



LINGUO-FACIAL TRUNK (RIGHT SIDE)-A CASE REPORT KANAGAVALLI PARAMASIVAM

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Abstract : The rich vascularity of most part of the head and neck is mainly maintained by the external carotid artery through its branches. So knowledge of variations of external carotid artery, its branching pattern and its position is mandatory to avoid complications during various surgeries and radiological procedures. A rare anatomic variant of origin of facial and lingual artery was found in a fifty five year old male cadaver during routine undergraduate dissection program. The facial artery arose as a common trunk with the lingual artery as lingo-facial trunk, with other branches being normal.

Keyword : Variations, Lingo-facial trunk, External Carotid Artery, Neck Surgeries

INTRODUCTION:

The term 'carotid' is derived from a Greek word meaning heavy sleep, because it was known from antiquity that compression of carotid arteries induces deep sleep⁸. External Carotid Artery and its branches supply most of the head and neck regions. Like other great vessels of the neck, the ECA and its branches have numerous variations. These variations pose a dangerous situation during surgeries like thyroidectomy, laryngectomy, oro-faciomaxillary surgeries, ENT Surgeries, Super selective intra-arterial chemotherapy for head and neck cancers. Pre-operative selective arterial angiograms are done to map out the vascularity and true extent of the tumors of head and neck. It is also important to know about the variations in ECA branching in such procedures.

Facial artery generally arises in the carotid triangle from the anterior wall of the ECA at a point a little above the lingual artery and then runs forward under cover of the body of mandible and then is lodged in a groove in the posterior surface of the submandibular gland. It then curves upwards over the body of mandible at the antero - inferior angle of the masseter muscle. Furthermore, the facial artery passes forwards and upwards across the cheek to the angle of the mouth,

then runs upward to the medial angle of the eye along the side of the nose .1 Lingual artery is the principal artery of the tongue and arises from the anterior wall of the ECA opposite the tip of greater cornu of hyoid bone. Then, it runs forwards and medial to the posterior border of the hyoglossus muscle with a characteristic loop having its convexity upwards. It passes deep to hyoglossus and runs horizontally forwards along the upper border of the Hyoid bone between hyoglossus laterally and middle constrictor and stylohyoid ligament medially, then ascends along anterior border of the hyoglossus and runs forwards beneath the mucous membrane of the under surface of tongue where it anastomoses with its fellow of opposite side .1

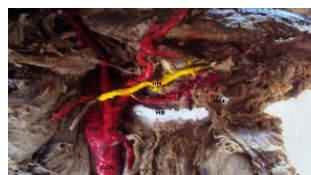
CASE REPORT:

During the first year medical undergraduate dissection study, a rare anatomic variant was encountered in the right carotid triangle in a 55 year old male cadaver in the Institute of Anatomy MMC, Chennai. We came across an unusual branching pattern of right ECA - the facial artery and the lingual artery arose as a common lingo- facial trunk.



Linguo-Facial trunk Right Side

The right common carotid artery bifurcated normally into external carotid artery and internal carotid artery at the level of upper border of thyroid cartilage. After giving STA as a first branch from the antero-lateral wall of the ECA just above the bifurcation, the lingual artery and facial artery arose together as a common trunk from the antero- medial wall of external carotid artery. The LFA arose as a second branch just above the tip of the greater cornu of hyoid bone 14mm from carotid bifurcation.



Linguo - Facial in relation with hypoglossal nerve

After passing 7mm as common trunk LFT divided into lingual and facial artery. Then the facial artery followed a straighter course along the posterior aspect of the submandibular gland, partially sheltered by the mandible. The artery passed between the submandibular gland and the inner surface of the body of mandible after grooving the gland. It gave glandular and submental branches before winding up in the lower border of the mandible at the antero – inferior angle of masseter to enter the face. The tonsillar and ascending palatine branches were normal in origin. The course of facial artery in the face was normal. The lingual artery passed medial to the posterior border of the hyoglossus after forming a loop with upward convexity. The loop was crossed by the hypoglossal nerve anteriorly. Then the lingual artery was traced along the upper border of the hyoid bone deep to the hyoglossus. At the anterior border of the hyoglossus, the lingual artery ascended upwards to enter the under surface of the tongue.



other branches of right E



further tracing of facial and ligual artery

Other Other branches of the right ECA were normal. Opposite side ECA and its branches were normal. Venous drainage of both sides was normal.

DISCUSSION

After the regression of first and second aortic arches, the ECA arises as a sprout from third aortic arch. Branches of ECA arise as outgrowth from the main vessel. We found a rare variation of facial and lingual artery arising together as common linguo-facial trunk. Variations of the lingual and facial artery have been reported previously. Kaneko et al. observed that the superior thyroid, lingual and facial arteries arose from the common carotid artery. The linguo-facial trunk, on the other hand, was found in 14% of the cases by Lappas⁴, in 31% of the cases by Shintani⁹, in 20% of the cases by Lucev¹⁰ and in 18.92% of the cases by sangeev⁷.

AUTHOR	PERCENTAGE
LAPPAS	14%
KOZICLCE & JOZWA	43%
SHANTHINI	31%
SANGEEV	18.92%

There are two classifications for the origin of anterior branches of ECA.

LIPPERT & PABST CLASSIFICATION OF ANTERIOR BRANCHES OF ECA (6 TYPES)

TYPE	COMPONENTS
TYPE 1	STA, LA, FA ARISE SEPARATELY AND STA FROM ECA
TYPE 2	STA, LA, FA ARISE SEPARATELY, STA FROM CB
TYPE 3	STA, LA, FA ARISE SEPARATELY, STA FROM CCA
TYPE 4	LA, FA ARISE TOGETHER IN A COMMON TRUNK
TYPE 5	STA, LA ARISES TOGETHER AS COMMON TRUNK.
TYPE 6	STA, LA, FA ARISES AS A COMMON TRUNK.

In this classification my observation comes under type 4

DARKE ET AL CLASSIFICATION OF ANTERIOR BRANCHES OF ECA (4 TYPES)

TYPE	COMPONENTS
TYPE 1	SEPARATE ORIGIN OF STA, LA, FA
TYPE 2	LA, FA ORIGINATE TOGETHER AS A COMMON TRUNK
TYPE 3	STA, LA ORIGINATE TOGETHER AS A COMMON TRUNK
TYPE 4	STA, LA, FA ORIGINATE TOGETHER AS A COMMON TRUNK

In this classification my observation comes under type 2 classification.

CONCLUSION:

These variations in the origin of lingual and facial artery are not uncommon. Hence, during extra oral ligation of lingual artery in glossectomy, the surgeon should be aware of these types of variations. While inserting catheter for super selective intra-arterial chemotherapy for head & neck tumors, the operator should be aware of these variations. Knowledge about variations are also needed in Elevation of various cutaneous and myocutaneous flaps for plastic and reconstructive surgeries of head & neck, which depend on the ECA for their blood supply.

Abbreviations used:

ECA-External carotid artery
LA-Lingual Artery
FA-Facial Artery
CA-Common Carotid Artery
APA-Ascending Pharyngeal Artery
PA-Posterior Auricular Artery
OA-Occipital Artery
HM-Hyoglossus Muscle
HN-Hypoglossal Nerve
HB-Hyoid Bone.

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