



## Aberrant Nasopharyngeal Internal Carotid Artery: A Rare Case Report

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### Abstract

**Aim:** Internal carotid artery injuries during life-threatening procedures such as punch biopsy from the nasopharynx are a life-threatening risk for bleeding. The aim of this case is to draw attention to the fact that caution during the examination and suspicion of Aberrant Internal Carotid Artery (ICA) is the first and most important step in the management of nasopharyngeal masses.

**Case Report:** A 72-year-old female patient presented with tinnitus in the left ear and hearing loss in both ears. The patient had a history of tinnitus in both ears and increased in the left ear for the last year. Bilateral otoscopy was normal in ENT examination, but nasal endoscopy was performed; in the nasopharynx, a submucosal, regular pulsatile mass was observed on the right side, moving up swallowing.

**Treatment and Prognosis:** The patient was told that ICA may cause complaints such as difficulty in swallowing, foreign body sensation, pulsatile sound perception or mouth pulsation. Particularly in the cases of nasopharyngeal examination, surgical procedures and intubation may cause any bleeding and recommendations were made to the anesthesiologists to inform this situation.

**Keywords:** Aberrant internal carotid artery, Nazopharynx; Aberrant

### Introduction

ICA the portrait of a straight cervical course from the carotid artery bifurcation to the base of the skull. In the literature, parapharyngeal ICA is usually asymptomatic with an abnormal course of 10% to 40% [1]. Aberrant ICA may cause difficulty in swallowing, extraneous object sensation, pulsatile sound perception or mouth pulsation when it is symptomatic. It occurs as a result of atherosclerotic changes due to acquired diseases such as Diabetes Mellitus (DM), Hypertension (HT) and Coroner Artery Disease (CAD) especially in elderly patients and it is more symptomatic [2]. Aberrant ICA poses a vital risk in surgical procedures and intubation since it will cause massive bleeding [2-4]. In this article, we present a 72-year-old woman with aberrant nasopharyngeal ICA who presented with left-sided tinnitus. We aim to remind the patient who comes with tinnitus, not only otoscopy but a complete ENT examination and especially the evaluation of the nasopharynx in terms of vascular masses before the surgical approach.

### Case Presentation

A 72-year-old female patient presented with tinnitus in the left ear and hearing loss in both ears. In the patient's history, it was learned that the complaint of tinnitus has been in both ears for a long time and increased in the left ear for the last year. The patient's medical history was unremarkable except for asthma. In the otorhinolaryngologic examination, bilateral otoscopy and oropharynx were normal; a submucosal, regular pulsatile mass was observed in the nasopharynx, moving from the right side by swallowing to the right (Figure 1).

Computed Tomography (CT) angiography with a preliminary diagnosis of aberrant ICA revealed bending in the aberrant right ICA, curvature in the left ICA, and atherosclerotic wall calcifications in both ICA's (Figure 2).

The patient was told that aberrant ICA may cause complaints such as difficulty in swallowing, foreign body sensation, pulsatile sound perception or mouth pulsation. It was recommended that anesthesia physicians should be informed of this condition and cardiology control, especially if nasopharyngeal surgery is necessary and may cause any bleeding during intubation. Audiologic examination of the etiology of tinnitus, the main complaint of the patient, was found to be consistent with presbiacusia. Betahistine 2 × 1 was started and the patient was followed up.

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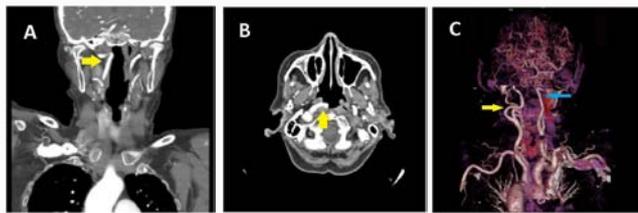
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**Figure 1:** Nasal endoscopic examination of the submucosal pulsatile mass behind the right Rosenmüller fossa (black arrow).



**Figure 2:** A) Coronal cross-sectional CT image of the right-sided nasopharynx (yellow arrow). B) Axial cross-sectional CT image of the right aberrant ICA in the nasopharynx (yellow arrow). C) CT angiography showed a bent ICA on the right posterior view (blue arrow), a curved ICA image on the left (yellow arrow).

## Discussion

ICA is embryologically cranial of the third branchial artery and dorsal aorta. In the fifth week of fetal life, a loop occurs at the junction of these two vessels. When the heart vessels and large vessels descend from the mediastinum, the ICA becomes flattened. If it doesn't flatten, it can be aberrant [1]. Although the etiology of aberrant ICA is not known, it is thought to be caused by embryological and acquired diseases. It may occur as a result of atherosclerotic changes due to acquired diseases such as DM, HT and CAD, especially in elderly patients [2]. In the case we presented, CT both ICA's showed atherosclerotic wall calcifications that did not cause stenosis. Firstly, the ICA variations were classified by Weibel and Fields in 1965 and are still valid. In this classification, the ICA variation is classified in 4 ways; straight, curved, bend, curl. The most common variation was straight. In the case we presented, on right ICA bending and left ICA curving was observed. In the patient with bilateral subjective non-pulsatile tinnitus, the presence of bilateral ICA variation, although not objective, suggests its role in the etiology of tinnitus [5]. Aberrant ICA, which is generally asymptomatic, is present in a wide range of symptoms such as difficulty in swallowing, extraneous object sensation, pulsatile sound perception, mouth pulsation, nonspecific dizziness, tinnitus, headache, cervical distress, glossopharyngeal

neuralgia and sleep apnea [2,6]. In our case, there was a left-sided increase in bilateral tinnitus. Nasal endoscopy showed right-sided ICA and imaging showed variation in left-sided ICA. In another case in the aberrant ICA case series of Jafarov et al. [6]. Humeral increase in the right ear and flexion variation on the same side were observed.

Aberrant ICA is usually asymptomatic, but in clinically suspected cases, full ENT examination should be performed and pulsatile lesions should be sought using imaging methods Doppler USG (Ultrasonography), CT, angiography, MRI (Magnetic Resonance Imaging) are helpful in detecting vascular anomaly [7]. In our case, a right-sided pulsatile mass was observed in the nasopharynx and CT and CT angiography examinations were performed and bilateral ICA anomaly was detected. Caution should be exercised in surgical procedures for nasopharynx punch biopsy, tonsillectomy, adenoidectomy, uvulopalatopharyngoplasty, peritonsillar abscess drainage, nasopharynx and oropharynx, as this will cause massive bleeding and mortality in known aberrant ICA patients [5,6]. In addition, anesthesia physicians should also be informed as it poses a risk of bleeding in intubation [7].

## Conclusion

Aberrant ICA may cause massive bleeding and may cause mortality. Especially in the surgical approach to the nasopharyngeal masses of physicians who are at the beginning of their professional experience, aberrant ICA should be considered and the patient should inform the anesthesiologist before the other surgical procedures.

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