

CASE REPORTS

VARIATION OF THE BRANCHES OF EXTERNAL CAROTID ARTERY

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Gazi Medical Journal 2000; 11: 81-83

SUMMARY : *In this case the right ascending pharyngeal artery was observed arising from the carotid bifurcation instead of the posterior aspect of the external carotid artery. In addition to this, on the same side, the posterior auricular artery arose from the external carotid artery together with the occipital artery by a short common trunk instead of its original localization at the upper border of the posterior belly of the digastric muscle. Later, the ascending pharyngeal artery branched from the trunk and ran towards the related areas, and the remaining part of the trunk terminated as the superficial temporal artery. No variations were observed on the left side. In recent years, as angiography has gained popularity for diagnostic approaches, and such variations are thought to have clinical importance.*

Key Words: *Common Carotid Artery-External Carotid Artery- Internal Carotid Artery- Variations.*

INTRODUCTION

In several studies certain variations were reported in the branching pattern of the external and internal carotid arteries and common carotid arteries (1-5).

As such variations are of importance for surgical approaches in the head and neck region, the variation in the present case was studied and compared with those reported before.

CASE REPORT

During an anatomy class at Gazi University Medical School, the following anomaly was observed in the head and neck region of a 67-year-old male cadaver. The

common carotid artery divided into internal and external carotid arteries at the level of the upper border of the thyroid cartilage as reported in classical textbooks. However the pharyngeal artery was observed arising upwards from the posterior surface of the bifurcation. The superior thyroid artery, lingual artery and facial artery arose from the anterior border of the external carotid artery. At the level of the take-off point of the facial artery, just behind the posterior belly of the digastric muscle occipital artery and posterior auricular artery were seen arising from external carotid artery as a common trunk and coursing to the related areas. The posterior auricular artery lay along the superior border of the posterior belly of the digastric muscle. Later the external carotid artery was observed coursing forwards in its usual anatomic localization and terminating by



Fig. 1: An anomalous case of the right external carotid artery and its branches.

1 : Superior thyroid artery, 2 : Lingual artery, 3 : Ascending pharyngeal artery, 4 : Facial artery, 5 : Posterior auricular artery, 6 : Occipital artery, 7 : Hypoglossal nerve, cca : Common carotid artery, eca : External carotid artery, ica : Internal carotid artery.

dividing into maxillary and superficial temporal arteries (Fig. 1).

DISCUSSION

The ascending pharyngeal artery develops from a vascular bud that appears on the proximal end of the external carotid artery in the early stages of intrauterine life and forms the subpharyngeal capillary net. Sometimes the above mentioned buds may fail to develop from the external carotid artery, instead they anomalously develop from the proximal end of internal carotid artery and form definitive arterial branches. Mediolateral shifts of the external carotid artery during development could cause vascular anomalies as well (6).

In the studies on origin anomalies it was reported that the origin of ascending pharyngeal artery was somewhat variable in that it arose from the occipital artery in 14 % of the cases (1). In their studies on Japanese cadavers Teal and colleagues reported that the ascending pharyngeal artery arose from the proximal end of the external carotid artery in 19 % of the cases (5). In another angiographic study related to the

common carotid artery Peltz and colleagues reported the ascending pharyngeal artery arising from the proximal part of the internal carotid artery only in two cases (7).

Lasjaunias and colleagues reported three different types of the originating point of the ascending pharyngeal artery as below (8);

I- From the carotid bifurcation in the angle between the internal and external carotid arteries.

II- From the internal carotid artery, just above its origin, sometimes paired with the occipital artery.

III- From the external carotid artery, paired with the occipital artery or just below its point of origin.

In the present case the ascending pharyngeal artery was observed arising from the carotid bifurcation in the angle between the internal and the external carotid arteries as one of the three types determined by Lasjaunias. On the other hand as the ascending pharyngeal artery was observed arising from the external carotid artery paired with posterior auricular artery it was different from the types determined by Lasjaunias.

In another case Koneko and colleagues reported the anomaly on the left side. While the superior thyroid, lingual and facial arteries originated directly from the common carotid artery; posterior auricular, maxillary and superficial temporal arteries formed a common trunk. Additionally they observed that the occipital artery arose from the common carotid artery together with the sternocleidomastoid artery. Just above the origin of the above-mentioned vascular structure the ascending pharyngeal artery was observed (2). Such anomalies were also reported previously by Kubato and Matsumoto (3,4). Kubato also reported that in cases with completely absent external carotid artery, vascular structures of the region could arise from the internal carotid artery (3).

In his angiographic studies Takenoshita reported that the superior thyroid, lingual and facial arteries commonly originated from the external carotid artery while maxillary, superficial temporal and occipital arteries arose from the internal carotid artery (9).

In the present case, different from the other cases reported in the literature the occipital and

posterior auricular arteries arose from the external carotid artery as a short common trunk and later divided into separate branches. It was also observed that occipital artery had a slightly larger caliber than the posterior auricular artery.

Since angiographic studies are gaining importance for diagnostic approaches in recent years and also such variations are of importance for surgical approaches, this case was studied in detail and compared with similar instances reported in the literature.

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