Variant suprahyoid artery from facial artery: A case report

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Abstract
Introduction
The suprahyoid artery also known as hyoid artery is a branch of the lingual artery in the neck. The suprahyoid artery gives small vascular collateral branches to omohyoid, sternohyoid, and thyrohyoid muscles. The facial artery is a favourable artery to raise musculomucosal flaps in the cervicofacial region because of its wider arc of rotation. The aim of this report is to describe a rare origin of variant suprahyoid artery from facial artery with its clinical and embryological perspective.

Case report
The head and neck region of a 40 year old male cadaver of North Indian origin was dissected in the Department of Anatomy, Maulana Azad Medical College, New Delhi, India, and the specimen was studied for any gross anatomical variation. An unusual origin of the suprahyoid artery from the facial artery was reported in this case.

Conclusion
Hence in performing various reconstructive surgeries, knowledge of an unusual branch from the facial artery in the neck could maximize a better outcome. Thus, surgeons need to be aware of encountering such variation, as this anatomical knowledge will be helpful in preserving collateral vessels supplying a muscular flap.

Introduction
Knowledge of variations of major arteries and their branches in the neck region is essential during neck surgeries and radiological examinations. The suprahyoid artery normally arises from the lingual artery and runs along the superior border of the hyoid bone and anastomoses with its fellow of the opposite side. This branch from the lingual artery in the suprahyoid region is known to supply the strap muscles viz: omohyoid, sternothyroid, and thyrohyoid in conjunction with superior and inferior thyroid arteries. These muscles are used as myocutaneous flaps for reconstructing surgical defects in the head and neck. The cut portions of these flaps are nourished by muscular perforator vessels which are branches from surrounding arteries. It requires care whenever harvesting these flaps to prevent undue torsion on the vessel as the arc of rotation along these vascular pedicles limits the extent of the flap. The facial artery musculomucosal flaps (FAMM) introduced by Pribaz J et al. has many advantages with its long rotational arc. Thus knowledge about the unusual branches of the facial artery is required to maximize the use of such flaps.

Although many variations in the branching pattern of facial artery has been mentioned widely, this report describes an unusual suprahyoid artery arising from the facial artery, a very rare variation reported till date.

Case report
The report involved dissection of the head and neck region of a 40 year old male cadaver of North Indian origin in the Department of Anatomy, Maulana Azad Medical College, New Delhi, India. The dissection was conducted according to the instructions given in Cunningham’s Manual of Practical Anatomy. The dissection took place for routine teaching of Medical undergraduates in November 2013. The body was preserved by injecting 10% formalin-based preservative and stored at -4°C.

The specimen revealed an unusual suprahyoid artery arising from the facial artery on the left side. The facial and lingual arteries were reported to be arising as a common linguofacial trunk from the external carotid artery in this case too which is seen in 10-20% of cases. The common linguofacial trunk was running medially beneath the hypoglossal nerve. 12mm from its origin from the external carotid artery the linguofacial trunk divided into the lingual and facial artery. The lingual artery made a loop with a downward convexity and entered below the hyoglossus muscle without giving any branch in this region.

However, the facial artery just after its origin from the common linguofacial trunk, gave an unusual suprahyoid artery which traversed anterior to the loop of the lingual artery (Figure 1). This variant suprahyoid artery then had its usual course along the upper border of the hyoid bone supplying the adjacent muscle. It terminated by anastomosing with its fellow from the opposite side. On the right side the suprahyoid artery had its normal origin from the lingual artery.

Discussion
The development of arteries in the head and neck region is through a process of angiogenesis and remodelling with annexation and regression of vessels. The facial and lingual arteries are known to compensate one another via the submental and the sublingual anastomosis. The linguofacial collateral pattern is formed by three principal arterial trunks: lingual artery, facial artery and superior thyroid artery. Branches from lingual and facial arteries anastomose in the sublingual, submental and suprahyoid region contributing to the efficient linguofacial collateral pattern.

The suprahyoid artery is one of the branches from the lingual artery in the suprahyoid region, other major branches of the lingual artery are given

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off in the submandibular and sublingual region. The facial artery gives off mainly the submental artery and other small muscular and glandular branches in the cervical region. Anatomical study of the branches of the facial artery in the cervical region is of interest for reparative surgeries and in surgeries of certain neck swellings: benign as well as malignant. It is also helpful in radiological evaluation and furthermore for therapeutic purposes of certain tumours for embolization.

It is stated that the collateral vessels should be preserved as far as possible while raising the infrahyoid myocutaneous flaps in reconstructive surgeries. In this case one of the collateral vessels, the suprahyoid artery is taking its origin from the facial artery. The flaps raised along the facial artery have a wider arc of rotation hence enabling an easier raising of flaps. An imprecise knowledge of these arterial pedicles could result in limited use of myocutaneous flaps in plastic surgery.

Flaps pedicled along the facial artery are used for different purposes, such as reconstruction of oronasal fistulas and closure of soft tissue defects in the mandibular vestibule. Though most are pedicled along the branches given on the face, the variations in certain favourable branches of the facial artery in the neck could increase the surgical use of facial artery suprahyoid flaps. As seen in this current case, an unusual suprahyoid artery arising from the facial artery could make a better planning in head & neck surgeries and will have a better outcome if such minor collateral vessels supplying the strap muscles are preserved in reconstructive surgeries. The suprahyoid artery being a small artery supplying these muscles could have a better chance of preservance when arising from the facial artery.

**Conclusion**

An unusual suprahyoid artery arising from the facial artery as described is of clinical relevance to the surgeons and radiologists. The facial artery is a prime artery of choice for performing cervicofacial reconstructive surgeries because of its tortuous course and wider arc of rotation. An awareness and knowledge of possible variant branches from the facial artery may be helpful for surgeons operating in the head and neck region.

**References**