

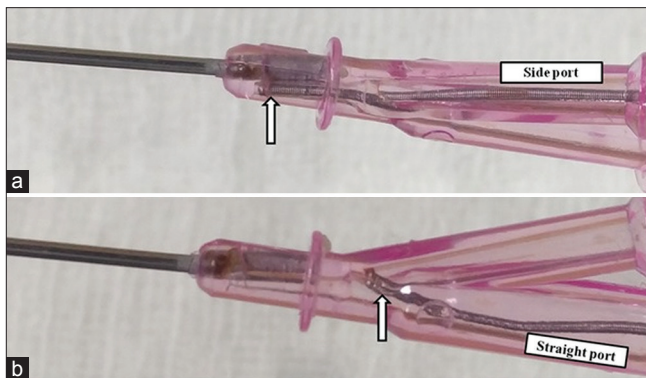
# Preprocedural Check of Central Venous Catheter Set

Sir,  
Structural manufacturing defect in central venous catheter (CVC) set poses challenges during insertion. We report an unusual defect in the introducer needle of CVC set (Certifix® trio) and propose a checklist to detect the same.

An ultrasound (US)-guided right internal jugular vein (RIJV) CVC insertion was planned in an elderly patient (American Society of Anesthesiologists III) scheduled for total hip replacement surgery. Before insertion, CVC and guidewire were visually inspected and all three lumens of catheter were flushed with saline. During this preprocedural checkout, resistance was encountered while advancing guidewire through side-port adapter of valve needle. Hence, guidewire insertion was tried through straight port of introducer needle, but it also failed. On careful observation, malalignment of lumen of needle and hub was seen. This was preventing the guidewire to negotiate needle hub [Figure 1a and b]. This malalignment also prevented forward flow of saline through syringe attached to the straight port of the introducer needle.

A 16G intravenous (IV) cannula was then used as a rescue introducer needle and RIJV was punctured in single attempt under US guidance. The hollow metal stylet of cannula was removed and the guidewire was easily passed through the plastic catheter of 16G IV cannula. No procedure-related complications were observed.

Manufacturing defects in CVC set are sporadic events but they can cause serious mishaps. Faults in design of the guidewire or in manufacturing process have caused breakage of a guidewire and its lodgment in IJV, necessitating fluoroscopic guidance for removal.<sup>[1]</sup> Hegde *et al.* encountered abnormal communication between two channels of CVC intraoperatively.<sup>[2]</sup>



**Figure 1:** (a) (top) The guidewire in an aberrant track (arrow) when inserted through the side port of introducer needle. (b) (below) Failure to negotiate the guidewire (arrow) on insertion through the straight port of introducer needle

We could identify the said defect before insertion, thus highlighting the importance of preprocedural check. If unnoticed, multiple punctures in IJV would have been done with defective introducer needle. Such multiple attempts increase the incidence of mechanical complications such as hematomas, inadvertent arterial puncture, and pneumothorax.<sup>[3]</sup> Use of 16G IV cannula as an introducer needle was a temporary solution, but it is technically more challenging. There is no stiff part on the cannula to hold with sufficient stability during guidewire advancement, so the entire length of the IV plastic catheter needs to be inserted in the lumen of IJV. Moreover, absence of adapter at cannula hub increases difficulty for insertion of guidewire using dispenser. Lee *et al.* reported higher success rates and lower complications with thin-wall introducer needle technique when compared with a cannula-over-needle technique during IJV catheterization.<sup>[4]</sup>

Hence, it is always advisable that physicians should perform preuse check of all medical equipment to avoid potential complications. A simplified preprocedural checklist for CVC set used in our hospital is described in Table 1.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

**Table 1: Preprocedural checklist for CVC**

Questions	Yes/no
Appropriate size and number of lumen of CVC (double/triple) selected	
Package (CVC set) intact	
Product expiry date checked	
All items in set present and visually intact	
Introducer needle	
Luer lock syringe	
Kink-proof guidewire with soft “J” tip and dispenser	
Dilator	
Scalpel	
Central venous catheter with length markings and junction hub	
Slide clamps	
All lumen of CVC flushed with saline	
Air-tight valves/clamps applied on extension lines	
Introducer needle flushed with saline-filled Luer-lock syringe	
Able to negotiate guidewire through introducer needle using dispenser	

CVC: Central venous catheter

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technique versus the cannula-over-needle technique. *Crit Care Med* 2015;43:2112-6.

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