Tortuous internal carotid artery: an important differential of the pulsatile oropharyngeal mass

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DESCRIPTION

A 69-year-old woman presented to her local head and neck clinic with a 6-month history of right-sided sore throat and intermittent dysphagia, with a normal voice. On examination, a longitudinal, pulsatile lesion in the right posterolateral pharyngeal wall commenced at the junction of the oropharynx and nasopharynx, and progressed to the vallecular. Flexible nasendoscopy was otherwise normal. Her medical history included asthma, gastro-oesophageal reflux, hypertension and tonsillectomy. She is a non-smoker and occasionally drinks alcohol. She is a retired intensive care senior sister.

CT angiogram showed a tortuous right internal carotid artery (ICA) which looped medially at the level of the oropharynx, bulging into the right pharyngeal wall before returning laterally to enter the carotid canal in its normal anatomical position (figures 1 and 2). Imaging revealed normal aortic arch, no further aneurysm of vascular anomaly and the left carotid artery was completely normal.

An aberrant cervical ICA with relation to the pharyngeal wall^{1 2} is thought to affect between 0.2% and 2% of the population. The majority are asymptomatic³; this patient unusually presented with intermittent dysphagia and sore throat. It is thought that this patient's symptom of dysphagia is secondary to a globus sensation within the oropharynx, given the sensitivity of the anatomical region. Other cases report symptoms of pulsatile mass, hoarseness, pain, obstructive throat sensation^{2 4} and less commonly dysphagia^{5 6}; mild cough, globus sensation and aspiration⁵ may also occur. Rarely, patients may present with temporary blindness, objective tinnitus,^{6 7} pharyngitis⁸ or neck mass.⁸

A tortuous ICA is an important differential diagnosis in suspected peritonsillar abscess and parapharyngeal neoplasm due to the necessity for fine needle aspiration or biopsy and the associated risk of major haemorrhage. While uncommon, awareness of this anatomical abnormality is essential in preventing morbidity and mortality. Some cases report alterations in the ICA found during surgical procedures and careful adaptations which have subsequently been made during the surgery.⁶ In one case, an ICA was detected 1 cm to the left of the tonsils during tonsillectomy; this highlights the tangible risks to these patients.⁶ Further, research shows tortuosity of the ICA as a risk factor for cerebral ischaemic stroke.⁹

Figure 1 CT scan: coronal section demonstrating tortuous right internal carotid artery (arrow).

Risks of carotid tortuosity should be considered prior to neurosurgery, as detailed by Brachlow *et al*,¹⁰ following the death of a 30-year-old man who

Figure 2 CT scan: axial section demonstrating tortuous right internal carotid artery (arrow).

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Learning points

- ▶ A tortuous cervical internal carotid artery should form part of the differential diagnosis for any pharyngeal mass.
- ▶ Presenting symptoms may include hoarseness, abnormal throat sensation, throat pain and dysphagia.
- ▶ A pulsatile mass should be investigated thoroughly with CT angiogram prior to any intervention or procedure.

underwent cerebral ischaemia and brain death following rotation of the head for surgical positioning.

Additionally, there are anaesthetic risks to consider. Although rare, intubation can pose iatrogenic harm to the pharynx in patients without tortuous ICA,^{11 12} increasing the potential for massive haemorrhage in cervical tortuous ICA.¹¹

The vascular multidisciplinary team concluded this case was a normal variant, which required no further vascular investigation or intervention.

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