Tortuous internal carotid artery causing dysphagia: a case report

Published on 05.12.2017

DOI: 10.1594/EURORAD/CASE.15135
ISSN: 1563-4086
Section: Head & neck imaging
Area of Interest: Head and neck
Procedure: Diagnostic procedure
Imaging Technique: Fluoroscopy
Imaging Technique: CT
Imaging Technique: CT-Angiography
Special Focus: Swallowing disorders Case Type: Clinical Cases
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Patient: 85 years, male

Clinical History:

An 85-year-old man complained of several months of dysphagia, pain in the right side of the throat and regurgitation of food. He had been treated for oral thrush with no improvement. He had a past medical history that included COPD, heart failure, a previous MI, and gallstones.

Imaging Findings:

An initial barium swallow (Fig 1) was performed which demonstrated an apparent filling defect in the pharynx on the lateral view. Flexible nasendoscopy was suggested which showed a pulsatile pharyngeal mass. CT neck with contrast (Fig 2, 3, 4, 5) showed a markedly ectatic and tortuous right internal carotid artery. This vessel coursed medially towards the midline immediately distal to the carotid bifurcation, and corresponded with the pulsatile mass seen on endoscopy. The left common carotid and internal carotid were normal. This was treated conservatively.

Discussion:

Dysphagia lusoria is a well documented complication of variant aortic arch anatomy. Typically it is associated with an aberrant right subclavian artery causing dysphagia by compression. The word ‘lusoria’ originates from the Latin origin ‘lusus naturae’, meaning ‘freak of nature’. Dysphagia as a result of tortuous and ectatic anatomy of the carotid vessels is rare. We have identified a few similar cases, including one from 2010 [1], which describes a ‘medially coursing left internal carotid artery’ resulting in difficulty swallowing. It appears that dysphagia, as a result of common carotid ectasia is even rarer, with only a couple of cases appearing in literature [2].

Whilst in rare cases, severe tortuosity or kinking of neck vessels has been associated with complications such as stroke, transient ischaemia or hemiplegia [3] there is limited evidence for this. Tortuous carotid vessels have been associated with hypertension, atherosclerosis, and ageing. In our case, the patient was not considered to be at increased risk of stroke or TIA whilst there was a potential risk of oesophageal bleeding. As such, stroke prophylaxis was not started.

The exact mechanism for the development of ectasia is not fully understood. The term ‘vascular ring’ has been used for congenital malformations of the aortic arch (and its branches) which, either partially or completely, encircle the oesophagus or trachea [4].

The clinical team felt that the patient's pain was due to a combination of cervical spondylosis, osteoarthritis, and
occipital neuralgia. It was thought he was also experiencing presbyoesophagus (degenerating motor function in an aging oesophagus) and oesophageal candidiasis. It is unclear how much, if at all, his ectatic carotid artery contributed to his symptoms.

This patient was discussed with vascular surgeons, but surgery was not felt to be appropriate in his case. We therefore optimised his swallow with conservative measures, including speech and language input with advice regarding food textures and swallowing techniques, and a course of antifungal medication as described above.

There are similar published cases that have included carotid shortening or dilatation procedures. The importance of clarification of the nature of such masses found on flexible nasendoscopy, especially those that are pulsatile, should be recognised to avoid biopsy and associated morbidity.

**Differential Diagnosis List:** Ectatic right internal carotid artery, Congenital vascular anomalies, Acquired vascular ectasia

**Final Diagnosis:** Ectatic right internal carotid artery

**References:**


**Description:** There is an apparent filling defect in the posterior aspect of the pharynx (arrow). **Origin:** Department of Radiology, RUH Bath, England.
Description: The right internal carotid artery is situated anterior to the vertebral bodies, corresponding to the filling defect seen on fluoroscopy. Origin: Department of Radiology, RUH Bath, England.
**Figure 3**

**Description:** The right internal carotid artery (white arrow) passes close to the midline. The right external carotid (red arrow) and right common carotid arteries (green arrow) are also indicated. **Origin:** Department of Radiology, RUH Bath, England.
Figure 4

**Description:** The right internal carotid artery (white arrow) is in an abnormal central position. The right external carotid artery (green arrow), and left internal carotid artery (red arrow) are labelled. **Origin:** Department of Radiology, RUH Bath, England.
Figure 5

Description: The right internal carotid artery deviates medially whilst left carotid arteries have normal appearances. Origin: Department of Radiology, RUH Bath, England.