

## **Research Article**

### **A Research on The Incidence of Linguofacial Trunk Arising From External Carotid Artery in Adult Cadavers**

**Dr. Abhijeet Yadav<sup>1</sup>, Dr. Mukul Yadav<sup>2</sup>, Dr. Asha Dixit<sup>3</sup>**

<sup>1</sup>Assistant Professor, <sup>2</sup>Prof. & Head, Department of Anatomy, Bundelkhand Medical College, Sagar, Madhya Pradesh, India

<sup>3</sup>Ex- Prof. & Head, Department of Anatomy, Gandhi Medical College, Bhopal, Madhya Pradesh, India

#### **\*Corresponding author**

Dr. Abhijeet Yadav

**Email:** [dr.abhijeetrocks@gmail.com](mailto:dr.abhijeetrocks@gmail.com)

---

**Abstract:** The common carotid arteries are the major source of blood supply to the region of head and neck. Normally external carotid artery gives eight branches in the region of neck. In our present study, we have dissected all the branches of external carotid artery and we researched about the variation in facial and lingual artery specifically, the linguofacial trunk. This variation is important for surgeons in head and neck surgeries. The objective is to know the incidence of this variation in Indians so that the surgeons and radiologists can be benefitted by this knowledge. The routine dissection steps were followed that are normally undertaken for dissecting blood vessels in the head and neck region. It is found that 4 cadavers (15.38%) had unilateral linguofacial trunk and only one (3.8%) had bilateral linguofacial trunk out of the twenty six cadavers dissected. In conclusion, knowledge about this variation is of utmost importance to anatomists, surgeons and radiologists.

**Keywords:** linguofacial trunk, variations, external carotid artery.

---

#### **INTRODUCTION**

Common carotid artery normally divides into external and internal carotid artery at the level of upper border of thyroid cartilage. External carotid artery is one of the terminal branches of common carotid artery at the level of superior border of thyroid cartilage in carotid triangle. Iatrogenic lingual artery injury during tonsillectomy has been reported because of the presence of linguofacial trunk [1]. The facial artery normally arises from the front of external carotid artery just above the tip of greater cornua of hyoid bone in carotid triangle. The lingual artery is usually the second branch of external carotid artery arising from its front, opposite the tip of greater cornua of hyoid bone [2]. Sometimes facial and lingual arteries may arise from a common trunk (linguofacial trunk) [3]. This knowledge is also essential for radiologists to understand and interpret the carotid system imaging [4].

#### **MATERIALS & METHOD**

This study was done on twenty six human cadavers. These entire samples were collected from Department of Anatomy, Gandhi Medical College, Bhopal and Bundelkhand Medical College, Sagar. The study was carried out for a period of four years. Routine dissection method was followed. Incidence of linguofacial trunk originating from the

front of external carotid artery have been studied in this entire study.

#### **RESULT**

4 cadavers that is 15.38% had unilateral linguofacial trunk arising directly from external carotid artery approximately 1-1.5 cm medial to it and only one (3.8%) had bilateral linguofacial trunk out of all the twenty six cadavers dissected.



**Fig-1: Classic appearance of linguofacial trunk in a male cadaver**



**Fig-2: Classic appearance of linguofacial trunk in another cadaver**



**Fig-3: Classic appearance of linguofacial trunk in another cadaver**

## DISCUSSION

Anatomical studies have revealed the presence of linguofacial trunk unilaterally in 20% of population [5,6,7]. According to a study done by Bergman *et al.* facial artery may replace lingual artery and supply the sublingual gland. Linguofacial trunk bilaterally in 4.8% have been also reported [8]. Faciolingual and superior thyrolingual trunks were observed in 28.6% and 1.8% of the sides respectively [9]. Variation in branching pattern of ECA on both the sides are rare findings which impart useful knowledge for the surgeons while operating on the face and neck regions [4]. The anomalous branching pattern of linguofacial trunk may have implications in the surgical field. This brings the facial and/or lingual arteries in close proximity to the tonsillar fossa, thereby increasing the risk of iatrogenic injury [1].

## CONCLUSION

The anatomical knowledge of external carotid artery and their variations are important for all the anatomists, surgeons and radiologists.

## REFERENCES

1. Baik FM, Chang AA, Green DA, Pakbaz RS, Bergeron CM; Post-tonsillectomy Lingual Artery Pseudoaneurysm. *Laryngoscope*, 2011; 121: S61.

2. Williams PL, Bannister LH, Berry MM; Gray's Anatomy. In: Arteries of limbs and cardiovascular system. 38th ed. London: Churchill Livingstone, 1995; 1516-1517.
3. Bergman RA, Afifi AK, Miyauchi R; Illustrated Encyclopedia of Human Anatomic Variation: Opus II: Cardiovascular System: Arteries: Head, Neck, and Thorax. Common Carotid Arteries. 2013.
4. Kishve PS, Kishve SP, Joshi M, Aarif SM, Kalakoti P; An unusual branching pattern of common and external carotid artery in a human cadaver: a case report. *The Australasian medical journal*, 2011;4(4):180.
5. Hayashi N; Surgical anatomy of cervical carotid artery for carotid endarterectomy. *Neurol. Med. Chir*, 2005; 45(1): 25-29.
6. Lucev N; Variations of the great arteries in carotid triangle. *Otolaryngol. Head Neck Surg*, 2012; 8:590-591.
7. Zümre Ö, Salbacak A, Çiçekcibaşı AE, Tuncer I, Seker M; Investigation of the bifurcation level of the common carotid artery and variations of the branches of the external carotid artery in human fetuses. *Annals of Anatomy-Anatomischer Anzeiger*, 2005; 187(4):361-369.
8. Fazan VP; An anatomical study on ligual- facial trunk. *Surg. Radiol. Anat*, 2009; 31(4): 267-270.
9. Yonenaga K, Tohnai I, Mitsudo K, Mori Y, Saijo H, Iwai T, Takato T; Anatomical study of the external carotid artery and its branches for administration of superselective intra-arterial chemotherapy via the superficial temporal artery. *International journal of clinical oncology*, 2011; 16(6):654-659.