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Lower Division of the Common Carotid Artery – A Case Report

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Expressed variations in division of the common carotid artery are not rare. Low division (30% of the variations) is usually at the level of the middle part of the larynx. The dividing at the level of the annular cartilage is very rare and we found only one reported case of separation below the annular cartilage – at the base of the neck. The aim of the study was to determine, analyze, document and assess the presence of a rare variation – lower division of common carotid artery discovered during a dissection. Cadaveric dissection material was used. We detected a low separation of the common carotid artery – below the level of the lower edge of the annular cartilage. Knowledge of the variations of the common carotid artery and its branches is required, as in the diagnosis of disease in the neck and head, and in carrying out manipulations in these areas.

Key words: common carotid artery, division, variations, hyoid bone, neck.

Introduction

Expressed variations in the division of the common carotid artery are not rare in Europeans [9] and Africans [1]. Of these, the most common is high separation [3, 6, 16] of the artery – at the level of or above the hyoid bone (70% of variations). Furukawa et al. publish results of an investigation about variation of the carotid artery bifurcation level [5]. Low division (30% of the variations) is usually at the level of the middle of the larynx [8, 12].

Cakirer et al. [4] using MR inform for separate origins of the left internal and external carotid arteries from the aortic arch. Roberts and Gerald use X-ray and find an absence of both common carotid arteries [11]. Vitek et al. discover a thoracic bifurcation of the common carotid artery [17]. Many authors report about anomalous branching patterns of the carotid arteries [7, 10, 13, 15] and high carotid bifurcation but we found only two reported cases of separation below the annular cartilage – at the base of the neck and a thoracic bifurcation. The aim of the study was to determine, analyze, document and assess the presence of a rare variation – lower division of common carotid artery discovered during dissection exercises. For the implementation of the objective identified the following main tasks: 1) by preparation of anatomical objects in the division to determine the presence of vascular deviation from accepted norms; 2) to analyze the case and compare with similar abnormalities.

Materials and Methods

It was used cadaveric dissection exercises material on which the method is applicable "taxidermy anatomical objects". Detected features are observed, analyzed and a picture is taken. In the analysis, a comparison with other similar cases is described in the accessible literature. Researched and expert opinion published in specialized journals on clinically relevant, we open to variation.

Results and Discussion

We detected a low separation of the common carotid artery – below the level of the lower edge of the annular cartilage (**Figs. 1, 2**).

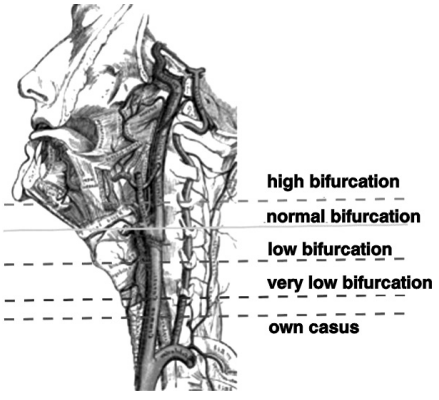

Fig. 1. Bifurcation levels of the common carotid artery

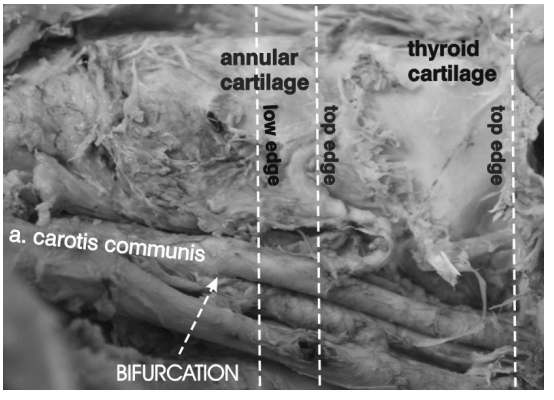

Fig. 2. Bifurcation of the left common carotid artery (an own case)

The division of the common carotid artery is about 2.5-3.0 cm below the lower edge of the annular cartilage. Regardless of the different rate variability, which indicates, according to most researchers division of a. carotis communis below the level of the thyroid cartilage is rare [8, 15].

All researchers agree that variations in the division of the common carotid artery are important [14] for the manipulation in the neck – ligation of vessels and arteriectomy, surgery of adjacent tissues, as well as diagnostics – interpretation of digital angiography, Doppler and others [9, 14].

Conclusions

1. Low division of the common carotid artery is rare.
2. Vascular variations in the neck are associated with the occurrence and development of many diseases – both vascular and surrounding structures.
3. Knowledge of the variations of the common carotid artery and its branches is required, as in the diagnosis of disease in the neck and head, and in carrying out manipulations in these areas.

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