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Letter to Editor

Kissing Carotids in Retropharyngeal Space –Anatomical Variant with Potentially Threat

Monali Chaturvedi[1]*, Aldrin Anthony[2], Siddharth Maheshwari[2] and Arvind Arya[3]

[1]Assistant Professor, Department of Neuroradiology, Institute of Human Behaviour and Allied Sciences (IHBAS), Delhi

[2]Assistant Professor, Department of Neurology, Institute of Human Behaviour and Allied Sciences (IHBAS), Delhi

[3]Associate Professor, Department of Anesthesia, Institute of Human Behaviour and Allied Sciences(IHBAS), Delhi

***Corresponding Author:** Monali Chaturvedi, Assistant Professor, Department of Neuroradiology, Institute of Human Behaviour and Allied Sciences (IHBAS), Delhi.

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The term "kissing carotids" refers to an anatomical variation where the internal carotid arteries (ICA) are tortuous, elongated, and are close together at the midline. In order to alert the clinicians of this important but under-noticed anatomical diversity, we de-scribe a case showing incidental aberrant retropharyngeal course of bilateral ICA.

A 72-year lady presented to the emergency room with the chief complaints of headache, vomiting, left upper limb weakness. Non-contrast CT scan of head revealed a right middle cerebral artery territory infarct. CT angiography of brain and neck vessels revealed attenuation of right middle cerebral artery. Also cervical segments of bilateral ICA were grossly medially deviated and located in retropharyngeal space (Figure 1). The term "kissing carotids" refers to this specific anatomical variant of the internal carotid arteries. The distance between the ICA and pharyngeal wall in the nasopharynx was 1.88mm and 2.48mm on the right and left side respectively and were classified as grade IV and grade III of the Pfeiffer and Ridder classification respectively. Since this entails a very high risk of injury to the ICA, the anatomical variation was recorded in the patient's medical file with a warning about potential hazards implicated during emergency interventions. The patient had to be intubated due to neurological status, however, there were no complications related to the aberrant ICA course as the anaesthetist was forewarned. Additionally dietary changes incorporating soft foods were also advised.

Figure 1: (a) Maximum intensity projection shows medially deviated bilateral ICA. (b) Indentation of posterolateral pharyngeal wall by bilateral ICA. (c) Distance between ICA and pharyngeal wall measured 1.88mm on right and 2.48mm on left respectively

Cervical segment of ICA originates from carotid bifurcation at C3-4 level and usually has a straight course with no branches, but aberrant courses such as straight, tortuous, kinking and retropharyngeal location have been described [1].

Embryologically the ICA is formed from the third branchial arch artery and cranial dorsal aorta which have a sharp angulation at their junction. Persistent embryonic angulation between these vessels, incomplete straightening, age, vasculitis, arteriosclerosis of the vessel and fibromuscular dysplasia are the few possible explanations that result in the aberrant course of the ICA [2].

Most of the patients remain asymptomatic however symptoms like dysphagia, dysphonia, cervical bolus sensation, glossopharyngeal neuralgia have been reported due to compression of adjacent structures [3].

Clinically, interrogating the patient for a pulsatile mass or fullness in mouth, visual and tactile inspection of the mouth for bump on posterior pharyngeal wall, palpation for carotid are valuable for evaluating the presence of aberrant ICA [5]. Pfeiffer and Ridder proposed clinico-radiological classification of parapharyngeal aberrations of ICA to identify patients with increased risk of vessel injury during medical procedure. Two important parameters that are taken into account for this classification are the minimum distance of aberrant ICA from pharyngeal wall and the location in pharynx (oropharynx/nasopharynx/hypopharynx). Risk of injury to vessel is high when aberrant vessel is placed in oropharynx and nasopharynx and when the vessel is near the pharyngeal wall (less than 5mm) [4].

Retropharyngeal ICA poses several clinically significant implications. Rupture of oropharyngeal mucosa or abrasion of submucosal soft tissue during tracheal intubation, placement of nasogastric tubes or blind placement of transesophageal echocardiography probe results in severe hemorrhage. Similarly, planned procedures like adenoid tonsillectomy and other oral and maxillofacial procedures, taking biopsies, molar extractions may cause vessel injury. There is also an imperative risk of accidental arterial puncture or injection of local anaesthetics in the aberrant carotid that is placed in midline or retropharyngeal location. Obstructive sleep apnea may occur as the aberrant ICA distorts the anatomy of pharyngeal orifice [5,6].

To conclude, special attention to the anatomy of important vascular structures by imaging, awareness of the presence of the anatomical variation, and its clinical relevance in terms of the interventions planned, can significantly reduce the risk of undue complications and life-threatening events.

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