Case
Report

Unusual veins in the neck – a case report

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Abstract

Variations of the superficial veins of the neck are very common. Some of the variations may cause problems in invasive techniques or bleed significantly even with a small cut in the skin. We present some unusual variations of the superficial veins of the neck. The right facial, external jugular and suprascapular veins joined to form a large vein which terminated into the junction between internal jugular and subclavian veins. The right transverse cervical vein terminated into the internal jugular vein. A subcutaneous vein ascended superficial to sternum and joined the left anterior jugular vein. Left anterior jugular vein terminated by opening into the right internal jugular vein. The left anterior jugular vein and the right transverse cervical vein communicated with each other in front if the right internal jugular vein.

Keywords: external jugular vein, facial vein, anterior jugular vein, transverse cervical vein, variation.

1 Introduction

External jugular vein is normally formed by the union of the posterior auricular vein and posterior division of the retromandibular vein. It starts at the level of mandible, just below the apex of the parotid gland and runs vertically down in the superficial fascia till a point just above the midpoint of clavicle. It pierces the deep fascia and opens into the subclavian vein. It usually receives the occipital, posterior external jugular, anterior jugular and transverse cervical veins. It collects most of the blood from the exterior of the cranium and deep part of the face. Facial vein begins at the medial angle of the eye as the angular vein, by the union of the supra trochlear and supra orbital veins. It joins with anterior division of the retromandibular vein to form the common facial vein and it drains into the internal jugular vein. Anterior jugular vein begins in the submental region below the chin. It descends in the superficial fascia, it pierces the investing layer of deep fascia to enter the supra sternal space, here it forms jugular venous arch with opposite vein. Then it turns laterally deep to the sternocleidomastoid just above the clavicle and ends in the external jugular vein. Variation in the vascular system is a common feature and it is more commonly observed in veins than the arteries (HOLLINSHEAD, 1982). In the present case we found some unusual variations of the superficial veins of the neck. The sound anatomical knowledge of variations of the veins of head and neck is essential to the success of surgical procedures.

2 Case Report

During the dissection classes for medical students we found some variations in the veins of the neck. These variations were found in a formalin embalmed adult male cadaver approximately aged 65 years. The facial, external jugular and suprascapular veins of the right side joined to form a large vein which terminated into the junction between right internal jugular and subclavian veins (Figure 1). This large vein passed deep to the inferior belly of omohyoid muscle. The right transverse cervical vein terminated into the internal jugular vein. A subcutaneous vein ascended superficial to sternum and joined the left anterior jugular vein. After receiving this vein, the left anterior jugular vein terminated by opening into the right internal jugular vein. There was continuity (communication) between the left anterior jugular vein and the right transverse cervical vein in front of the internal jugular vein (Figure 2).

3 Discussion

Variations in the venous system from the normal pattern are quite common. Most of the superficial veins of the head and neck are subject to variations in their morphology, size and termination. External and anterior jugular veins are especially variable in size and course. Variations of facial veins are not uncommon in their course and termination (BERGMAN, THOMSON, AFIFI et al., 1988). The variations of the superficial veins of face and neck are of particular importance for different surgical procedures. These veins may be used as patches for carotid endarterectomy and for oral reconstruction (SABHARWAL and MUKHERJEE, 1998). In the present case the facial, external jugular and suprascapular veins of the right side joined to form a large vein which terminated into the junction between right internal jugular and subclavian veins. Occurrence of this type of variation is very rare.

Variations in the origin and termination of external jugular vein are well documented. The external jugular vein is reported to cross sternocleidomastoid muscle superficially and end in internal jugular vein above the level of superior belly of omohyoid (YADAV, GHOSH and ANAND, 2000). The termination of the left external jugular vein into the right subclavian vein has been reported (VADGAONKAR, RAI, RANADE et al., 2008). The presence of an abnormal external jugular vein crossing superficial to the clavicle also

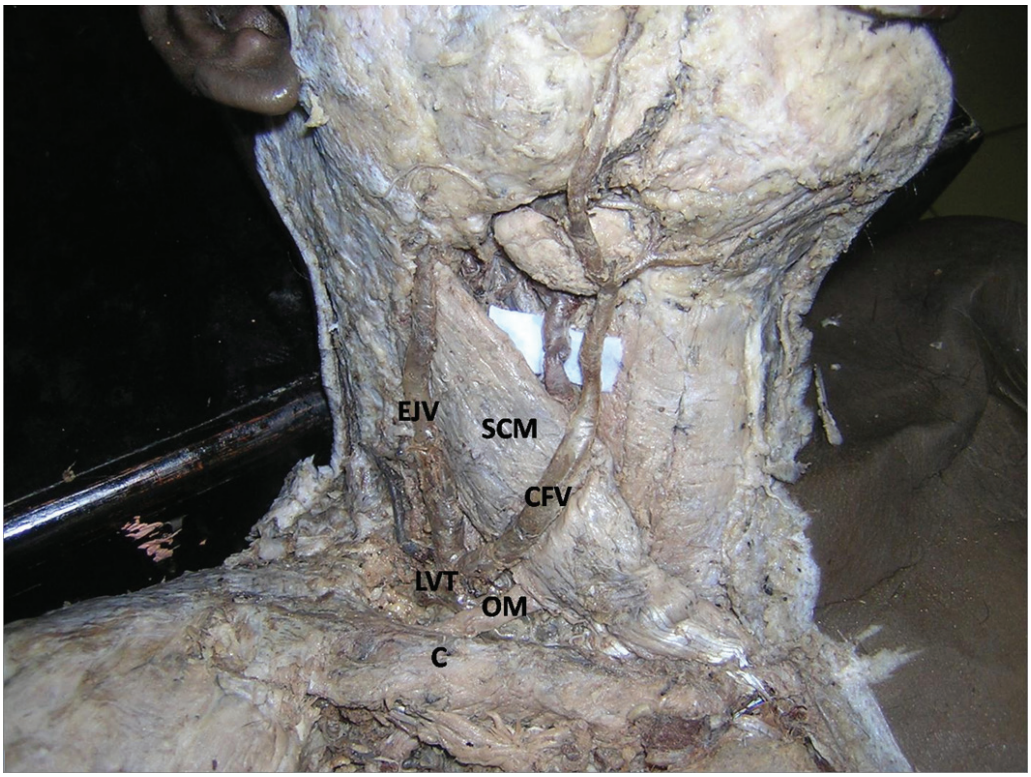

Figure 1. Dissection of the right side of the neck showing the location of external jugular vein and common facial vein. (EJV - external jugular vein; SCM - sternocleidomastoid muscle; CFV - common facial vein; LVT - large venous trunk; OM - omohyoid muscle; C - clavicle).

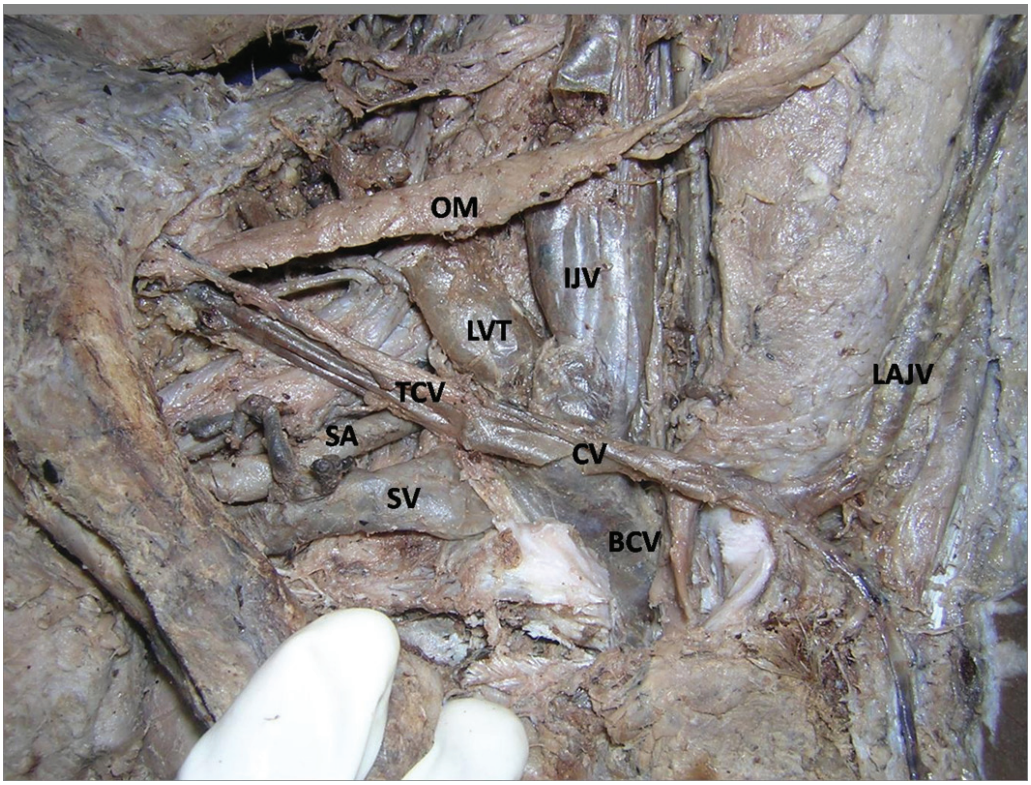

Figure 2. Dissection of the right side of the neck showing the unusual drainage of the veins. (IJV - internal jugular vein; LVT - large venous trunk; TCV - transverse cervical vein; LAJV - left anterior jugular vein; CV - common vein; BCV - brachiocephalic vein; SV - subclavian vein; SA - subclavian artery; OM - omohyoid muscle).

reported (REINHARDT, KIM and LORICH, 2010). Such vein may cause considerable bleeding in surgical approach to the fractured clavicle.

The facial vein normally joins with the anterior division of the retromandibular vein to form common facial vein, which in turn opens into the internal jugular vein. The termination of common facial vein is variable. It can open into the external jugular vein or anterior jugular vein. It can receive the lingual vein, pharyngeal vein or submental vein. Termination of facial vein in the external jugular vein occurs in 5% of the individuals (CHOUDHRY, TULI and CHOUDHRY, 1997). A case of facial vein continuing as external jugular vein has also been reported (VOLLALA, BOLLA and PAMIDI, 2008). The retromandibular vein has been reported to unite with facial vein at a higher level in the right parotid gland (KOPUZ, YAYUZ, CUMHUR et al., 1995). Facial vein draining into the superficial temporal vein, with an undivided retromandibular vein has been reported by Peuker, Fischer and Filler (2001). Prakash and Bhagath (2007) have reported unilateral termination of the common facial vein into the subclavian vein on the left side. The facial veins terminating into the external jugular vein in 9% of cases has also been reported in the literature (GUPTA, TULI, CHOUDHRY et al., 2003).

In the present case the right transverse cervical vein terminated into the internal jugular vein. A subcutaneous vein ascended superficial to sternum and joined the left anterior jugular vein. After receiving this vein, the left anterior jugular vein terminated by opening into the right internal jugular vein. There was continuity (communication) between the left anterior jugular vein and the right transverse cervical vein in front of the internal jugular vein. A variation similar to this has not been reported yet.

Veins of the right side of the neck are commonly used for assessing venous pressure and for cannulation. External jugular vein is used by clinicians for therapeutic procedures and monitoring. The knowledge of variations in venous patterns in neck region is importance for surgeons in order to avoid unnecessary bleeding during surgical procedures. The venous trunk formed by suprascapular, facial and external jugular veins passed deep to the omohyoid in the current case. This trunk might get compressed when the muscle contracts as in speech and singing, leading to the engorgement of these veins.

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