



## CASE REPORT

# Unmasking an Uncommon Mimicker: Peritonsillar Abscess Unveiling as Extracranial Internal Carotid Artery Aneurysm (EICAA) – A Case Report

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## Abstract

Extracranial internal carotid artery aneurysms (EICAA) are rare vascular lesions primarily attributed to atherosclerosis, with manifestations typically neurological but occasionally involving compression of nearby structures. We present a case of a 70-year-old female initially diagnosed with a peritonsillar abscess, whose subsequent CT angiography revealed EICAA. Surgical intervention involved ligation of the affected artery. EICAA, though uncommon, poses diagnostic challenges, particularly when presenting with symptoms mimicking other conditions. Diagnostic imaging, including CT angiography and MRI, plays a crucial role in accurate diagnosis. Treatment modalities vary, with surgical intervention tailored to individual anatomical considerations. Our case underscores the importance of considering EICAA in the differential diagnosis of parapharyngeal masses, especially in patients with cardiovascular risk factors, and highlights the significance of precise diagnostic and therapeutic approaches in managing this condition.

## Keywords

Extracranial internal carotid artery aneurysms (EICAA), Peritonsillar abscess, Carotid aneurysms

## Introduction

Extracranial internal carotid artery aneurysms (EICAA) are rare vascular lesions, most commonly caused by atherosclerosis. Their manifestations are usually neurological, resulting from decreased perfusion of the central nervous system [1]. However, patients may also present with symptoms related to nerve and aerodigestive tract compression.

In this case report, we present a patient with EICAA initially diagnosed with a peritonsillar abscess. Additionally, we provide a brief review of the relevant literature, focusing on diagnostic and therapeutic procedures.

## Case Report

A 70-year-old female presented to the outpatient department with complaints of pain in the angle of the mandible and throat. The patient had a medical history of cardiovascular disease, including hypertension. There was no history of trauma or previous vascular interventions. General and physical examination revealed a compact, non-pulsatile mass in the right parapharyngeal space with erythematous mucous membrane. The patient did not exhibit pyrexia, hoarseness of voice, or trismus.

The patient underwent CT angiography, which revealed two focal outpouchings in the extracranially in right cervical internal carotid artery. The largest outpouching measured 5 mm in the neck and 33 × 23 mm, projecting superiorly with an eccentric peripheral thrombus. A bilobed-shaped focal outpouching was also seen in the right cervical internal carotid artery, measuring 4 mm at the neck and 10 × 8.5 mm, projecting posterior medially.

The patient's clinical symptoms, such as pain in the angle of the mandible and throat, along with the findings

from the CT angiography, suggest that this aneurysm could be causing compression of nearby structures or decreased perfusion, necessitating surgical intervention as described in the case report.

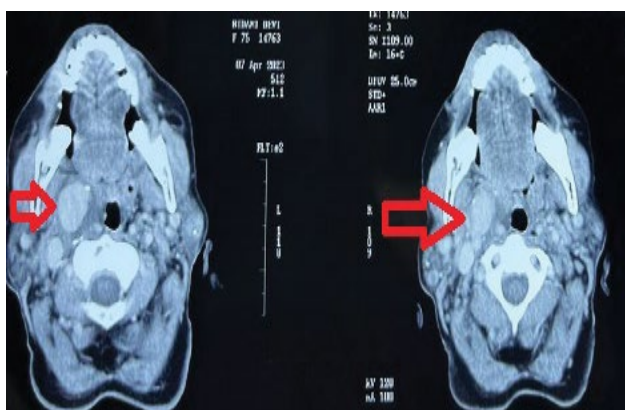
The patient underwent operative treatment in the vascular surgery unit, which involved ligation of the right internal carotid artery. The operative technique was determined by the proximity of the distal end of the aneurysm to the skull base (Figure 1, Figure 2 and Figure 3).

## Discussion

Internal carotid artery aneurysm is defined as a localized increase in vessel diameter greater than 50% compared to the reference value for the appropriate vessel segment. Extracranial internal carotid artery aneurysms (EICAA) are uncommon arterial lesions, with an estimated incidence of less than 1% of all carotid aneurysms [2].



**Figure 1:** Black arrow indicating Compact, non-pulsatile mass in right parapharyngeal space.



**Figure 2:** Red arrow indicating two focal outpouching of right cervical internal carotid artery in coronal section of CT Angiography of Neck.

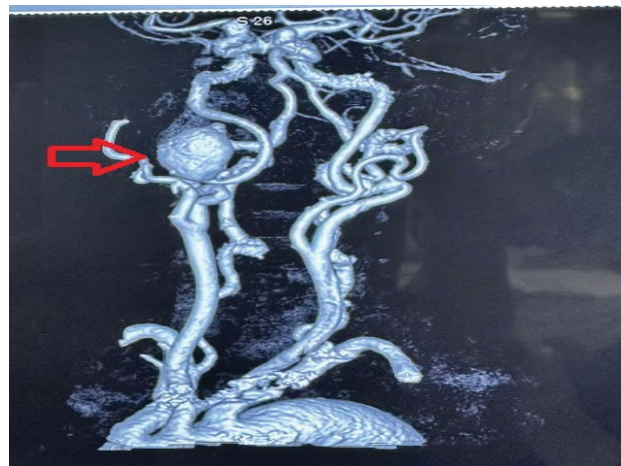
The most common cause of EICAA is atherosclerosis, along with other etiologies such as fibromuscular dysplasia, aneurysm formation after surgical intervention, trauma, vasculitis, and infections [3].

The manifestations of EICAA depend on the size and location of the aneurysm and fall into three main categories [4]: (a) Neurological disorders caused by decreased perfusion of the central nervous system, (b) Symptoms resulting from compression of surrounding tissues, and (c) Hemorrhage.

Neurological disorders are the most common and typically include focal symptoms such as stroke, transient ischemic attacks (TIA), transient amaurosis, and anopsia. Large aneurysms can displace the tonsillar fossa medially and trigger compression symptoms, with dysphagia being the most common due to impaired function of the glossopharyngeal nerve (IX) [4]. Hoarseness of voice results from compression of the recurrent laryngeal and vagus nerves. Local pain and discomfort are associated with malfunction of the cervical branch of the facial nerve.

The differential diagnosis of a peritonsillar mass includes carotid artery aneurysm, infections and neoplastic changes [5]. Other possible etiologies of a peritonsillar mass include iatrogenic causes, post-traumatic or spontaneous hematoma, and ectopic thyroid gland, which may remain undiagnosed for many years [6]. Duplex Doppler ultrasonography is the diagnostic method of choice in suspected EICAA followed by detailed evaluation of the anomaly can be obtained using CT angiography and MRI [7].

The first-line treatment for EICAA is open aneurysmectomy with end-to-end anastomosis or graft interposition [8]. Other surgical modalities include recently described endovascular treatment and carotid ligation. The operative technique depends on the anatomic type of the aneurysm. Conservative treatment



**Figure 3:** Red arrow shows prominent outpouching of Right Intracranial supraclinoid Internal carotid artery in CT Angiography.

carries a high risk of thromboembolic events and aneurysm rupture and is applicable only in a selected group of patients.

## Conclusion

Extracranial Internal Carotid Artery Aneurysm (EICAA), a rare vascular lesion predominantly present with neurologic symptoms. However, observations by ENT specialists frequently reveal signs and symptoms such as Neck Mass, Mass in the parapharyngeal space, dysphagia, dysphonia, and local pain.

A mass located in the parapharyngeal space warrants a meticulous approach to differential diagnosis, particularly in patients with cardiovascular comorbidities. Palpation of the mass may demonstrate pulsation; nevertheless, the absence of pulsation does not definitively rule out the presence of an aneurysm. Atherosclerotic aneurysms with adherent thrombus may be present even without palpable pulsation. Detailed evaluation of the anomaly can be obtained using CT angiography and MRI and operative technique depends on the anatomic type of the aneurysm varying from carotid ligation to end-to-end anastomosis or graft interposition.

## References

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