CASE REPORT PEER REVIEWED | OPEN ACCESS

Aberrant internal carotid artery presenting as an oropharyngeal mass

Soukaina Allioui, S Sninate, M Abdellaoui

ABSTRACT

Aberrant internal carotid artery is a quite unusual condition that can cause a foreign body sensation in the throat. The case study is about a 49-year-old woman with dysphagia associated to a foreign body sensation in her throat, developed for the last weeks owing to aberrant retropharyngeal internal carotid artery, which was diagnosis by magnetic resonance imaging (MRI) of the neck. Because of the fatal complications of this variant, the radiologists, anesthetists, and surgeons be fully aware of its eventual priority.

Keywords: Aberrant, Internal carotid artery, Pharynx, Radiology

INTRODUCTION

Aberrant internal carotid artery (ICA) is regarded as an innate condition. It is an anonymous aberration with an approximate incidence of about 5% at the level of the neck. This is observed indiscriminately in regular imaging like contrast-enhanced computed tomography (CT), magnetic resonance imaging (MRI) of neck and head, or when patients manifest particular symptoms like dysphagia, fullness at the level of throat, or pulsatile swelling [1]. This aberration usually takes place on the right side, which may be explained by anatomical influences and factors affecting blood pressure. To avoid the high risk of injury to the artery, which can bring about divesting bleeding, it is of a paramount importance to make out this anomaly before any surgical procedures in pharynx or intubation. In this case report, we will present a case of a patient with dysphagia related to aberrant ICA.

CASE REPORT

A 49-year-old female patient was received in our service as she had a sort of dysphagia together with a foreign body sensation in her throat that developed for the last weeks. The patient lacked any historical diseases or surgeries. Primary physical diagnosis showed a pulsatile mass on the right posterior wall of the oropharynx. The blood tests and other clinical examinations all seemed to be fine. The patient underwent an MRI of the neck. It showed an aberrant course of the right ICA which extended toward the right pharynx at the level of the oropharynx (Figure 1). Our department let the patient know about the examination and did not issue any treatment. A follow-up of the patient revealed a clinical improvement, thanks to the adoption of a full liquid diet.

DISCUSSION

As opposed to its intracranial segment, the cervical course of the ICA goes differently in a straight line. In fact, the particularity of ICA is an uncommon condition for adults. This anomaly is characterized by being kinked, tortuous, or coiled, in response to deviation from the
vertical plane [2]. As a general notice, the case of ICA seems to touch more the elderly because of the damage of vessel wall elasticity. They are frequently spotted by otolaryngologists and anesthetists to avoid any complication while patients undergoing intubation or surgical operation at the level of the site [3]. Previously, the etiology of ICA aberration was enhanced to include congenital conditions like 2q11 deletion syndrome, Marfan's syndrome, fibromuscular dysplasia, and autosomal dominant polycystic kidney disease. Yet, there were other gained factors that made part of the etiology. The mentioned factors are hyperlipidemia, arteriosclerosis, and hypertension. These factors led to the absence of the carotid sheath or its fragility [4–8]. Aberrant ICA patients might manifest some particular symptoms, yet they might be absolutely asymptomatic [9, 10]. Deglutition issues, coughing, dyspnea, and sensation of a foreign body in the throat are all symptoms that can be resulted from a particularity ICA found close to the pharynx. It is hardly when the anomalous ICA can bring about the shrinking and effacement of the pharyngeal lumen and lead to obstructive sleep apnea [11, 12]. Pulsation of the prominent vessel could be viewed through oral examination. Since the adoption of the new imaging methods, the widespread of ICA anomalies has augmented. Doppler ultrasound seems more practical for the cervical aberration of ICA but is not suitable for detecting pharyngeal and nasopharyngeal ones, because of the challenging difficulties in placing the Doppler over these sites. The distinguishing examination of these anomalies has to be performed by means of angio-computed tomography, angiography, or magnetic resonance angiography [13, 14]. In this regard, literature is in favor of MR angiography for discovering diagnosis [15]. It is essential to the radiologist to be aware of this aberration and warn the clinicians about it, even when it is found by chance in other patients without symptoms. Patients are to be told about their anomalies. Similarly, it is no less important that the patients’ research result should be kept and categorized in their medical file for later reference. It is not compulsory to advice any treatment especially if the aberrancy is not symptomatic. As resection and completely anastomosis surgery may be carried out to get zero risk of a potential ischemic attack in patients with injuries, thrombus, or aneurysm [16].

**CONCLUSION**

Aberrant retropharyngeal ICA is really a possible life-threatening variant. It is of ultimate importance that the radiologists, anesthetists, and surgeons be fully aware of this variant. Therefore, it is found by chance like in the case of our patient. It must be mentioned in the medical file of the patient, especially if the patient is subject to any kind of oropharyngeal surgery processes or intubation.

**REFERENCES**

1. Hosokawa S, Mineta H. Tortuous internal carotid artery presenting as a pharyngeal mass. J Laryngol Otol 2010;124(9):1033–6.
2. Wasserman JM, Selafani SJ, Goldstein NA. Intraoperative evaluation of a pulsatile oropharyngeal mass during adenotonsillectomy. Int J Pediatr Otorhinolaryngol 2006;70(2):371–5.
3. Ballivet de Regloix S, Maurin O. Retropharyngeal course of the internal carotid artery. J R Army Med Corps 2017;163(6):426.
4. Kay DJ, Mehta V, Goldsmith AJ. Perioperative adentonosillectomy management in children: Current practices. Laryngoscope 2003;113(4):592–7.
5. Paulsen F, Tillman B, Christofides C, Richter W, Koebke J. Curving and looping of the internal carotid artery in relation to the pharynx: Frequency, embryology and clinical implications. J Anat 2000;197(Pt 3):373–81.
6. Ozgur Z, Celik S, Gova F, Aktug H, Ozgur T. A study of the course of the internal carotid artery in the parapharyngeal space and its clinical importance. Eur Arch Otorhinolaryngol 2007;264(12):1483–9.
7. Dobrin PB, Schwarz TH, Baker WH. Mechanism of arterial and aneurysmal tortuosity. Surgery 1988;104(3):568–71.
8. Del Corso L, Moruzzo D, Conte B, et al. Tortuosity, kinking, and coiling of the carotid artery: Expression of atherosclerosis or aging? Angiology 1998;49(5):361–71.
9. Hosokawa S, Mineta H. Tortuous internal carotid artery presenting as a pharyngeal mass. J Laryngol Otol 2010;124(9):1033–6.
10. Waersted S, Dethloff T. The internal carotid artery as a pulsating protrusion into the pharyngeal wall. [Article in Danish]. Ugeskr Laeger 2016;178(28). pii: V02160104.
11. Tsuiki S, Isoho S, Ishikawa T, Yamashiro Y, Tatsumi K, Nishino T. Anatomical balance of the upper airway and obstructive sleep apnea. Anesthesiology 2008;108(6):1009–15.
12. Srinivasan S, Ali SZ, Chwan LT. Aberrant retropharyngeal (submucosal) internal carotid artery:

**Figure 1:** (A) Axial and (B) coronal MRI of the neck, revealing a tortuous course of the right internal carotid artery (Arrow).
An under-recognized, clinically significant variant. Surg Radiol Anat 2013;35(5):449–50.
13. Galletti B, Buco S, Abbate G, et al. Internal carotid artery transposition as risk factor in pharyngeal surgery. Laryngoscope 2002;112(10):1845–8.
14. Palacios E, Kirsch D, Rojas R. Anomalous course of the carotid arteries in the retropharyngeal space poses a surgical risk. Ear Nose Throat J 2005;84(6):336–7.
15. Metin M, Aveu M, Soyalic H, Binay O, Fidan V. A rare cause of objective tinnitus: Oropharyngeal tortuous carotid. SF J Otolaryngology 2018;1:1.
16. Beriat GK, Ezerarslan H, Kocatürk S, Mihmanoğlu AF, Kuralay E. Pulsatile oropharyngeal and neck mass caused by bilateral tortuous internal carotid artery: A case report. Kulak Burun Bogaz Ihtis Derg 2010;20(5):260–3.

*********

Author Contributions
Soukaina Allioui – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved
S Sninate – Conception of the work, Design of the work, Drafting the work, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved
M Abdellaoui – Analysis of data, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Guarantor of Submission
The corresponding author is the guarantor of submission.

Source of Support
None.

Consent Statement
Written informed consent was obtained from the patient for publication of this article.

Conflict of Interest
Authors declare no conflict of interest.

Data Availability
All relevant data are within the paper and its Supporting Information files.

Copyright
© 2020 Soukaina Allioui et al. This article is distributed under the terms of Creative Commons Attribution License which permits unrestricted use, distribution and reproduction in any medium provided the original author(s) and original publisher are properly credited. Please see the copyright policy on the journal website for more information.
