

A loop in the neck

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Misplacement of central venous catheter (CVC), defined as inadequate positioning of the catheter tip, is an event frequently encountered even by expert clinicians. Compared to the subclavian access, the frequency of this complication is significantly reduced, but not eliminated by the internal jugular vein (IJV) approach (1).

We here report an unusual radiographic finding, confirmed by a baseline computed tomography (CT), after uncomplicated placement of a CVC through the IJV approach.

After the induction of general anesthesia in a 60-year old male scheduled for off-pump coronary surgery, a senior anesthesiologist inserted at the first attempt a triple lumen CVC (Blue Flex-tip® Catheter, Arrow International Inc., Reading, PA, USA) in the right IJV, by using the Seldinger technique. The right IJV was punctured, via the high approach, midway between the mastoid process and the sternal notch, just lateral to the carotid artery pulse.

After obtaining venous access, the J-shaped guidewire, and then the catheter, were advanced 15 cm without resistance.

Apparent correct placement was suggested by easy aspiration of de-oxygenated blood from each of the three lumens of the CVC, and by measuring a pressure of 8 mmHg through the distal lumen.

Routine bed-side postoperative chest X-ray (anterior-posterior view) showed the catheter forming a loop along the neck, with its tip positioned above the clavicle (Figure 1). Being the patient asymptomatic, with no signs of vascular lesions, the catheter was not removed. The immediate postoperative period was uneventful, and the tracheal tube was removed 4 hours after surgery. In the first postoperative day, after obtain-



Figure 1
 Bed-side postoperative chest X-ray (anterior-posterior view), showing the central venous catheter forming a loop along the neck, with its tip positioned above the clavicle.

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Figure 2

Basal computed tomography axial image. Note the central venous catheter positioned in a very enlarged internal jugular vein (arrows).

ing Institutional Review Board approval, the patient and his relatives were clearly informed regarding the events, and they accepted to sign consent to the execution of baseline CT exam, scheduled in order to identify the position of the catheter in the venous system.

After the execution of CT scan, the CVC was removed without complications. The baseline CT exam showed the CVC positioned in an enlarged IJV (*Figure 2, 3*).

The most plausible explanation is that, due to the j-shaped form of the tip and the elasticity of the IJV, the flexible guidewire of the CVC, encountering some resistance at the union between the IJV and the right subclavian vein, might have looped upon itself in the easily distensible IJV.

This confirms previous reports regarding the importance of the j-tip of the guidewire



Figure 3

Lateral computed tomography scout view.

in determining the misplacement of CVC (2). This case report confirms previous suggestions that the rolling up of the guidewire in the IJV is a possible cause of knotting (3).

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