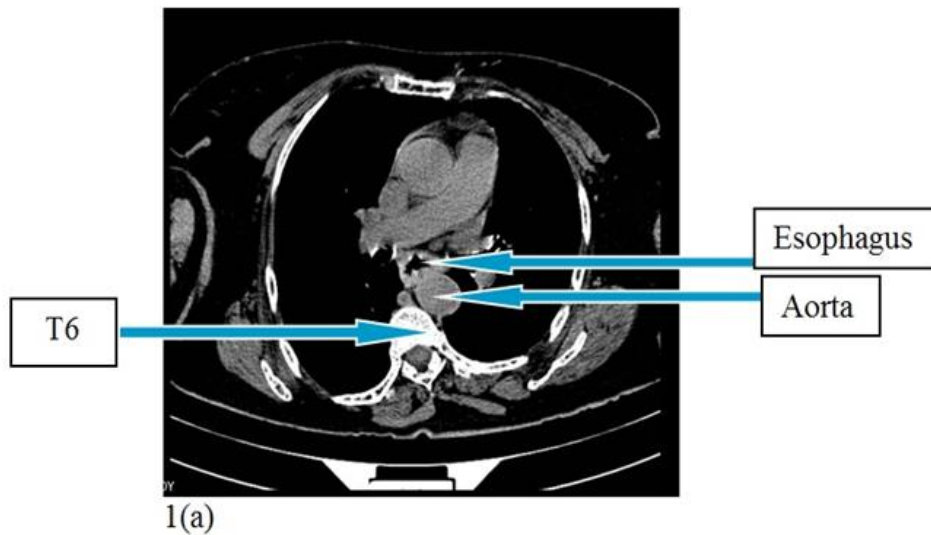
In this article, we have attempted to grade dysphagia due to tortuous aorta radiologically for the first time, which we hope will help in planning management. Computed Tomography (CT) is the modality of choice in the evaluation of dysphagia aortica.

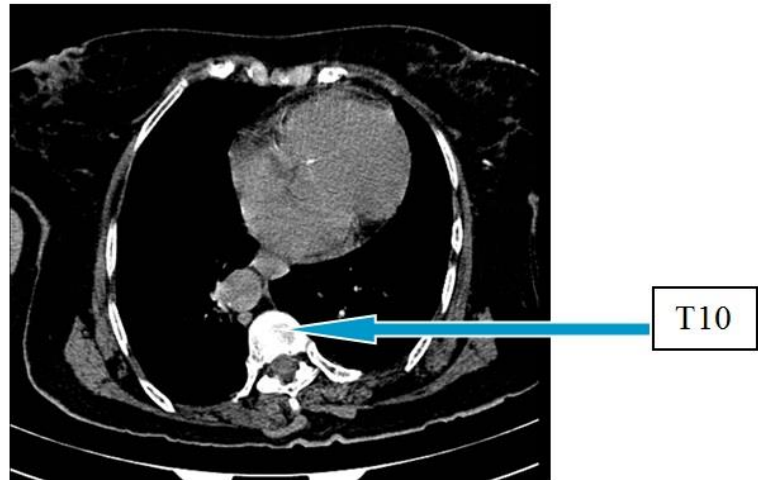
## 2. Case Report

A 90 year old female patient presented to our hospital with difficulty in swallowing since 2 months which was initially only for solids, gradually progressing for liquids. She could take only semisolid or liquid diet in the last 2 months. She is a known case of hypertension for 20 years and is on antihypertensives.

The local, physical and systemic examinations were normal. No significant clinical findings were present. Blood pressure was 140/90 mmHg. Patient was referred to the department of Radio-diagnosis for CT of neck and thorax.

CT was performed on a Siemens 128 slice Perspective equipment. Plain and contrast (oral and intravenous) examination revealed tortuous descending aorta for a length of approximately 10 cm from the T6 to T10 vertebral body causing compression over the mid esophagus (FIG. 1,2). However contrast is seen in the esophagus proximal and distal to the compression indicating partial luminal narrowing (FIG. 3-5). Scoliosis of thoracic spine with convexity towards right (FIG. 1e) as noted.

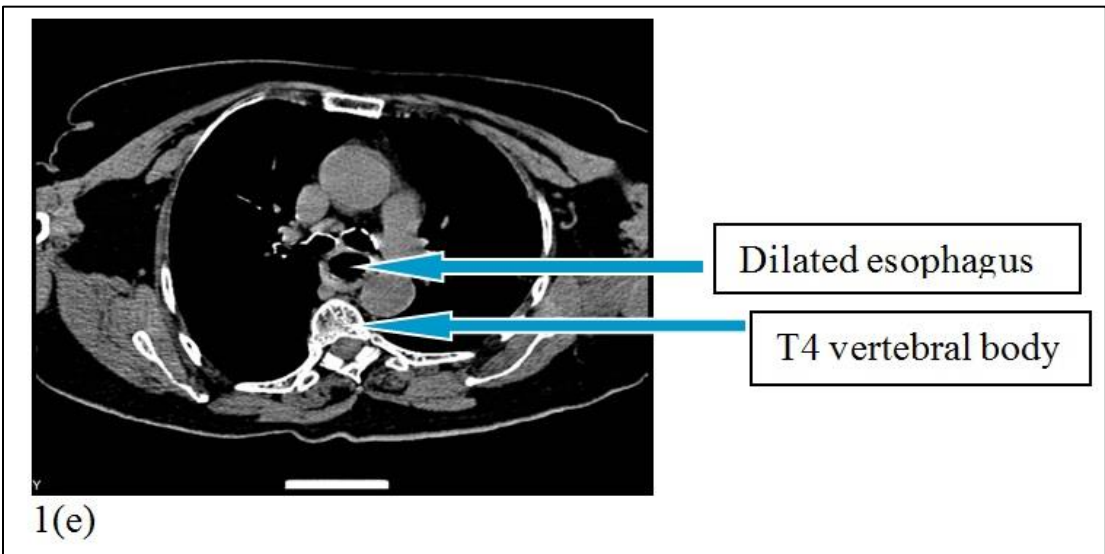




1(c)



1(d)



1(e)

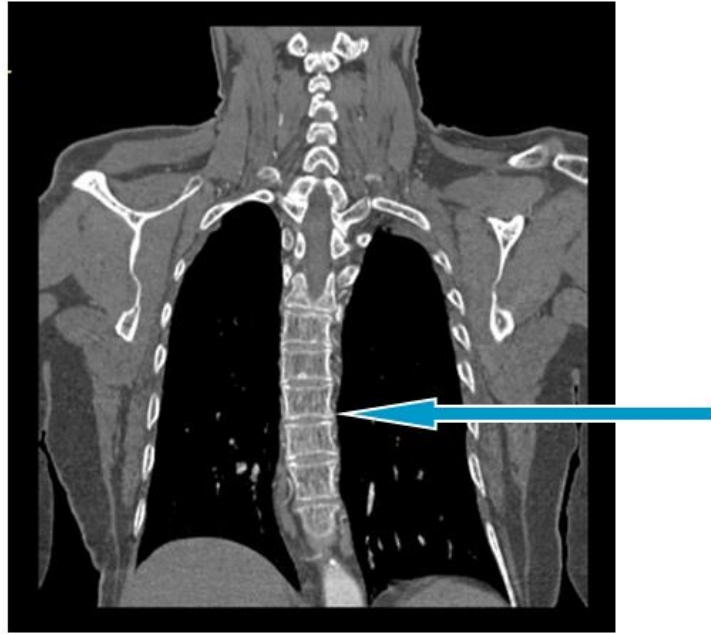


Fig 1(f)

FIG. 1 (a-f). 1(a), (b), (c): Plain CT axial image showing thoracic aorta on the left side of the T6 vertebral body causing mild indentation on the esophagus which subsequently increases as the aorta courses from left to the right side posterior to the esophagus up to the level of T10 vertebral body. Aorta again courses from right on the left side from T10 vertebral body level. Also AP diameter of esophagus is least at the level of T9 vertebral body measuring 5.3 mm as shown in fig 1(b). 1(d): Plain CT coronal image showing tortuous course of the thoracic aorta from left to right and again from right to left from the level of T6 to T10 vertebral body level. 1(e): Plain CT axial image showing dilated proximal esophagus at the level of L4 vertebral body level. 1(f): CT bone window image showing scoliosis of the thoracic vertebra with convexity towards right side (arrow).

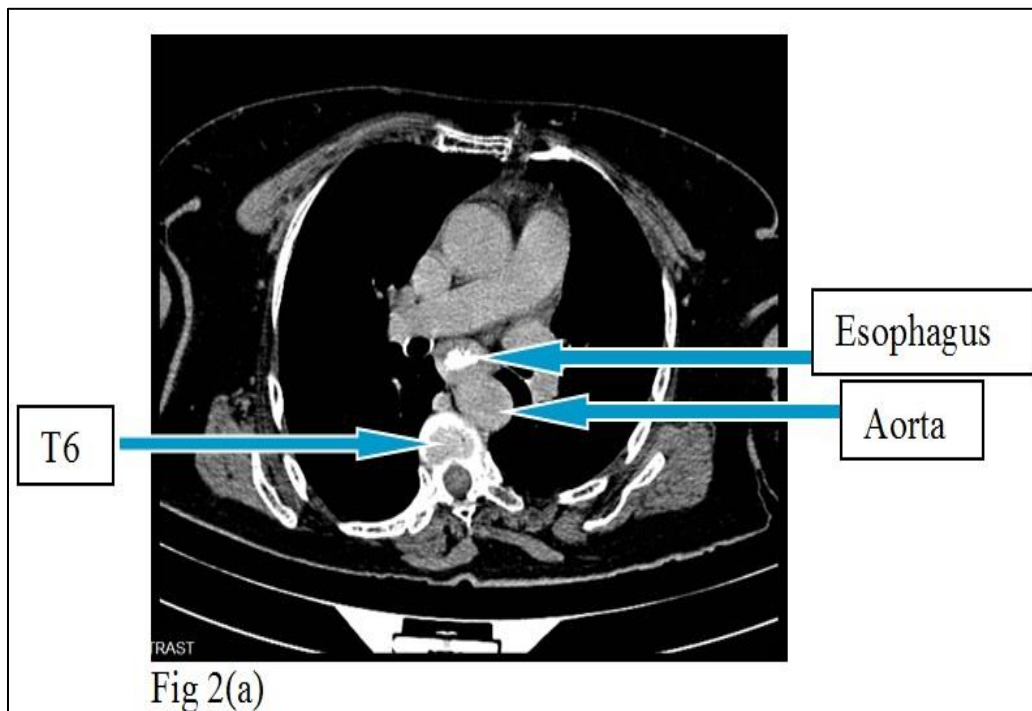


Fig 2(a)



Fig 2(b)

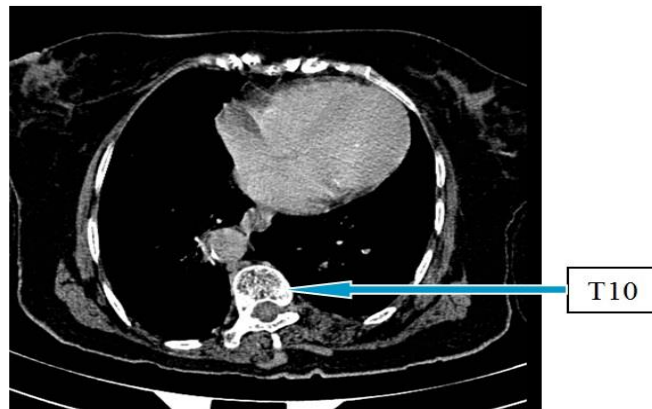


Fig 2(c)

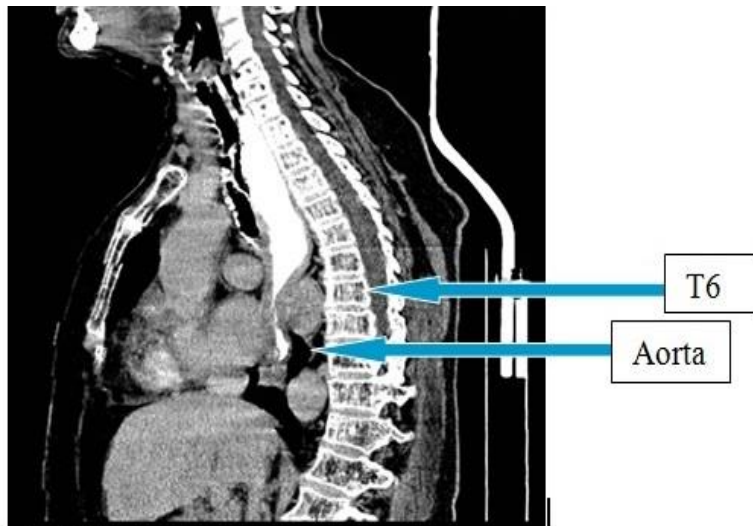


Fig 2(d)

FIG. 2 (a-d). 2(a), (b), (c), (d): Oral contrast enhanced CT axial (a, b, c) and sagittal (d) images showing esophagus getting compressed externally by the tortuous aorta from the level of T6 to T10 vertebral body level.



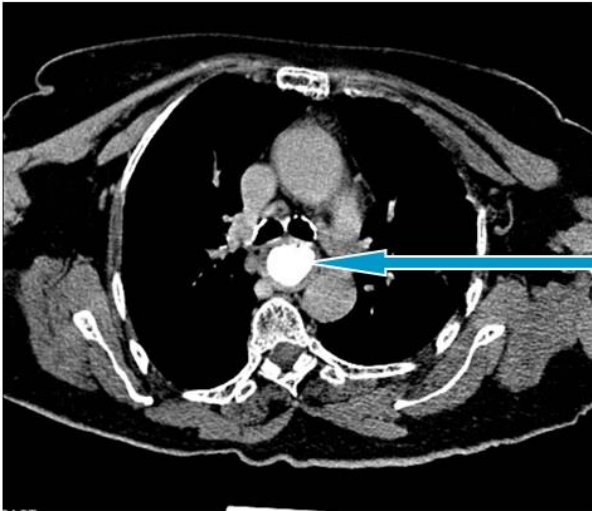


Fig 3 (a)

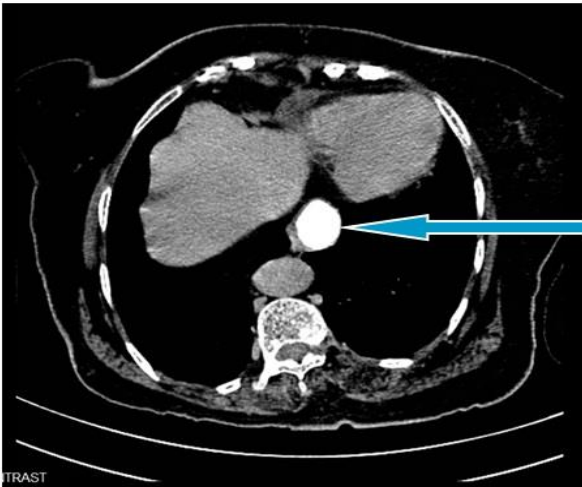


Fig 3 (b)

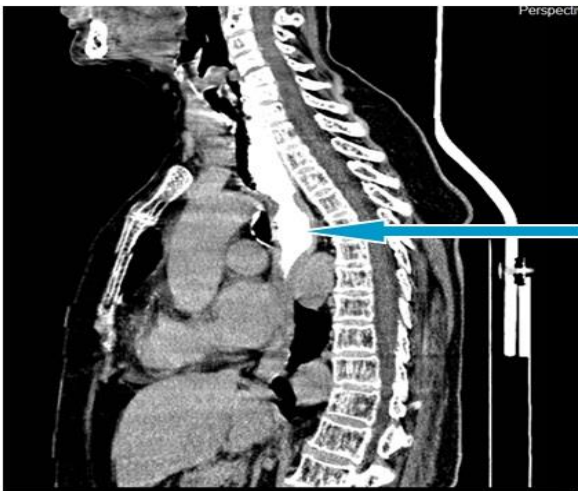


Fig 3 (c)

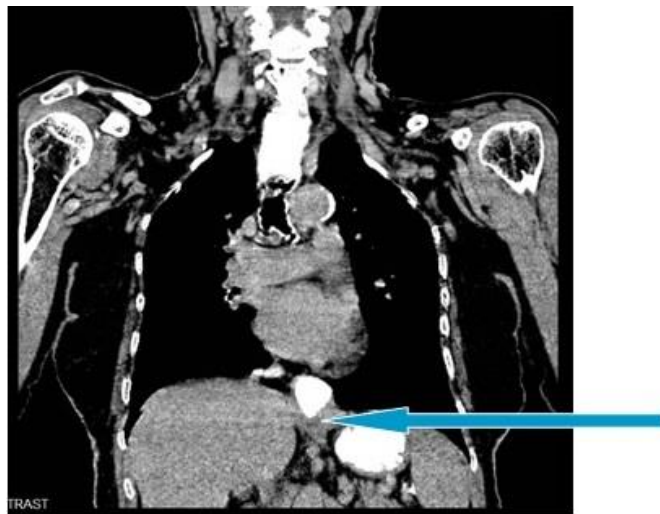


Fig 3 (d)

FIG. 3 (a-d). 3(a), (b), (c): Oral contrast enhanced CT axial (a, b) and sagittal (c) images showing contrast filled dilated esophagus proximal (Fig a, c- arrow) and distal (Fig b- arrow) to the compression by the tortuous aorta. 3(d): Oral contrast enhanced CT coronal image showing contrast being filled in the esophagus distal to the compression (arrow) indicating partial luminal narrowing.



Fig 4 (a)

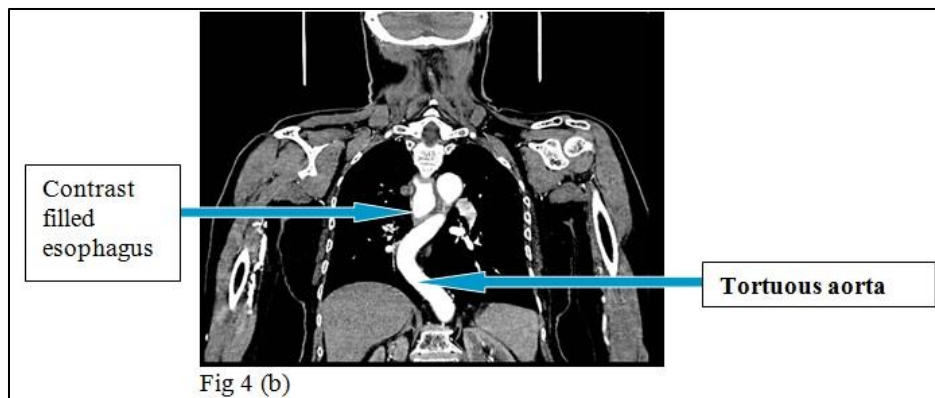


Fig 4 (b)

FIG. 4 (a-b). 4(a): IV contrast enhanced CT sagittal image showing aorta causing compression over the esophagus (black arrow). 4(b): IV contrast enhanced CT coronal image showing tortuous course of aorta.

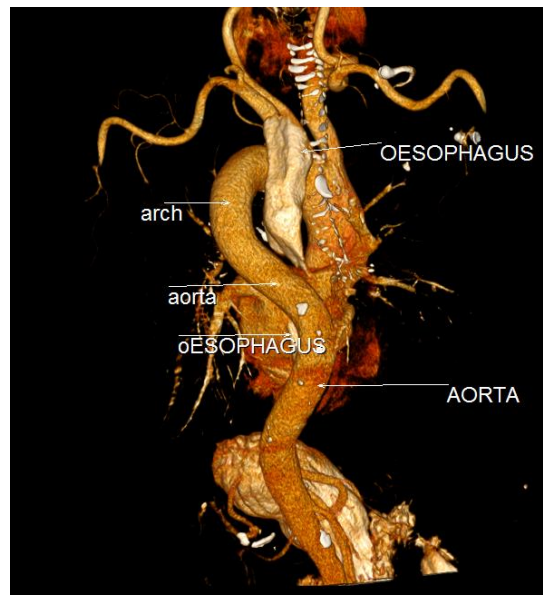


Fig 5 (a)

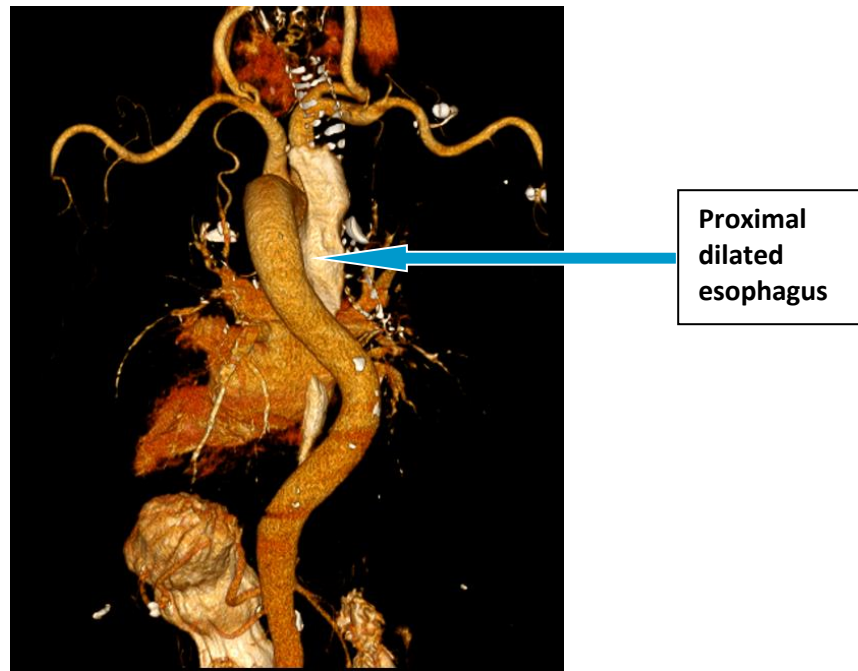


Fig 5 (b)

FIG. 5 (a, b). 3D reconstruction images showing tortuosity of the aorta causing extrinsic compression on the esophagus.

### 3. Discussion

Dysphagia aortica was first described by Pape. He described dysphagia aortica as a difficulty in swallowing caused by extrinsic compression of the esophagus by an ecstatic, tortuous, aneurysmatic or atherosclerotic aorta associated with age-related degeneration. Very few cases of dysphagia aortica have been reported. It is observed in the elderly with a history of hypertension, atherosclerotic aortic changes, and kyphotic degenerative changes of the spine [1,3-5].



Dysphagia can be classified as: 1) Oropharyngeal and 2) Oesophageal location and it is caused by neuromuscular motility disorders and mechanical obstruction [6,7].

In elderly it can arise from benign or neoplastic strictures, neuromuscular disorders, and extrinsic compression of the oesophagus. Mechanical dysphagia can be due to intrinsic or extrinsic compression, resulting in progressive difficulty in swallowing solids. It is a remarkably prevalent disorder in the elderly. Age-related changes in the physiology of swallowing and other diseases are predisposing factors [8].

Extrinsic compression by a vascular structure is uncommon. An unusual mechanical cause of dysphagia is dysphagia aortica, which is caused by extrinsic compression of the esophagus by the aorta. Primarily seen in women and more associated with short stature, old age, hypertension, scoliosis and kyphosis [7,9].

Usually this is due to an aberrant subclavian artery but rarely can be caused by the aorta, hence should not be confused with dysphagia lusoria which is an impairment of swallowing due to compression from an aberrant subclavian artery (also known as arteria lusoria) [4,6].

The esophagus normally begins on the right side of the thoracic aorta and then descends. The esophagus crosses the aorta anteriorly in the lower third of the posterior mediastinum [6]. This area is called the aorto-esophageal decussation site. Then, the esophagus lies on the left side of the aorta and penetrates the diaphragm through the diaphragmatic hiatus. The aging process and the accompanying degenerative changes with the loss of elasticity causes a dilated, elongated, and distorted aorta, which may result in a so-called reverse C- or reverse S- shaped aorta. As a result, the esophagus is pushed and compressed by the aorta against the cardiac chambers, which are anterior in location, decreasing the AP diameter of the esophagus which normally ranges from 14 mm -21 mm at thoracic level [8,10].

Etiology of dysphagia aortica includes an aneurysm involving the thoracic aorta, ectatic, and tortuous like in our report [3,5,8,9].

Clinically patient of dysphagia aortica presents with symptoms those of esophageal malignancy or esophageal motility disorders, resulting in progressive intolerance to solids and concomitant weight loss. Patients may be able to force food through the esophagus via Valsalva maneuver. Dysphagia that occurs mainly with solids, and only rarely with liquids, suggests a mechanical obstruction with luminal compression [3].

Contrast enhanced CT is the modality of choice. Three-dimensional (3D) CT thorax is useful for examination due to various factors like time effectiveness, delineating the anatomical relationship of the esophagus with blood vessels (Aorta), better visualization of lumen of the esophagus, assessing entire course of aorta, isotropic imaging, reconstruction of images is possible which help in interpretation of the large volumetric data and to present the results to the clinician. CT is superior to endoscopy as in the latter; surrounding structures cannot be seen therefore only delineating intraluminal esophageal pathology. MRI is costly, time consuming, produces more artifacts due to peristaltic movements in the bowel, intolerance by claustrophobic patients. Therefore CT is preferred over MRI.

#### 4. Treatment

We have tried to grade the dysphagia due to tortuous aorta, clinically (TABLE 1) as well as radiologically (TABLE 2) as mild moderate severe (Grade 1/2 is mild to moderate and Grade 3/4 is severe form) [9].

**TABLE 1. Clinical grading of dysphagia aortica.**

<b>Grade (Grade 1-4)</b>	<b>Clinical feature</b>
1	Able to swallow solid foods with some difficulty
2	Able to swallow soft or semi-solid foods only
3	Able to swallow liquefied foods and liquids only
4	Unable to swallow liquids/saliva

**TABLE 2. Radiological grading of dysphagia aortica.**

<b>Grade</b>	<b>AP diameter of esophagus</b>	<b>Percentage of luminal narrowing</b>
1	9.5-13 mm	<25%
2	6.5-9.5 mm	<50%, but >25%
3	3.5-6.5 mm	<75%, but >50%
4	<3.5 mm	Complete occlusion

Clinical grading is based on the symptoms at the time of presentation Radiological grading is done first time based on CT to help in more accurately deciding the mode of management. Degree of dysphagia was assessed between grades 0 and 4 as in literature. It is based on the measurement of AP diameter of esophagus which decreases with the extrinsic compression by the aorta causing luminal narrowing. Normal AP diameter of thoracic esophagus ranges from 14 mm -21 mm [10].

For patients presenting with severe dysphagia (Grade 3/4), open surgical repair like transpositioning of aorta in most instances depending on the patient’s fitness.

However, conservative approach is to be followed only in elderly patients with short life expectancy who are otherwise unfit for any intervention [9].

For mild to moderate form of dysphagia (Grade 1/2), conservative management with dietary modification (e.g., chewing small amounts of soft diet, avoiding food likely to stick into esophagus) and treatment of the underlying heart failure and hypertension has been advised.

Our case is grade 3 according to radiological and clinical grading system [FIG. 1b]. Since the patient is elderly, with short life expectancy and unfit for surgery, conservative management with dietary modification was recommended. This MDCT staging will help in proper management of patient, our patient was managed conservatively. If endoscopy is done will not identify anything outside the lumen of oesophagus, MDCT helps in seeing all the structures around oesophagus and to identify any other cause than normal age related changes of aorta like unfolding.

## 5. Conclusion:

Dysphagia aortica is a rare cause of dysphagia and should always be considered in an elderly patient with cardiovascular diseases presenting with the complaints of dysphagia. Contrast enhanced CT is the preferred investigation of choice. CT grading of dysphagia aortica due to tortuous aorta done first time in this article will help in managing the patient conservatively as well as surgically depending upon grade and patients fitness.

## REFERENCES

1. Badila E, Bartos D, Balahura C, et al. A Rare Cause of Dysphagia - Dysphagia Aortica Complicated with Intravascular disseminated coagulopathy. *Maedica*. 2014;9(1):83-7.
2. Aslam M, Vaezi MF. Dysphagia in the elderly. *Gastroenterol Hepatol*. 2013;9(12):784-95.
3. Hung Y, Shieh T, Wang HY, et al. Nonaneurysmatic Dysphagia Aortica in the Elderly. *Int J Gerontol*. 2016;10(1):52-5.
4. Muñoz Á, Obregón J, Jorge ESH, et al. Dysphagia lusoria: A case report and review of the literature. *Rev Col Gastroenterol*. 2009;24(4):392-8.
5. Song SW, Chung J, Kim SH. A Case of Dysphagia Aortica in an Elderly Patient. *International Journal of Gerontology*. 2012;6(1):46-8.
6. Taylor CW, Sinha A, Nightingale JMD. Dysphagia and thoracoabdominal aneurysm. *Postgrad Med J*. 2001;77(906):257-8.
7. Wilkinson JM, Euintonb HA, Smitha LF, et al. Diagnostic dilemmas in dysphagia aortica. *Eur J Cardiothorac Surg*. 1997;11(2):222-7.
8. Kim JH, Jang SW, Kim DB, et al. A patient with dysphagia due to an Aortic Aneurysm. *Korean Circ J*. 2009;39(6):258-60.
9. Pitchai S, Goura P, Savlania A, et al. Dysphagia Aortica: Diagnostic Dilemma and Therapeutic Paradigm. *Indian J Vasc Endovasc Surg*. 2016;3(2):45-8.
10. Narayanasamy S, Wahab S, Ullah E, et al. Magnetic resonance imaging of thoracic esophagus. *ECR* 2014;1:2024.