

Image Intensifier guided repositioning of a malpositioned internal jugular vein introducer sheath

Sir,

An intraoperative image intensifier can prove to be a useful tool for repositioning a malpositioned internal jugular vein (IJV) catheter. We would like to report a case of repositioning of a malpositioned right IJV introducer sheath in the right subclavian vein.

The right IJV was cannulated under ultrasound guidance after induction of anaesthesia for placement of a four-lumen central venous catheter (CVC) and 12 Fr introducer sheath in a case posted for Live-Related Liver Transplant. However, after the placement of catheters, when the guidewire of the introducer sheath was being withdrawn, an undue resistance was noted which prompted us to do an ultrasonographic (USG) imaging of the subclavian vein, and it demonstrated the presence of introducer sheath inside the subclavian vein. Under real-time USG guidance, we withdrew the sheath and tried to redirect it, but this manoeuvre was unsuccessful.

On fluoroscopy, the introducer sheath was found to be acutely kinked at the junction of superior vena cava (SVC) and subclavian vein [Figure 1]. The guidewire was re-introduced into the sheath and under live fluoroscopy, the complete assembly was withdrawn till

the point of diversion and re-directed towards the SVC, and the correct position was confirmed [Figure 2].

The four-lumen CVC and a 12 French (Fr) introducer sheath in the right IJV is placed in liver transplant surgeries as an institutional practice at our centre. Liver transplant is major surgery and requires good and reliable vascular access, not only for administration of various drugs and infusions intra-operatively but also as access for rapid fluid resuscitation at times of massive blood loss.

As was noted in this case, a malpositioned introducer sheath was acutely bent and diverted inside the subclavian vein [Figure 1]. In our case, we were initially unable to correctly reposition the sheath solely under USG guidance and hence employed the intra-operative C-arm for fluoroscopic guidance to reposition the sheath and it served as a useful tool for this manoeuvre.

Among the various complications of central venous access is mispositioning of CVC in a vessel other than the SVC. If the CVC tip is placed in a vessel other than SVC, it can lead to catheter wedging, erosion or perforation of vessels, thrombosis in the vessel, catheter dysfunction, and cranial retrograde injection of drugs.^[1] Ultrasound guidance which is now a standard of care for IJV cannulation can facilitate the identification of vessels but does not prevent CVC malpositioning.^[2] Whenever a malpositioned CVC is detected, the primary aim should be to reposition or replace it as soon as it is feasible.^[3,4] We made the use of an image intensifier in the operating room to withdraw it and re-introduce the guidewire into the SVC enabling the correct placement of the introducer sheath in the SVC.

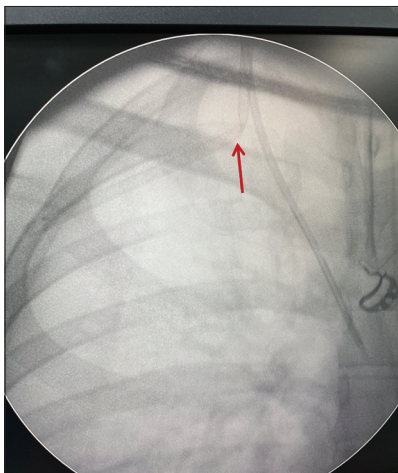


Figure 1: Malpositioned and acutely bent introducer sheath inside the subclavian vein

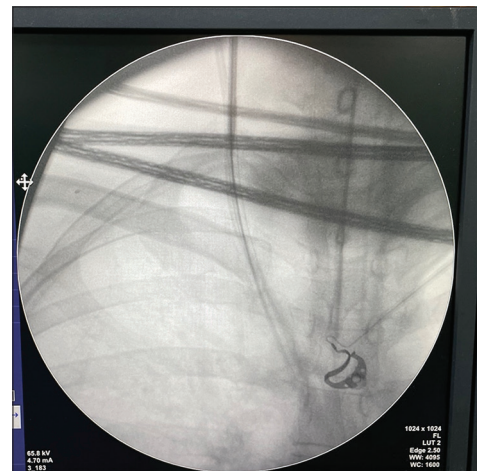


Figure 2: Correctly placed introducer sheath after repositioning

USG is a standard of care for IJV CVC placement in both adults and the paediatric age group, and along with chest radiogram can serve as a useful tool to rule out other complications like pneumothorax and haemothorax.^[5-7] Nevertheless, our case depicts that it can be routinely used to rule out the subclavian placement of a CVC at the end of an IJV cannulation. If at all this happens, the image intensifier can serve as a useful tool to correct the mispositioned CVC.

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Conflicts of interest

There are no conflicts of interest.

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