

Abnormal Branching Pattern of Lingual and Facial Arteries – A Case Report

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Abstract: Right common carotid is the branch of brachiocephalic trunk and left common carotid arises from arch of aorta. External carotid artery gives off eight separate branches. Variations are common in the branching pattern of facial and lingual arteries. Variations in branching of facial and lingual artery was found in a 65 year old cadaver during routing dissection of MBBS 2017- 18 batch in the Anatomy department, Indira Gandhi Institute of Medical Sciences, Patna, Bihar. Facial and lingual arteries were arises from a common trunk i.e. linguofacial trunk on the right side while on the left side facial and lingual arteries were arises separately from external carotid artery. Such anatomical variations of branching pattern of external carotid artery are important for surgeons in surgery of head and neck region and also important for radiologists in image interpretation of face and neck region.

Keywords: Linguofacial trunk, External carotid artery, Variations

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I. Introduction

The common carotid artery is the major source of blood supply at the region of head and neck. The right common carotid artery arises from brachiocephalic trunk and left common carotid artery arises from arch of aorta. Common carotid artery divides in to external and internal carotid artery at the level of superior border of thyroid cartilage with the intervertebral disc between C3 and C4 cervical vertebrae in the posterior triangle. It is important for surgeons to differentiate between external and internal carotid arteries to ensure that the artery being ligated is external carotid artery as ligation of internal carotid artery may result in hemiparesis [1]. In most of the cases, variation of external and internal carotid arteries are asymptomatic and therefore care must be taken during routing surgery of head and neck [2]. The external carotid artery runs anteromedial to the internal carotid artery and then becomes anterolateral as it ascends[3]. Normally external carotid artery gives eight branches namely superior thyroid, lingual, facial artery arises from anterior surface; occipital and posterior auricular artery arises from posterior surface; ascending pharyngeal artery arises from medial surface; the maxillary and superficial temporal arteries are terminal branches of external carotid artery arises within the parotid gland [4].

The facial artery normally arises at the level of just above the tip of greater cornua of hyoid bone in the carotid triangle. The lingual artery usually the second branch of external carotid artery arises the level of the greater cornua of hyoid bone [3]. Occasionally there may be variations in origin of facial and lingual artery in which both of the branches arises from single trunk known as linguofacial trunk [5]. Iatrogenic lingual artery injury is very common during tonsillectomy in presence of common linguofacial trunk. The previous study reveals the linguofacial trunk found bilaterally in 4.8% [6] and unilaterally in 20% Of population [7]. Knowledge of presence of common linguofacial trunk is important for surgeons for accurate arterial ligation during oral and faciomaxillary surgeries. This knowledge is also important for radiologists to understand and interpret the imaging of carotid artery.

II. Case Report

During routine dissection of first year MBBS students 2017-18 batch in the Anatomy department, Indira Gandhi Institute of Medical Sciences, Patna, Bihar, we found an anatomical variation in a 65 year old male cadaver in the carotid triangle. After giving off the superior thyroid artery, a common linguofacial trunk arises from external carotid artery. The facial and lingual arteries were arising from a common trunk i.e. linguofacial trunk from the front of external carotid artery on the right side. The common linguofacial trunk runs upward and forwards towards the mandible about 1.5 cm then it divides into the facial and lingual arteries. The superior thyroid artery originated directly from the front of external carotid artery just below the level of tip of greater cornua of hyoid bone. Such anatomical variation of branch of external carotid artery is important for surgeons during surgery of head and neck region. On the left side facial and lingual arteries were arising directly from external carotid artery.

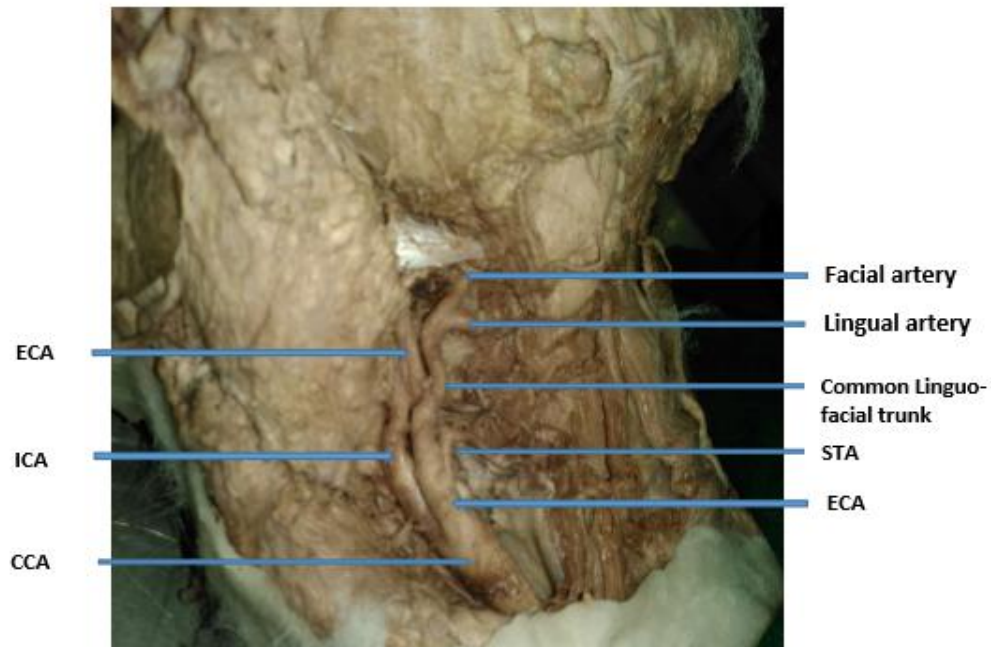


Fig.1. Linguofacial trunk on right side

CCA-Common carotid artery, ICA-Internal carotid artery, ECA- External carotid artery, STA- Superior thoracic artery

III. Discussion

The common carotid artery and its branches are the major source of blood supply in head and neck region. The common carotid artery bifurcate at the level of superior border of thyroid cartilage. The previous study showed that the branching pattern of external carotid artery was not uncommon. The common variations being the superior thyroid, lingual and facial artery arising from common trunk; posterior auricular, maxillary and superficial temporal arteries originating from external carotid artery by a common trunk; occipital and ascending pharyngeal arteries arising from common trunk. In some cases no specific external carotid artery was observed [8]. Arther Thompson described the unusual origin of superior thyroid and lingual arteries [9]. Babu, Budhiraj and Rastogi in their study reported the variations of origin of thyrolingual trunk from right and left common carotid arteries respectively [10,11]. A previous study done by Zumre et al.(2005) on human fetuses found thyro-lingual trunk in 2.5%, thyrolinguo-facial trunk in 2.5% and linguo-facial trunk in 20% [12]. Origin of linguo-facial trunk also reported [13]. But in the present study, linguo-facial trunk was found unilaterally in right side.

IV. Conclusion

The anatomical knowledge of variations of branching pattern of facial and lingual arteries is important in head and neck surgeries and also during the interpretation of angiograms by the radiologists.

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