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Case Report

Abnormal communication between cephalic and basilic veins-a case report

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ABSTRACT

The cephalic vein and basilic vein begin respectively from lateral and medial ends of the dorsal venous arch of hand. The basilic vein is confined to the medial side of upper limb and continues upwards as the axillary vein whereas the cephalic vein is confined to the lateral side of upper limb and drains into the axillary vein. The aforesaid veins communicate with one another through the median cubital vein that lies in the roof of cubital fossa. The superficial veins are used for venepuncture, cardiac catheterization, bypass grafting and arteriovenous fistula for hemodynamic access. The authors chanced upon a variation in the cephalic and basilic veins in the right upper limb of a cadaver of a sixty years old female dying due to natural causes. The cadaver was used for routine dissection classes of first year MBBS students in a medical college of Eastern India. The cephalic and basilic veins of the said cadaver joined with each other in the cubital fossa. The brachial vein began from the point of union of the two former superficial veins and the single brachial vein replaced the paired brachial veins which is usually the norm.

Keywords: Veins, Variations, Brachial vein, Upper limb

INTRODUCTION

The major superficial veins of the superior extremity are cephalic vein, basilic vein and median cubital vein. The basilic vein begins from the medial end of the dorsal venous arch of hand, ascends up along the medial border of the superior extremity and becomes continuous as the axillary vein. The cephalic vein begins from the lateral end of the dorsal venous arch of the hand and after passing up in the lateral side of the upper extremity ends in the axillary vein. The cephalic and basilic veins are connected in the cubital fossa by the median cubital vein. The median cubital vein is used for intravenous access in therapeutic and diagnostic interventions. The basilic vein is used as an arteriovenous fistula for hemodynamic access.[1] Various authors have reported anomalous superficial veins of the upper extremity. Reported variations in cephalic vein are as follows: cephalic-median cephalic vein (44.66%), cephalic-median cubital-median antebrachial (30.1%), single-branched cephalic vein (18.44%), cephalic-median cubital vein (3.88%) and cephalic-median vein-basilic (2.24%).[2] In a Korean study involving 200 subjects, the most common connection between cephalic and basilic vein was observed to be the median cubital vein which was joining the two former veins (50.1%).[3] The knowledge of anomalous anatomical pattern of superficial veins of superior extremity is vital for surgeons, radiologists as well as technical and support staff in clinical set up as diagnostic and therapeutic vascular interventions may result in unfavorable outcome in the presence of these anomalies.[1] So, we have attempted to highlight one such pattern in our study.

CASE REPORT

The anomalous pattern of cephalic and basilic veins was observed in a cadaver belonging to a sixty years old lady

dying due to natural causes. The abnormality came to our notice during dissection of upper limb for routine anatomy classes of first year MBBS curriculum in a medical college of Eastern India. The anomaly was evident on the right upper limb of the cadaver. The cadaver presented normal cephalic and basilic veins in the forearm. The cephalic vein originated from the lateral end of the dorsal venous arch of hand, ascended along the lateral border of forearm. But it united with the basilic vein near about the middle of the cubital fossa to form 'brachial vein' (Figure 1), that further ascended along the medial side of arm and formed the axillary vein in axilla. No trace of cephalic vein existed above the said union. The origin of the basilic vein was as usual from the medial end of the dorsal venous arch of hand. The basilic vein presented a normal course in the forearm before forming the 'brachial vein' in the manner described above. This pattern was only observed in the right upper limb whereas the superficial venous pattern was normal in the left upper limb of the cadaver.

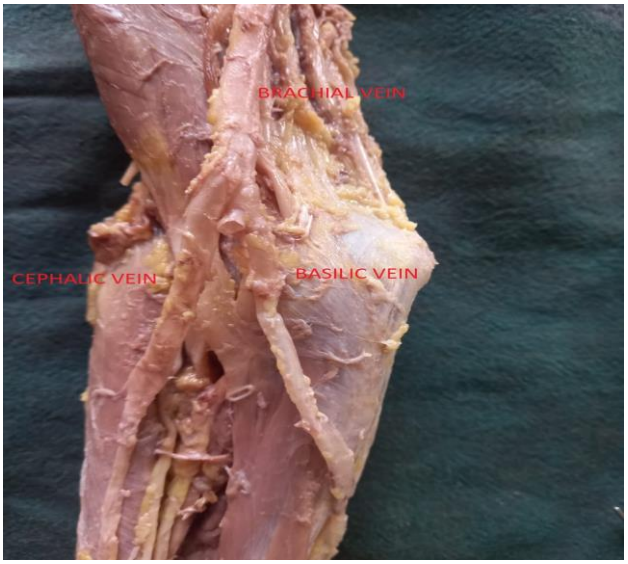

Figure 1: Photograph of dissected right upper limb showing fusion of cephalic vein and basilic vein to form brachial vein in cubital fossa.

DISCUSSION

The superficial veins of human body serve as agencies for venepuncture, transfusion, cardiac catheterization and putting bypass graft. Kaiser et al have reported a case of emergence of severe superior extremity oedema as a result of catheterization due to brachiobasilic connection in a female subject suffering from pre-eclampsia complicated by renal failure.[4] As noted by Anaya-Ayala et al basilic vein variation has been classified into three types.[5] These are as follows-In type 1, the basilic vein joins with the brachial venous system near the axilla to give rise to axillary vein. In type 2, the brachial veins are double at the level of brachiobasilic junction. In type 3, there's only a brachial vein above the convergence with the basilic vein.

A case similar to us was described by Wang et al.[2] They reported the anomaly only in the left upper limb of the cadaver studied whereas the right upper limb was normal.

CONCLUSION

Information about this variation might be useful for medical personnel to ward off upper limb oedema when using arteriovenous fistula for hemodialysis in cases with renal failure.

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