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Retropharyngeal Carotid Artery: A Rare Case Presentation.

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ABSTRACT

The internal carotid artery (ICA) can take multiple pathways as it extends from the carotid bifurcation to the skull base. An aberration of its normal pathway may place the ICA in a retropharyngeal position near the posterior pharyngeal wall. The internal carotid artery (ICA) has a straight cervical course up to the cranial base, and does not emit branches in this course. In 10 to 40% of the cases there are anatomic variations in this course, and the most common are curvatures, elbowing and notches. We present 66 yr old male who was known case of COPD presented with acute exacerbation along with stridor who was incidentally diagnosed with retropharyngeal right carotid artery.

Keywords: Retropharyngeal, Carotid, Artery, ICA.

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INTRODUCTION

A Retropharyngeal carotid artery is considered a rare anatomic variant with clinical implications. The aberrant course of the carotid artery usually manifests no clinical signs and is discovered incidentally. The projection of an aberrant internal carotid artery almost always occurs in the lateral or posterolateral wall of the pharynx manifesting as a retropharyngeal mass. However, the projection of this aberrant artery is very rarely limited to the posterior pharyngeal wall [1, 2].

Anatomic variation of carotid artery may vary from mild kinking to complete circular loop formation

- This variation is found in 0.2% of population
- and may be asymptomatic or may present as bulging mass with smooth surface.

This pulsating bulging mass may be confused with retropharyngeal enlarged lymph node, oedema, neoplasm or abscess.

The internal carotid arteries have their embryonic origination in the third aortic arch and the dorsal aorta. During normal embryonic development, the dorsal aortic root descends into the chest during the eighth week of fetal life, which lengthens and straightens the course of the carotid artery. It has been suggested that incomplete straightening and persistence of the embryonic angulation can result in the presence of aberrant carotid arteries in the retropharyngeal space [3]. A variety of anatomic presentations are possible, which tend to become more pronounced with the physiologic effects of aging. These include simple medial displacement of the artery, as well as kinking and outright coiling of the vessel. In older patients, the incidence has been estimated to be as high as 2% [4].

In most cases, such anomalies are asymptomatic. In elders, dysphagia, dysphonia and cervical bolus sensation may occur, as well as glossopharyngeal neuralgia.

In elder people, such anomalies may often be associated with arteriosclerosis and thrombosis processes that may affect the blood flow and cause encephalic ischemic processes.

In addition, extreme degrees of medialization of the carotid arteries may result in progressive symptoms, including, hoarseness and upper respiratory distress [5, 6] and the risk of the spread of infection in the oropharyngeal area.

Here we report a case presented with Upper respiratory distress was found to have retropharyngeal carotid artery.

Retropharyngeal carotid arteries (RCA) are an important anatomic variant that can be a source of critical complications during medical procedures [11]. To avoid life-threatening haemorrhage or trauma that might potentially lead to cerebral infraction, physicians need to be aware of any deviation of these vessels from their normal lateral location within the neck.

CASE PRESENTATION

A 66 years old male patient who was known case of chronic obstructive pulmonary disease presented to us with complaint of breathless for 15 days associated with dry cough breathlessness was gradual in onset progressive in nature initially of MMRC grade 2 that progressed to grade 4 on the day on admission dry cough without any diurnal variation there was history of voice change and hoarseness. Patient had history of smoking which he used to smoke around 1 bundle of bidi per day for nearly 30 yrs and stopped since 5 yrs on examination. He was conscious oriented well oriented to time place and person moderately build afebrile BP of 130/70 mmhg tachypnoeic and tachycardia with pulse of 128 bpm with atherosclerotic vessel walls with oxygen saturation of 78% on room air and was well Maintained on O2 support with 6 litres of fm pallor was present there was no icterus cyanosis clubbing lymphadenopathy and pedal oedema. patient was having raised JVP patient had torturous blood vessel with locomotor brachialis while respiratory system examination revealed central trachea and barrel chest with extensive rhonchi all over lung fields and there was inspiratory stridor cardiovascular system

examination revealed no significant finding per abdomen suggested of epigastric hernia which was related to trauma in past,

Electrocardiography suggested patient was having sinus tachycardia and chest X-ray showed reticular markings with flattened diaphragm with tubular heart.

Two-dimensional echocardiography suggested of grade 1 diastolic dysfunction trace TR and MR with normal cardiac chamber with good LV systolic function with LVEF 60%.

Ultrasonography which was done suggested of 24 mm defect in anterior abdominal wall in epigastric supraumbilical region through which bowel loops and omentum seems to be herniating out finding s/o epigastric hernia.

CT neck with contrast was done to check for cause of stridor which aggravated during his acute exacerbation of COPD.

Ct neck with contrast s/o right carotid artery noted medial to right lamina of thyroid cartilage right cornua of hyoid bone in submucosal plain causing focal bulge over right pyriform sinus and hyphopharynx of right-side finding s/o Retropharyngeal right carotid artery.

Patient was managed with bronchodilators IV antibiotics and and IV fluids initially although patient was maintaining saturation on O2 fm support at 6 litres. Patient was tachypnic and was given BIPAP support after wards.

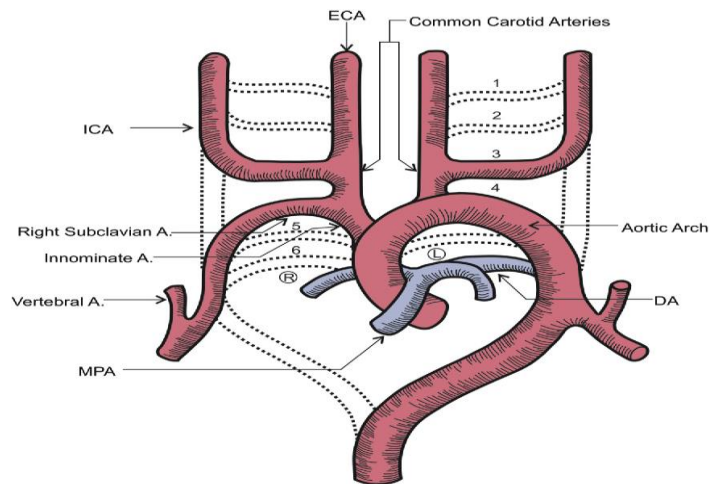
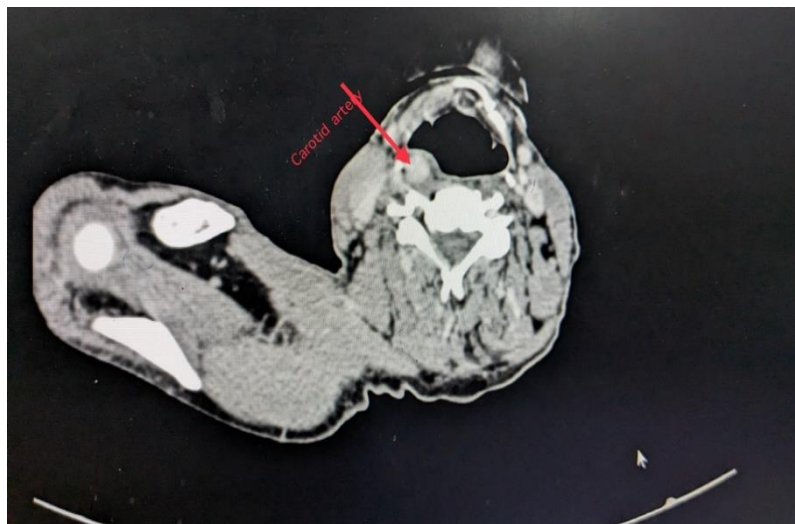
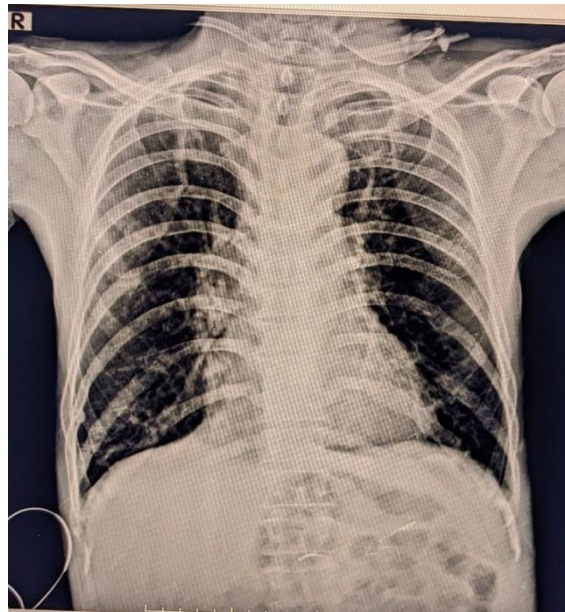
His breathlessness got reduced and maintained saturation and gradually tapered off his BIPAP support and kept on nasal prongs with out being tachypnic Stridor of patient got reduced subsequently and patient maintained saturation on room air patient was improved and discharged on inhaled and oral bronchodilator.

Final diagnosis of Acute exacerbation of COPD with retropharyngeal RT carotid artery was made.

DISCUSSION

Normally, the right CCA begins at the bifurcation of the brachiocephalic trunk. This CCA ascends within the carotid sheath with the internal jugular vein and the vagus nerve, called the carotid triangle. The CCA usually divides into to the internal and external carotid arteries at the level of the upper border of the thyroid cartilage or the hyoid bone, the C3-4 or C4-5 level. The external carotid artery can be distinguished easily from the internal carotid artery because it has several branches in the neck, and there are no branches of the internal carotid artery. The cervical segment of the internal carotid artery can be further subdivided into a lower, sternomastoid portion and an upper, retrostyloid portion as it courses through the parapharyngeal space. The sternomastoid portion of the internal carotid artery is normally lateral to the pharyngeal wall, and posterior and slightly medial to the external carotid artery. The internal carotid artery enters the retrostyloid region after coursing above the inferior border of the posterior belly of the digastric muscle, and normally lies lateral to the pharyngeal wall. This artery approaches the skull base by summing a more medial location.

Leipzig and Dohrmann [6] divided the variations in the course of the carotid artery into the following 2 distinct categories: tortuosity and kinking. Elongation, redundancy, undulation, and an S-shaped curve are classified as tortuosity, while any sharp bend in the vessel is classified as kinking. This aberrant course may become more pronounced during adult life due to atherosclerotic or hypertensive.



Embryology of Aortic Arches

- ECA = External Carotid Artery
- ICA = Internal Carotid Artery
- MPA = Main Pulmonary Aorta Dividing Into Right (R) and Left (L) Pulmonary Arteries
- DA = Ductus Arteriosus

CONCLUSION

The proximity of the vessel to the retropharyngeal wall heightens the risk of both surgical and nonsurgical complications. Importantly, the artery's position is not static and may shift over time. Therefore, it is imperative for oral and maxillofacial radiologists to possess a comprehensive understanding of ICA anatomy and its variations. This knowledge empowers clinicians to implement necessary precautions to mitigate complications when undertaking procedures in this area [7-11].

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