

A modified technique of subclavian vein catheterisation: Remembering Sedillot

Dear Editor,

The subclavian vein is the preferred site in neurosurgical patients, as there is a possibility of kinking while positioning the head for surgery, subsequent venous congestion, and raised intracranial pressure with internal jugular venous cannulation. The classical infraclavicular approach involves the entry of a needle 1–2 cm inferior to the clavicle at the junction of the middle and lateral 1/3 of the clavicle at a shallow angle, with the needle directed towards the suprasternal notch. As the classical approach has a variable success rate (84%–97%) and risk of arterial puncture (4.2%–9.3%) and pneumothorax (1%), there is a need for alternative and safer methods to perform subclavian cannulation.^[1–3]

At the junction of the medial 1/3 and middle 1/3 of the clavicle, the subclavian vein is supported by fibrous tissue to both the first rib and the clavicle, stabilising its position and diameter; thus, the calibre is slightly affected by respiration or any manoeuvring. In addition, the vein is considered closer to the clavicle in the medial half.^[4] We hypothesised that inserting the needle here with a needle directed towards the midpoint of the base of the triangle made by two heads of sternocleidomastoid above the clavicle (*Sedillot's triangle*) at a shallow angle is easy, quick, and more likely to avoid arterial puncture as well as reduce the incidence of pneumothorax as the needle path is directed away from the pleural cavity and does not require any special positioning.



Figure 1: Fluoroscopic image showing needle and guidewire and image demonstrating needle direction for this new infraclavicular subclavian vein cannulation approach

We describe this modified technique in 10 adult American Society of Anesthesiologists physical status I and II neurosurgical cases undergoing elective surgery under general anaesthesia requiring central venous cannulation. Standard monitoring was used for the procedure. After induction of general anaesthesia using the standard protocol, patients were positioned, keeping their heads in a neutral position. Under full aseptic precautions, anatomical landmarks were confirmed. One finger was gently placed at the base of the triangle made by two heads of sternocleidomastoid above the clavicle (*Sedillot's triangle*) for needle route guidance. After the skin puncture, the needle was advanced with continuous aspiration till a flash of blood was seen. After confirming venous puncture with flow and colour of blood, a guidewire was inserted with continuous electrocardiography monitoring and under fluoroscopic imaging of the chest [Figure 1]. Then, the catheter was railroaded after dilatation of the track. All ports were aspirated for free blood flow, and the catheter was fixed with a silk suture. The position of the catheter was immediately re-confirmed using fluoroscopy. Sterile dressing was done. The patient was followed up till 24 hours post-procedure. Chest X-ray was done within 24 hours post procedure to confirm position and rule out pneumothorax.

We noted that all cannulations were successful in the first attempt. No arterial puncture was observed. No complications were observed in any of the cases. None of the positioning manoeuvres needed in the classical approach were used in this technique.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patients have given their consent for their images and other clinical information to be reported in the journal. They 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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