

Screening ultrasound: A valuable tool to detect central venous thrombosis in a patient with multiple previous cannulation attempts

Sir,

Central venous (CV) thrombosis can occur as a complication of head and neck infections, surgery, CV access, local or distant

malignancy, and intravenous (IV) drug abuse or spontaneously, among which CV catheterization being the most common etiology.^[1,2] We report a case of undiagnosed bilateral CV

thrombosis in a patient with cerebral palsy who presented with respiratory distress in the Intensive Care Unit (ICU).

An 18-year-old male patient with cerebral palsy was admitted in the ICU with history of dyspnea. His respiratory rate was 34 breaths/min, saturation was 85% on room air, and bilateral wheezes were present. Chest X-ray revealed heterogeneous opacity in the right lower zone. A provisional diagnosis of community-acquired pneumonia was made, for which IV antibiotic therapy was to be given. The patient had history of seizure episodes 3–4 times a day since early childhood, for which he was taking multiple oral antiepileptics. During seizures exacerbation, IV antiepileptic drugs were to be administered, for which he required repeated IV cannulation and many a times even CV cannulation. Initially, the CV access was obtained easily, but each subsequent attempt of cannulation took more time, and over the period of time, the vein get punctured but guide wire could not be negotiated further.

In view of difficult peripheral venous access due to the presence of severe contracture in all the four limbs, CV cannulation in the right jugular vein was planned. An ultrasonography (USG) examination (GE Healthcare, USA) was done before attempting cannulation. In short-axis view of ultrasound, the jugular veins were easily identified on both sides, but on tracing it further down in long-axis view showed near total obstruction of lumen due to thrombus and fibrosis [Figure 1]. Ultrasound subclavian veins also revealed the presence of thrombus. Hence, plan to cannulate CV was abandoned, and USG-guided peripheral venous access with 22-gauge 80 mm polyethylene pediatric catheter (Leadercath, Vygon) was obtained in median cubital vein. He remained on IV antibiotics and nebulization therapy for 3 days in ICU, to which he responded well and discharged to home after 5 days.

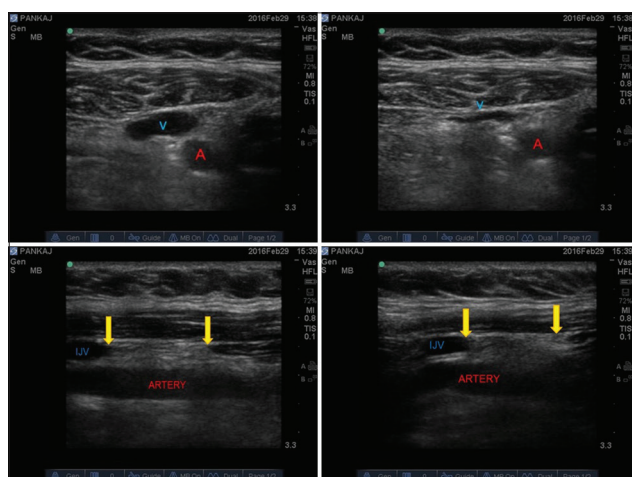


Figure 1: Visualization of the internal jugular vein under short-axis view of ultrasound and long-axis view of the lower part of the internal jugular vein shows noncompressible, hyperechoic thrombus along with fibrosis

The conventional approach to CV cannulation based on anatomic surface landmark identification, but it can lead to complications such as multiple attempts, arterial puncture, hematoma, pneumothorax, and even vascular thrombosis. The use of bedside ultrasound not only allows direct visualization of target vessels but also allows the assessment of anatomic variants and presence of vascular thrombosis.^[3]

Due to the presence of contractures in extremities and thrombosed vessels, attempts at blind peripheral IV access were unsuccessful, so the patient had undergone multiple times CV cannulation for the administration of antiepileptic drugs resulting in thrombosis. Patients with bilateral CV thrombosis may result in neck and limb pain, edema of the head and neck, SVC syndrome, and pulmonary embolism,^[4] but this patient was asymptomatic as it was a gradual process which may have resulted in multiple collaterals veins involving external jugular vein.

A diagnosis of venous thrombosis by USG in the present case was made by the presence of noncompressible, hyperechoic intravascular mass and the absence of respiratory variation [Figure 1], further confirmation by computed tomography angiography could not be done as the patient's mother did not give consent for any invasive procedure.

This case highlights that a screening USG should be done before attempting CV cannulation in short-axis view as well as in long-axis view to establish the patency of these vessels further down, especially in the patient with history of multiple CV cannulations.

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Conflicts of interest

There are no conflicts of interest.

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