

CASE REPORT

VARIATIONS IN THE DIVISION OF COMMON CAROTID ARTERY AND IN THE COURSE OF SUPERIOR THYROID ARTERY: A CASE REPORT

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ABSTRACT: Common carotid arteries on either side show frequent variations in their anatomy. This poses interpretational difficulties during interventional procedures in surgery, interventional radiology and angiography. Knowledge of all the variations is enlightening and aids the plan of management in corresponding specialties.

KEYWORDS: carotid bifurcation, superior thyroid artery, trifurcation of left superior thyroid artery.

INTRODUCTION: Major or minor variations in the arterial system are common. Most of the variations go unrecorded. But some of these variations are of surgical importance. One among them is noticed in the regular cadaveric dissection in the Department of Anatomy, Rangaraya Medical College, Kakinada.

CASE REPORT: The common carotid arteries on Right and Left sides are divided at different levels. Right common carotid artery is divided at the level of Hyoid bone instead of the upper border of Thyroid cartilage which is normal, into External and internal Carotid arteries. The Superior Thyroid artery, a branch of External carotid artery, on the Right side is divided into anterior and posterior branches which are diverging to reach the respective borders of Thyroid gland normally. On the right side, Superior laryngeal nerve is above the infrahyoid artery and is accompanying that artery.

On the left side the common carotid artery is divided into external carotid artery and internal carotid artery below the upper border of the thyroid cartilage. An arterial branch is found arising from common carotid artery 3mm below the bifurcation on the external surface. That arterial branch is found trifurcated.

The superior one is found to be the infrahyoid branch because it is going along the lower border of hyoid bone. On the left side, The superior laryngeal nerve is above and accompanying that branch. Middle branch is going to the upper pole of the lateral lobe of the Thyroid gland and is divided into anterior and posterior branches which are diverging to reach the respective borders of thyroid gland. The lowermost or 3rd division is going towards the Sternocleidomastoid muscle and supplying it. (muscular branch).

DISCUSSION: Vatsala et al reported a study in variations of common carotid bifurcations (63.8% high bifurcations) and there were no statistically significant side to side variations.^[1] The

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Superior thyroid artery commonly arises from the External carotid artery just above the carotid bifurcation. It may also arise from the Common carotid artery or from the bifurcation of Common carotid artery. Less frequently the STA arises from subclavian artery (SCA) or as a common trunk with the lingual and facial branches of ECA.^[2,3] Rarely The Superior thyroid artery may be absent.^[4,5,6] Very few studies in literature regarding the low origin of STA is available with respect to Asian subcontinent especially in India. Previous studies indicate that a low origin of STA is more common in females than in males.

CLINICAL SIGNIFICANCE:

1. The knowledge of variations is of importance in performing surgeries over Thyroid gland for properly identifying superior thyroid artery and ligating it to avoid per operative bleeding.
2. It also helps in embolization of arteries in tumor resections.
3. Helps in getting proper orientation and identification of structures and landmarks among neck dissections for various procedures.
4. For radiologists the knowledge of these variations help in proper assessment of carotid angiography and proper understanding and identification of vessels for embolization.

CONCLUSION: The knowledge of these variations are of much importance to clinician while performing surgeries and also to realize that these sort of variations are regular and common. Surgeon should be aware of these facts, so as to plan the surgery and look for variations routinely to avoid any untoward incidents. Knowledge of variations in the origin, course, and branching pattern of the carotid arteries will be useful in angiographic studies, transcatheter embolization procedures and in the head and neck surgeries. Variations of the origin and branches of the external carotid arteries on both sides are rare findings and impart important knowledge that is especially useful for surgeons who operate on the face and neck regions, as well as for radiologists in the interpretation of imaging studies. To conclude, this knowledge makes the general surgeon, ENT surgeon, Oncologist, Radiologist understand the course and variations of arteries and properly plan their approach and management.

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Frequency of levels of bifurcation of common carotid artery:

Level of bifurcation of Numbers Percentage:

Common carotid Artery:

High	C2	12	15
High	C2-3	8	10
High	C3	30	37.5
Normal	C3-4	19	23.7
Low	C4	3	3.75
Low	C5	2	2.5
Low	C6-7	6	7.5

Adopted from Vatsala A R Ajay K T G F Mavishettar Sangam, A Study of Anatomical Variations of the Common carotid Arteries: Cadaveric Study, Int J Anat Res 2014, 2(1):262-65.

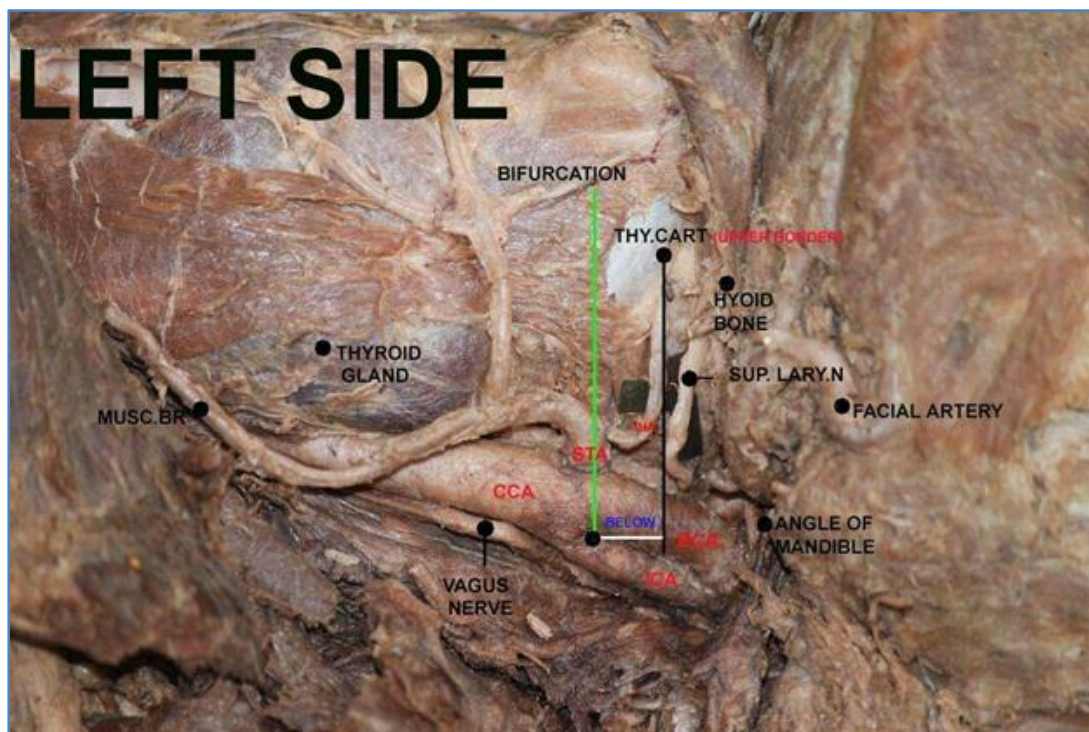


Figure 1

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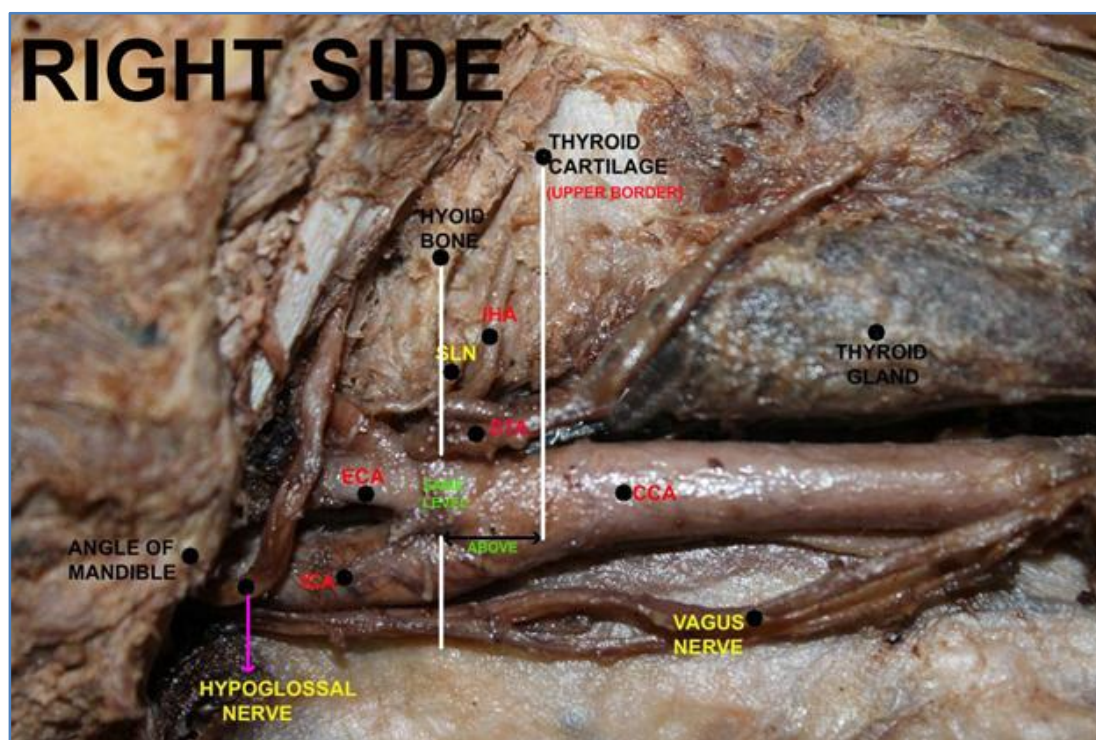


Figure 2

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