BILATERAL FACIO - LINGUAL ARTERIAL TRUNK FROM EXTERNAL CAROTID ARTERY: A CASE REPORT

*Shah S[1], Koirala S[2],Yadav P[3], Khanal L[3], Bhattacharya S[4]
[1,2,3,4] **Department of Anatomy, B P Koirala Institute of Health Sciences, Dharan, Nepal**

Corresponding Author: Dr. Sandip Shah, Email: drfreecool@gmail.com , Phone: 984-2025497

Abstract: The common carotid arteries provide the major source of blood to the head and neck. The right common carotid artery originates from the brachiocephalic trunk in the neck while the left arises in the thorax from the aortic arch. Normally, it gives two terminal branches, external and internal carotid arteries at the level of superior border of thyroid cartilage in carotid triangle. The anatomic understanding of the facial and lingual artery is thus necessary since most of the cosmetic surgeries take place in the Head and Neck region. The present case, thus would provide useful information for clinical applications in different fields related with Head and Neck surgery.

Key words: Facial artery, external carotid artery, head and neck surgery

INTRODUCTION:

The common carotid arteries provide the major source of blood to the head and neck. The right common carotid artery originates from the brachiocephalic trunk in the neck while the left arises in the thorax from the aortic arch. Normally, it gives two terminal branches, external and internal carotid arteries at the level of superior border of thyroid cartilage in carotid triangle [1].

The facial artery normally arises from the external carotid artery, just above the lingual artery, at the level of greater cornu of hyoid bone in the carotid triangle. It then passes upwards and forwards medial to the ramus of the mandible[2].The reported variations of the facial artery include: its intra parotid origin [3], origin as a common trunk with the lingual artery as linguo-facial trunk [4,5].

The lingual artery is typically the second branch taking origin anteriorly from the external carotid artery and may arise either below or under cover of posterior belly of digastric [6]. The lingual artery arises from a common trunk with the facial artery(linguofacial trunk) in 10–20% of cases; however, a rare combination branch of the external carotid is thyrolingual trunk [7].

It is important for surgeons and radiologists to be aware of the normal anatomy of branches of common carotid artery since variations among these arteries are quite common; surgeons should be able to differentiate between the facial and the lingual artery to ensure accurate arterial ligation during Oral and Maxillo-Facial Surgery and Radical Neck Dissection.This knowledge can also help radiologists to understand and interpret Carotid System Imagings[8].
In this case report, a rare variation of the origin of lingual and facial artery, as the common trunk from both external carotid artery, is being reported.

MATERIALS AND METHODS:

This study involved the head and neck dissection of a middle-aged male cadaver of Nepalese origin in the Department of Human Anatomy, B.P KOIRALA INSTITUTE OF HEALTH SCIENCES(BPKIHS),DHARAN,NEPAL.The dissection of head and neck was carried out according to the instructions by *Cunningham's Manual of Practical Anatomy(vol-3 15th edition; 130-35)*.The dissections took place during the year 2011–2012. The body was preserved by the injection of a formalin based preservative (10% formalin) and stored at -4° centigrade in cold chamber.

RESULTS:

During routine dissection in Laboratory Exercise (LABEX) session for 2nd year medical undergraduate students in Anatomy department in BPKIHS, variation in the origin of facial and lingual artery from external carotid artery on both sides was observed in a male cadaver. The lingual artery and facial artery were originating on both sides as the common facio-lingual trunk from the anterior side of external carotid artery, 17 mm from Carotid Bifurcation and 11 mm above the origin of superior thyroid artery. The Facio-lingual arterial trunk was running medially and upwards which was crossed by hypoglossal nerve . The facial and lingual arteries were separeted from the common trunk at a distance of 12.5 mm and 7 mm from the origin of the common trunk on right and left sides respectively .The venous drainage system of the neck was normal on both sides.

DISCUSSION:

Variations in branching pattern of carotid system are well known; common variations being superior thyroid, lingual and facial arteries arising from the common carotid artery and posterior auricular, maxillary and superficial temporal arteries originating from the common carotid artery by a common trunk. The occipital and ascending pharyngeal arteries can also arises from the internal carotid artery. In some cases, no specific external carotid artery was observed [9]. Unusual case of origin of the superior thyroid, lingual was also described by Arthur Thomson in his notes on unusual variations [10]. Babu , Budhiraj and Rastogi reported variable origin of thyrolingual trunk from right and left Common Carotid Artery respectively [11,12]. Mahendrakar reported unilateral agenesis lingual artery [13]. Zümre et al in their study on human foetuses found linguofacial trunk in 20%, a thyro-lingual trunk in 2.5% and a thyro-linguofacial trunk in 2.5% of the human foetuses studied [14].

Recently, for reconstruction purposes, the Facial Artery Musculo-Mucosal (FAMM) flap was introduced by Pribaz J *et al*. (1992), which has been widely used for reconstruction of oronasal fistulas and closure of soft tissue defects in the mandibular vestibule . Although the FAMM flap has many advantages with its long rotational arc, its use is limited by variations in the course of the facial artery. Therefore, application of knowledge of the precise course and branching pattern of the facial artery is required for construction of FAMM flap and its successful utilization [15-17].

CONCLUSION :

Thus,variations in the origin and branches of the External Carotid Artery on both sides are rare findings providing knowledge useful for surgeons operating on the face and neck regions, as well as for radiologists in the interpretation of imagings. The anatomic understanding of the facial and lingual artery is thus necessary since most of the cosmetic surgeries take place in the Head and Neck region. The present case, thus would provide useful information for clinical applications in different fields related with Head and Neck surgery.

ACKNOWLEDGEMENTS:

We would like to thank the entire staff members of Anatomy Department especially Mr Binod and Mr Satya **for their assistance during the dissection**.

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