



AN INTERESTING CASE OF VARIANT COMMUNICATION IN THE NECK VEINS

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ABSTRACT The internal jugular vein is a significant landmark encountered during central venous catheter insertion, and in various surgical and radiological procedures in the neck. A good knowledge of the variations becomes essential to check any inadvertent injury. The variant observed here includes the formation of a communication between the linguofacial trunk and anterior jugular vein. A knowledge of all possible variants becomes clinically significant at times when venous access is imperative and to the surgeon operating at this level.

KEYWORDS : Internal jugular vein; external jugular vein; anterior jugular vein; linguofacial vein

INTRODUCTION:

The internal jugular vein is the principal vein collecting blood from the skull, brain, superficial parts of the face and much of the neck. It begins at the cranial base in the posterior compartment of the jugular foramen, where the sigmoid sinus continues as the IJV 1. In its further course it descends in the carotid sheath and unites with the subclavian vein posterior to the sternal end of the clavicle to form the brachiocephalic vein.

The knowledge of normal anatomy and variations of the veins of the neck is important for clinicians performing catheterization and surgeons operating in the region of the head and neck. This awareness may also be important for radiologists performing angiographic and sonographic studies and procedures.

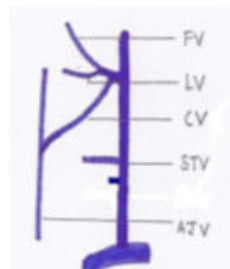
METHODOLOGY:

The gross dissection of the neck was done following the guidelines on the Cunningham's manual.

The internal jugular vein was studied in 50 embalmed human cadavers irrespective of sex. The cadavers were from adult Indian population and comprised 50 right and 50 left sides.

CASE REPORT:

In this one specimen, the facial vein and lingual vein united to form a common trunk and this trunk had a communication with the anterior jugular vein at the level of the middle of thyroid cartilage. The communication was formed between the linguofacial trunk just before it terminated into the internal jugular vein and the lower part of the anterior jugular vein. The superior thyroid vein also had a communication with this vein and drained separately into the internal jugular vein at the level of cricoid cartilage.



Photograph 1: Showing the variation observed in the specimen on its left side

Figure 1: Diagrammatic representation of variation observed in the specimen showing FV- facial vein; LV- lingual vein; CV- communicating vein; STV- superior thyroid vein; AJV- anterior jugular vein

DISCUSSION:

Veins of the neck show considerable variation. They are superficial or deep to deep fascia but not entirely separate systems of drainage. The

internal jugular vein collects blood from the skull, brain, superficial parts of the face and much of the neck. It begins at the cranial base in the posterior compartment of the jugular foramen, where the sigmoid sinus continues as the IJV 1

Several references to the possible variants of the internal jugular vein and its tributaries have been documented in literature.

A cadaveric study in 36 specimens has observed that in 5.5% the facial vein was found to drain into external jugular vein². The facial vein typically drains into the internal jugular vein, but it has also been observed to empty into the external jugular vein and anterior jugular vein quite often. It is suggested that this anastomotic pattern is related to the persistence of the primitive linguofacial vein³. Another report of variation in the common facial vein is the drainage into the subclavian vein with bilateral absence of external jugular vein⁴. The various anomalous patterns could be explained by the regression and / or retention of the venous anastomotic channels⁴.

The lingual vein is also found to drain variably into the facial vein, internal jugular vein (5) or external jugular vein (13)

A case of AJV existing as a single branch in the anterior median line, originating in the suprahyoid region and ending in the external jugular vein has also been documented⁶. Another case of anterior jugular vein form at the level of third tracheal ring; deviate towards right side, join EJV and finally drain into the right jugulo-subclavian junction⁷.

A study on the superior thyroid vein has shown its termination in 87.1% at the internal jugular vein (97.2%), either isolated (29.4%) or with other veins, mostly in lingual vein (52.1%)⁸. It is observed that the anastomoses are commonly seen between the superior thyroid vein and the common facial vein⁹.

A review from 27 published papers has observed an incidence of 2% anatomical variations in the internal jugular vein. Majority of the variations were either bifurcation or fenestration of the vein¹⁰. An ultrasonic study of the anatomical structure of internal jugular veins in 104 uremic patients has reported an incidence of 26% anatomical variations which might contribute to difficult IJV cannulation¹¹.

The anomaly observed in our study was in the form of a communication between the AJV and the IJV through the linguofacial venous trunk (Photo 1, Fig 1). The variation we observed could be regarded as an indirect communication between the AJV and IJV through the linguofacial venous trunk. This form of variant communication has not been documented in literature. The anterior cardinal veins form the IJV and EJV originates from the venous network of the face¹². Therefore, a possible explanation for the variant communication observed in this report is an abnormal peripheral vasculogenesis or a persistence of a normal primitive pattern.

Surgeons from different domains frequently operate in the head and neck region. This report is an endeavor to improve knowledge, prevent morbidity and promote further understanding regarding these variations.

CONCLUSION:

The knowledge of all the morphological variants in the course of the head and neck veins is of utmost importance to different fields of medicine and surgery

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