A VARIATION IN THE SUPERFICIAL VEINS OF UPPER EXTREMITY: A CASE REPORT

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ABSTRACT
Venous variations are more common than arterial variations. The knowledge of variations in the superficial veins has clinical importance for the anatomist, radiologists, clinical practitioners and surgeons in order to plan about the operative procedures. The median cubital vein is commonly used for Venepuncture, so also the basilic vein, often under conditions of emergency. During our routine dissection for the undergraduate students in the Department of Shareera Rachana, JSS Ayurveda Medical College, Mysuru, India, variation was found in the right superior extremity where median cubital vein was absent. It is important to know the variations in venous pattern in cubital fossa to prevent complications.

KEYWORDS: Basilic vein, Cephalic vein, Superficial veins, Median cubital vein, Cubital fossa.

INTRODUCTION
The knowledge of variations in the superficial veins has clinical importance for the anatomist, radiologists, clinical practitioners and surgeons in order to plan about the operative procedures.1

Dorsal venous arch lies on dorsum of the hand and it receives 3 dorsal metacarpal veins, a dorsal digital vein from medial side of the little finger and from the radial side of the index finger.
Cephalic vein is the preaxial vein of the upper limb, begins from the lateral end of the dorsal venous arch. It runs upwards through the roof of the anatomical snuff box, winds around the lateral border of the distal part of the forearm. It continues upwards in front of the elbow and along the lateral border of the biceps brachii and pierces the deep fascia at the lower border of the pectoralis major. It runs in deltopectoral groove up to the infraclavicular fossa, where it pierces clavipectoral fascia and joins the axillary vein.\[2\]

Basilic vein is postaxial vein of the upper limb, begins from the medial border of the dorsal venous arch.\[2\] This vein ascends along the back of medial aspect of the forearm, winds around this border near elbow. It continues upwards in front of the elbow and along the medial margin of the biceps brachii up to the middle of the arm. Here it pierces the deep fascia. Then it joins the venae comitantes of the brachial artery at the lower margin of teres major or near the lower margin of subscapularis muscle to continue upwards as the axillary vein.\[3,4\]

Median cubital vein is large communicating vein which shunts blood from the cephalic to the basilic vein. It begins from the cephalic vein 2.5cm below the bend of the elbow, runs obliquely upward and medially, and ends in the basilic vein 2.5cm above the medial epicondyle. It is separated from brachial artery by the bicipital aponeurosis. It may receive tributaries from the front of the forearm and connected to the deep veins through a perforator vein which pierces the bicipital aponeurosis. The perforator vein fixes the median cubital vein and thus makes it ideal for intravenous injections.\[2\]

The Brachial veins flank the brachial artery, as venae comitantes with the tributaries similar to the arterial branches and near the lower margin of the subscapularis they join the axillary vein. These deep veins have numerous anastomoses with each other and with the superficial veins.\[3\]

The axillary vein is the continuation of the basilica vein. It begins at the lower border of the teres major and ascends to the outer border of the first rib, where it becomes the subclavian vein. It is joined by the brachial veins below the lower margin of the subscapularis and by the cephalic vein near its costal end. Other tributaries follow the axillary artery branches. The vein runs medial to the axillary artery and is partially overlapped by the artery.\[3,4\]
CASE REPORT
During our routine dissection for the undergraduate students in the Department of Shareera Rachana, JSS Ayurveda Medical College, Mysuru, India, variation was found in the right superior extremity of a male cadaver. The subject was about sixty year old and the variation was present in superficial veins of the right upper limb. Dissection was done properly in both the upper limbs of the cadaver concerned. All the structures were observed carefully and relevant photographs were taken. In this, extra one tributary was joining the cephalic vein at the middle of forearm and again it was draining into cephalic vein just above the elbow. Median cubital vein was absent.

Fig. 1: CV-Cephalic vein, BV-Basilic vein, EV- Extra vein Joining the Cephalic vein.

Fig. 2: CV-Cephalic vein, EV- Extra vein Joining the Cephalic vein.
DISCUSSION

Venous variations are more common than arterial variations. Since the developmental pattern of superficial veins is complex, its variation in venous drainage is common.\(^1\) At the tip of the early limb bud, blood in the terminal capillary plexus returns to the body via a marginal vein that develops along the pre- and postaxial borders of the limb. As the limb enlarges, the marginal vein can be subdivided into pre- and postaxial veins, which run along their respective borders and which are the precursors of the superficial veins of the limb. Generally, the preaxial (superficial) veins join the deep veins at the proximal joint, and the postaxial (superficial) veins join the deep veins at the distal joint of the limb. Deep veins develop in situ alongside the arteries. In the upper limb, the preaxial vein becomes the cephalic vein, and drains into the axillary vein at the shoulder. The postaxial vein becomes the basilic vein, which passes deep in the arm to continue as the axillary vein.\(^3\) In this case, extra one tributary was joining the cephalic vein at the middle of forearm and again it was draining into cephalic vein just above the elbow.

Median cubital vein was absent. The median cubital vein is commonly used for Venepuncture, so also the basilic vein, often under conditions of emergency.\(^5\) Superficial segment of the basilic vein can be used in general, vascular and endovascular surgery to introduce a catheter.\(^6\) It is important to know the variations in venous pattern in each cubital fossa which could conveniently be used for venepuncture or venesection. Vascular surgeons utilize the basilic vein to create an AV (arterio venous) fistula or AV graft for Hemo dialysis access in patients with renal failure.\(^7\)

Knowledge about variations of the upper extremity veins is important for a successful arteriovenous fistula creation. Kaiser et al described a complication of a Basilic Vein Transposition (BVT) resulting from failure to recognize aberrant anatomy as the brachial–basilic junction was located near the cubital fossa. This case highlights the prevalence of variations of upper extremity veins and the need for thorough Duplex Vein Mapping before surgery for the preservation and planning of future access.\(^8\)

According to Dharap and Shaharuddin, veins in the cubital fossa are used for the introduction of cardiac catheters for obtaining blood samples from cardiac chambers and for cardio angiography.\(^5\) Ultra sound guided venepuncture is a viable possibility in cases of variations in patterns of superficial veins and their knowledge is also important for surgeons doing reconstructive surgery.\(^1\)
CONCLUSION
Superficial veins of the cubital fossa are commonly used for venepuncture and for the introduction of cardiac catheters. Variations of these superficial veins are more common. Hence the knowledge about these variations is needed to prevent further complications.

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REFERENCES