

Coiling of central venous catheter in right internal jugular vein

Sir,

We read with interest the article written by Goyal *et al.*^[1] describing a case of coiling of central venous catheter (CVC) in left subclavian vein. The authors have reported it as a rare complication, and we do not agree with this statement. Malatinský *et al.*^[2] in 1976 presented a

series of 378 radiographically controlled CVC placements and reported pure loop formations (coiling) in 2.9% of the cases. Supraclavicular subclavian approach was used in the majority of the patients and the authors explain this as a reason for relatively low incidence rates in their series as compared to other studies.^[2]

We report a case of coiling of central venous catheter in right internal jugular vein (IJV) in a 36-year-old patient admitted postoperatively in intensive care unit (ICU) following evacuation of large extradural hematoma. The CVC was placed in the operation theatre under ultrasound guidance. Intraoperatively the waveform was damped, and the flow of fluids was slow, but it was considered secondary to rotation of the neck and labeled as "positional". Just after admission to the ICU a "flush test" was performed, and it was positive; 5–10 mL of normal saline was injected with force using a syringe and fluid thrill was felt in the ipsilateral neck region with the palmer aspect of the hand.^[3] Subsequent chest X-ray confirmed coiling of CVC in right IJV [Figures 1a and b].

Factors predisposing to coiling and catheter malpositions are:

- Retrograde venous flow secondary to IJV valve incompetence in patients with chronic obstructive pulmonary disease, primary pulmonary hypertension and prior cannulations and catheterizations of the IJV^[4,5]
- Retrograde venous flow in patients with high intrathoracic and intrabdominal pressures
- Seldinger technique: The catheter is inserted over the guidewire and placed in the central vein. During this procedure sometimes the guidewires are removed before the CVC are properly positioned in the superior vena cava. Resistance encountered in inserting the CVC then leads to excessive pressure applications, which then predisposes to malpositioning. Common sites of resistance are the junction of first rib and clavicle for the subclavian vein and the junction of

venous tributaries for the IJV and brachiocephalic vein.

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References

- Goyal V, Sahu S. Coiling of central venous catheter in the left subclavian vein, a rare complication. *Indian J Crit Care Med* 2014;18:105-6.
- Malatinský J, Kadlic T, Májek M, Sámel M. Misplacement and loop formation of central venous catheters. *Acta Anaesthesiol Scand* 1976;20:237-47.
- Toshniwal GR, Rath GP, Bithal PK. Flush test: A new technique to assess the malposition of subclavian central venous catheter position in the internal jugular vein. *J Neurosurg Anesthesiol* 2006;18:268-9.
- Doepp F, Bähr D, John M, Hoernig S, Valdueza JM, Schreiber SJ. Internal jugular vein valve incompetence in COPD and primary pulmonary hypertension. *J Clin Ultrasound* 2008;36:480-4.
- Wu X, Studer W, Erb T, Skarvan K, Seeberger MD. Competence of the internal jugular vein valve is damaged by cannulation and catheterization of the internal jugular vein. *Anesthesiology* 2000;93:319-24.

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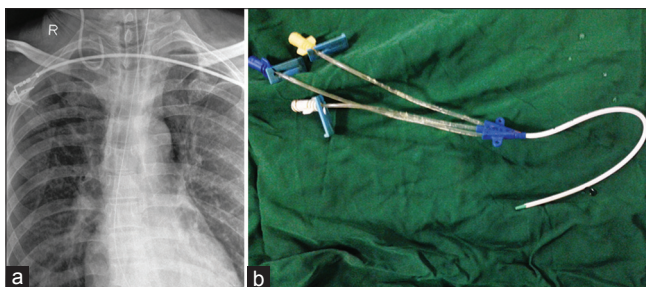


Figure 1: (a) Chest X-ray anteroposterior view with coiled central venous catheter in right internal jugular vein, (b) Coiled central venous catheter after removal