

Thyrolingual trunk arising from the common carotid bifurcation

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ABSTRACT

Carotid arteries and their branches exhibit a wide range of variations. However, variations in the origin of the thyrolingual trunk from the common carotid artery are rare. We observed a case of thyrolingual trunk arising from the bifurcation point of the right common carotid artery during a routine dissection class for medical undergraduates. The thyrolingual trunk was running medially and downward before dividing into the upper lingual artery and the lower superior thyroid artery. No such variation was noted from the bifurcation point of the left common carotid artery.

Keywords: common carotid artery, thyrolingual trunk, variations

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INTRODUCTION

Under normal circumstances, the common carotid artery (CCA) gives off two terminal branches, namely the external and internal carotid arteries, at the level of the superior border of the thyroid cartilage. The external carotid artery gives off five branches in the carotid triangle. The superior thyroid artery is the first branch of the external carotid artery, or it may arise directly from the CCA. The lingual artery arises anteromedially from the external carotid artery, and often arises together with the facial artery or less commonly, the superior thyroid artery. It may be replaced by the ramus of the maxillary artery.⁽¹⁾ The lingual artery may also arise from a common trunk with the facial artery (linguofacial trunk) in 10%–20% of cases; a rare combination of the external carotid is the thyrolingual trunk.⁽²⁾ The CCAs are important landmarks for defining the dissection planes during radical head and neck surgeries.⁽³⁾ Therefore, it is mandatory for surgeons and radiologists to be aware of such variations of the CCA.

CASE REPORT

During a routine dissection class at the Department of Anatomy, Krishna Institute of Medical Sciences Deemed University, India, a variation in the origin of



Fig. 1 Photograph shows the thyrolingual trunk originating from bifurcation point of the right common carotid artery.

the thyrolingual trunk was observed in a male cadaver. The thyrolingual trunk was found to arise from the bifurcation point of the right CCA. The common trunk was 7 mm in length, and developed downward and medially before dividing into the upper lingual artery and the lower superior thyroid artery, the latter of which was running downward and medially toward the thyroid gland. The lingual artery ascended, forming a loop, and then passed medially toward the tongue (Fig. 1). However, on the left side, the arterial branching pattern was normal. Awareness of this rare variation is essential for avoiding potential complications during thyroid and carotid surgeries.

DISCUSSION

Carotid arteries and their branches exhibit a wide range of variations. A number of studies have reported many different variations. Kaneko et al have observed superior thyroid, lingual and facial arteries arising from the CCA and posterior auricular, maxillary and superficial temporal arteries arising from the CCA by a common trunk. The occipital and ascending pharyngeal arteries have also been seen to arise from the internal carotid artery, with no specific external carotid artery.⁽⁴⁾ Lemaire et al noted superior thyroid and lingual arteries on the right side arising from a common trunk located 30 mm beneath the carotid bifurcation.⁽⁵⁾ Aggarwal et al reported a case of variant origin of the superior thyroid artery, occipital artery and ascending pharyngeal artery from the cervical segment of the internal carotid artery seen during angiography.⁽⁶⁾

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Three other studies have reported variations in the origin of the thyrolingual trunk from the right and left CCAs, respectively.⁽⁷⁻⁹⁾ Budhiraja and Rastogi found the incidence of the thyrolingual trunk originating from the external carotid artery to be 0.7%–3.0%, and less than 0.1% from the common carotid.⁽⁸⁾ In our present case, the thyrolingual trunk arose from bifurcation point of the right CCA (Fig. 1).

Vascular variations are increasingly described in the literature. This may be attributed to an increasing need to uncover new and safer access for surgical procedures in the neck and head region. Knowledge of this rare variation will be helpful to surgeons who are performing head and neck surgeries and other procedures. It is also beneficial to radiologists to be aware of these variations.

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