

*Case Report***Anomalous Formation of Linguo-Facial and Occipito-Auricular Trunk**Radhika Kuttan¹, Deborah Joy¹, Nirmaladevi Murugesan², Jamuna Meenakshisundaram³¹Assistant Professor of Anatomy, ²Associate Professor of Anatomy, ³Professor of Anatomy, PSG Institute of Medical Sciences and Research, Peelamedu, Tamilnadu, India.

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*Received: 16/06/2015**Revised: 13/07/2015**Accepted: 20/07/2015***ABSTRACT**

Modifications in the branching pattern of the external carotid artery have been reported earlier. The variation in the present case, once again emphasize its unusual branching pattern of ECA. In the present case we report here, a unilateral variation in arterial pattern of external carotid artery which was found during a routine dissection on the right side of the neck. The external carotid artery gives rise to a common trunk consisting of a linguo-facial and an occipito-auricular trunk. The aim of the finding is to provide the awareness of an unreported arterial pattern, which is essential for the surgeons prior to any of the surgical approaches on the head and neck especially during the ligation of vessels.

Key words: Linguo-facial trunk (LFT), Occipito-auricular trunk (OAT), External carotid artery (ECA)

INTRODUCTION

The external carotid artery provides the chief nutritional supply to the head and neck. The external carotid artery begins lateral to the upper border of the thyroid cartilage, with the level of intervertebral disc between third and the fourth cervical vertebrae.

External carotid arteries have eight branches classically, distributed to the head and neck. ⁽¹⁾ Usually lingual and the facial arise from the front of ECA and the occipital and posterior auricular artery origins from behind. ⁽²⁾ The present variation was rationalized earlier, as lingual and facial forming a common trunk (linguo-facial trunk) in 10-20% of cases. ⁽³⁾ To sum up, Zumre O et al too found about the incidence of 20% linguo-facial trunk cases and

Occipito - auricular trunk in 12.5% of human fetuses. ⁽⁴⁾

CASE REPORT

During the routine dissection of head and neck, while teaching for the first year medical undergraduate students, we observed an atypical formation of LFT and OAT from a male embalmed cadaver. We encountered that the lingual and facial artery begins from a common LFT from the anterior aspect of ECA which were found unilaterally, in the right carotid triangle (Figure 1). In addition the occipital and posterior auricular arteries were also originating as a common OAT from the ECA on the same side (Figure 2). The anomalous arterial pattern were dissected carefully and photographed. Both the LFT

and OAT after its formation as the trunks, it has been further divided into the lingual and facial, occipital and posterior auricular arteries. The courses of the first part of the lingual artery have been traced and it has been extended up to the posterior border of hyoglossus muscle. The facial artery after its origin from the LFT runs deep to posterior belly of digastric muscle. The deep branches were not traced. Occipital and posterior auricular artery followed its usual course. The branching patterns on the left side were also dissected and there was no peculiarity in their branching pattern.

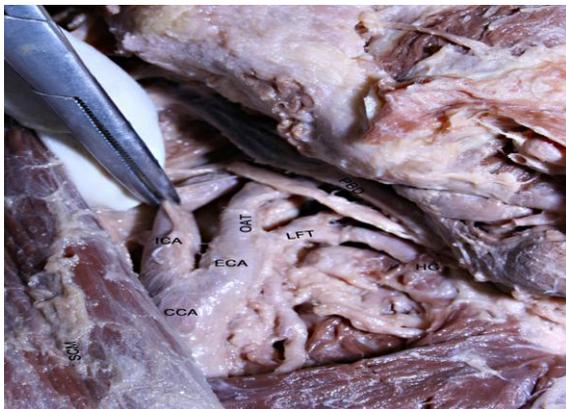


Figure 1: Common linguo-facial trunk and common occipito-auricular trunk. ECA: External carotid artery; LFT: Linguo-facial trunk; OAT: Occipito-auricular trunk; SCM: Sternocleidomastoid; PBDB: Posterior belly of digastric; HG: Hyoglossus; ICA: Internal carotid artery; CCA: Common carotid artery.

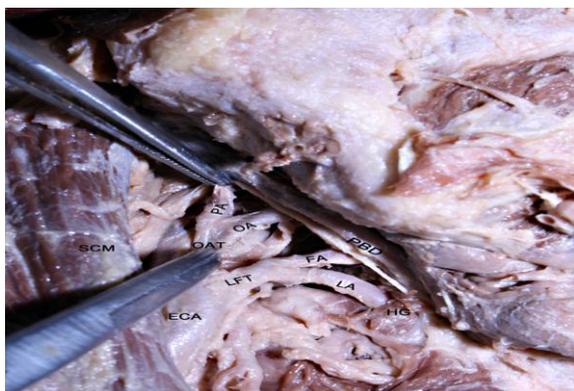


Figure 2: Linguo-facial trunk and occipito-auricular trunk lingual artery with branches. FA: facial artery; OA: occipital artery; PA: posterior auricular artery; ECA: External carotid artery; LFT: Linguo-facial trunk; OAT: Occipito-auricular trunk; SCM: Sternocleidomastoid; PBDB: Posterior belly of digastric; HG: Hyoglossus; ICA: Internal carotid artery; CCA: Common carotid artery.

DISCUSSION

Familiarity of the abnormal branching pattern of ECA is required for the surgeons to avoid the surgical complications and is vital for the radiologists during interpretation of the images. Sanjeevi. K I et al have reported earlier as, the formation of linguo-facial trunk in (18.92%) of cases and occipito-auricular trunk from (2.70%) of cases. (4) Mamatha. T et al have observed the formation of occipito-auricular trunk. (6) Incidences of the linguo-facial trunk in addition to the origin of ascending pharyngeal artery arising from the occipital artery were also identified by Nadire Unver Dogan et al. (7) Reporting's of Satoru Shintani et al says the formation of linguo-facial trunk in 31.0% of the Japanese cadavers. (8) Punita Sharma et al observed that the lingual and facial artery forming a common trunk, with its tonsillar and ascending palatine branches arising directly from the ECA. (9) Formation of common linguo-facial trunk was also identified by Nirmaladevi. M et al. (10) Prakash Billakanti moreover observed the related pattern of common occipito-auricular trunk. (11)

Reporting's from Surekha Devadasa Shetty et al emphasized the occipital and posterior auricular branch arising as a common trunk from ECA. (12) Derek G et al reporting say that the anomalous linguo-facial pattern were considered while mapping the ECA branching pattern during an angiographic procedure. (13)

Awareness of the above variation is fundamental for radiologists to have an overlook, whereas to access the carotid and vertebrobasilar circulation. In addition to CTA, MRA the recent advancements like 3D contrast enhanced MR angiography has been used to visualize the ECA branching pattern. (13) Considered even constructively during the surgical procedures such as carotid angioplasty and stenting of carotid

vessels to avoid complications (13) and supportive during transcatheter embolization. (15)

CONCLUSION

Unilateral origin of linguo-facial and occipito-auricular trunk found simultaneously being rare, noting that it would be benefactor for the vascular, plastic and reconstructive surgeons who demands the information on the variations of vascular system and be useful for the interventional radiologists during the embolization procedures, the present case report have been reported.

REFERENCES

1. Susan Stranding; Gray's anatomy. The Anatomical basis of clinical practice, 39th edn: p. 543-546.
2. Datta A.K; Essentials of human anatomy, Head and Neck, 4th edn: p 119-121.
3. Bergman R A, Afifi A K; Illustrated encyclopedia of human anatomic variations, *Http: // www.anatomy atlases.org/ Opus II cardiovascular system.*
4. Zumre O, Salbacak A, Cicekcibasi AE et al. Investigation of the bifurcation levels of the common carotid artery and variations of the branches the external carotid artery in human fetuses. *Ann Anat.* 2005. 187: 361-369.
5. Sanjeev IK, Anita H, Ashwini M et al. Branching pattern of External carotid artery in human cadavers. *JCDR.* 2010. 4: 3128-3133.
6. Mamatha T, Rajalakshmi Rai, Latha V Prabhu et al. Anomalous branching pattern of the external carotid artery. *Romanian journal of morphology and embryology.* 2010. 51(3):593-595.
7. Nadire Unver Dogan, Aynur Emine Cicekcibasi, Zeliha Fazliogullari et al. Unilateral variations of vessels and nerves in the neck. *International Journal of Morphology.* 2010. 28(3): 963-966.
8. Satoru Shintani, Nagaaki Terakado, Rafael E. Alcalde et al. An anatomical study of the arteries for intra arterial chemotherapy of head and neck cancer. *In J Clin Oncol.* 4:327-330.
9. Punita Sharma, Surinder Salwan. A hitherto unreported disruption of cervical branches of facial artery. *IJAV.* 2011. 4: 49-51
10. Nirmaladevi M, Sruthi G. Linguo-facial trunk-a case report. *Anatomica Karnataka.* 2010. 4(2): 54-56.
11. Prakash Billakanti Babu. Anomalous origin of occipitoauricular trunk from external carotid artery. *Anat Clin.* 2011. 3 (2):106-109.
12. Surekha Devadasa Shetty, Satheesha Nayak Badagabettu, Naveen kumar et al. Low level termination of external carotid artery and its clinical significance. *Arch Clin Exp Surg.* 2013. X (X): X-X.
13. Derek G. Lohan, Fatemeh Barkhordarian, Roya Saleh et al. MR Angiography at 3 T For Assessment of the External Carotid Artery System. *AJR.* 2007.189: 1088-1094.
14. Hary J. Cloft. Angioplasty and stenting of the carotid artery. *Applied Radiology.* 2001.23-28.
15. Tony P Smith. Embolization in the external carotid artery. *JVIR.* 2006. 17: 1897-1913.

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