Ultrasonography-Guided Internal Jugular Venous Catheterization: Unusual Position and Unusual Circumstances

Sir,

Point of care ultrasound is considered as a boon to the modern anesthesia practice. Ultrasonography (USG) guidance improves safety margin, decreases complications, and can be helpful in various emergency situations.[1] We report a USG-guided internal jugular vein (IJV) cannulation through oblique approach in the lateral position.

A 50-year-old male (weight 65.2 kg and height 179 cm) was admitted for open pyelolithotomy for the removal of staghorn calculus (4.76 cm × 2.59 cm) from the left renal pelvis. He was a known hypertensive for the past 3 years and was on amlodipine 5 mg and metoprolol 50 mg. In the preoperative holding area, peripheral venous access was secured with 18 G cannula in the left hand, and an epidural catheter was inserted at L_{1-2} intervertebral space. Anesthesia was induced with thiopentone 325 mg and fentanyl 100 μg and tracheal intubation was facilitated with vecuronium 5 mg. A cuffed flexometallic tube of 8.5 mm, was put into the trachea. Anesthesia was maintained with N_2O, O_2, and isoflurane 1% with intermittent positive pressure ventilation. After induction, the patient was placed in lateral position on a flexed operation table (standard kidney position). The abdomen was opened with a flank incision and left renal pelvis was separated from the surrounding perinephric fat. During mobilization of left kidney, sudden venous bleeding started because of inadvertent vessel injury. Compression with gauge pieces was applied temporarily as the identification of the culprit vessel was very difficult for the surgeon. We started volume resuscitation with crystalloids and colloid. However, it was inadequate as flow through the cannula in the left hand was not good because of position. We decided to insert a central venous catheter (VenX, triple lumen 7FR, 16 cm, BL Lifesciences Pvt. Ltd.) in left IJV with the help of ultrasound in lateral position as other veins were not easily accessible. A linear probe (8–13 MHz) of the USG machine (SonoSite, MicroMaxx) was placed obliquely over the left side of the neck [Figure 1a]. In this position, the left IJV lies directly over the left carotid artery which could have been punctured with inadvertent needle advancement [Figure 1b]. The left IJV was cannulated in single attempt and position of the guidewire was imaged in the left brachiocephalic vein with USG for the confirmation of proper placement.[2] The position of catheter tip was confirmed later with the help of X-ray chest (posteroanterior view) [Figure 2]. The total surgical duration was 4 h. Blood loss was 1500 ml

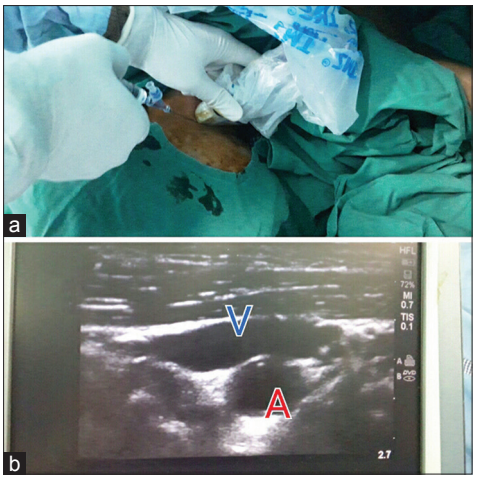

Figure 1: (a) Needle and ultrasonography probe position (b) oblique approach: Ultrasonography image of neck structures in lateral position. A: Left common carotid artery; V: Left internal jugular vein

which was replaced by crystalloids, colloids, and packed red cell transfusion. The bleeding reduced after few minutes of compression and the vessel was ligated. Vitals were stable for the rest of the procedure. The patient was extubated after surgery and subsequent recovery was uneventful.

Oblique view not only offers better visualization of the needle shaft and tip but also provides safety of visualising all relevant anatomically significant structures at the same time and in the same plane.[3] We conclude that oblique technique for IJV cannulation is helpful for patients in lateral position to maximize the view and minimize the risk of complications.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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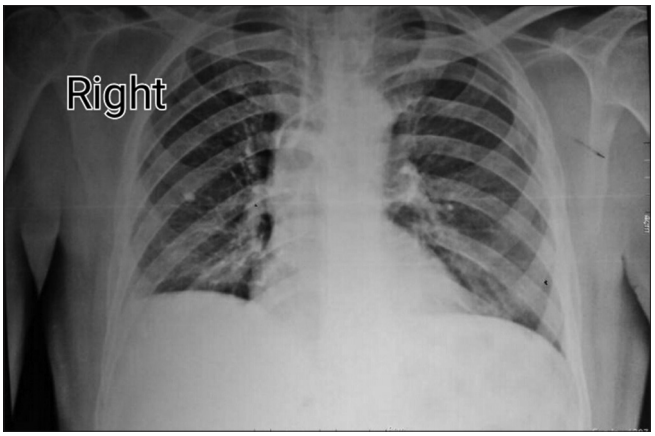

Figure 2: Confirmation of catheter tip position by X-ray chest (posteroanterior view)

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