

## Accidental Arterial Cannulation during Cephalic Vein Cannulation

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Cephalic vein of forearm is frequently used for peripheral intravenous cannulation because of its large size and constant position. Radial artery usually lies some distance away from the cephalic vein but its accessory branches running close to the cephalic vein of forearm have been described [1,2]. Thus venous cannulation at the lateral aspect of the wrist carries a small risk of arterial puncture if arterial anomalies are present.

We mention a case of accidental radial artery cannulation while gaining intravenous access through cephalic vein. A 65 year male came to magnetic resonance imaging suite (MRI) for MRI scan of brain and cervical spine. He was a known hypertensive since 10 years and was on regular treatment. He had a history of transient ischemic attack 10 days ago resulting in left sided weakness in both the limbs. He suddenly got unconscious while sitting on wheel chair. Anaesthetist in MRI suite tried to secure the venous access on the lateral aspect of left wrist with 18G cannula as large veins were visible. As the needle was removed, there was a gush of bright red blood with huge flow. Palpation of the vessel proximal to cannulation site showed pulsations. Infusion tubing was connected but blood column moved up the tubing up to chamber confirming accidental arterial cannulation. This cannula was removed and the other one was put on dorsum of the same hand. Patient was followed up for signs of ischemia and pain distal to site of cannulation and had an uneventful course until discharge.

Most cases of unintentional arterial cannulation are due to vascular anomalies that involve radial artery branches of forearm and hand. The most common are a high rising radial artery resulting in a superficial branch in the forearm and the antebrachialis superficialis dorsalis artery which crosses underneath the terminal branch of cephalic vein just superficial to radial styloid process [3]. The incidence of accidental arterial cannulation is 0.5-1% [1,2]. This is small but cephalic vein cannulation is most frequently performed procedure in routine anaesthesia practice, so the absolute number of patients may be high. Identifying a superficial blood vessel as an artery or vein is not easy even for an experienced anaesthetist. Risk factors associated with inadvertent arterial cannulation are obesity, dark skin, vascular anomalies and thoracic outlet syndrome [2]. Accidental arterial cannulation with a large venous

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cannula can result in complications such as temporary occlusion, pseudoaneurysm, haematoma formation and injury to superficial radial nerve [3]. Unrecognized arterial injection of anaesthetic drugs can cause distal tissue ischemia and necrosis. Signs of suspected arterial puncture include bright red blood with pulsatile flow, blood column moving up in infusion tubing intense pain and distal ischemia [4]. If procedure demands, cannulated artery can be used for arterial blood pressure monitoring and blood gas analysis otherwise cannula should be removed immediately with pressure dressing to avoid complications.

Palpation of the vessel before puncture can help to detect the presence of accessory artery. Blood pressure cuff should be deflated before venous puncture. Cannulation of cephalic vein is one of most commonly performed procedure in routine anaesthesia practice. Anaesthetists should be aware of common anatomical variations in radial artery course. Vessel should be palpated before cannulation and if accidental cannulation occurs, should be identified at the earliest and managed to avoid complications.

### References

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