

Retrieval of the lost guidewire immediately after central line insertion by the “clamp technique” - The preponderancy of a procedural checklist and prevention of catastrophe

Sir,

Complications with central venous line insertions are common and different approaches with central venous catheterisation are being tried to reduce the occurrence of these complications.^[1,2] Nevertheless, the incidence of inadvertent loss of guidewire after central line insertion is not uncommon and is reported from all parts of the globe in various scenarios. The consequences due to the lost guidewire have varied from incidental findings in radiological images for other clinical indications to recognition of the incidence after life-threatening complications like arrhythmias, cardiac tamponade, pulmonary embolism, retroperitoneal haematoma, and infective endocarditis.^[3] Herein, we are describing a case of a lost central line guidewire after insertion, which was retrieved immediately by the “clamp technique”.

A 69-year-old male patient with a large retroperitoneal sarcoma was posted for exploratory laparotomy and excision of the mass. After taking written informed consent, the patient was shifted to the operating room and intravenous induction of general anaesthesia was done. A decision for central venous access by internal jugular vein (IJV) was made considering the anticipated blood loss and the nature of surgery. The patient was positioned and ultrasound-guided right IJV cannulation with 7.0 Fr, 16 cm, and multi-lumen central venous catheter (Blue Flex Tip® ARROW®gard Blue Catheter) was commenced. After successful puncture and assuring the free flow of venous blood, the guidewire was inserted followed by dilatation and insertion of the catheter. The procedural checklist was carried out by the assistant who noticed the absence of guidewire in the sterile tray. Search for the guidewire on the floor and drape was negative. There was no blood aspiration from the distal port of the triple lumen catheter while the side ports had free flow of venous blood. A suspicion of guidewire distal migration arose which was confirmed by intraoperative fluoroscopy [Figure 1a]. The

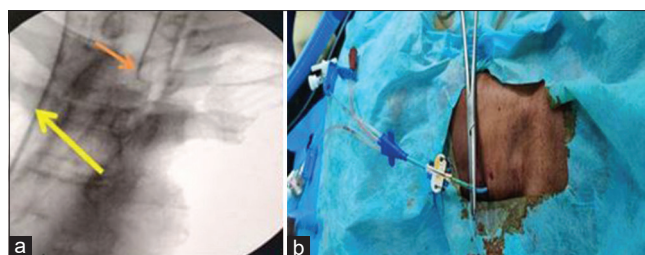


Figure 1: The fluoroscopic image of the guidewire and the ‘clamp technique’. (a) Fluoroscopic confirmation of the guidewire (yellow arrow). The distal end of the endotracheal tube can be seen (orange arrow). (b) The “clamp technique” for the removal of intracatheter retained guidewire using artery forceps. The guidewire is not visible in the catheter

patient was put in Trendelenburg position to prevent distal migration. The interventional radiology and cardiothoracic unit were immediately notified about the incident. Our team decided to retrieve the guidewire by slowly pulling out the catheter and sequential clamping of the catheter by artery forceps adjacent to the skin. While manoeuvring, the guidewire was felt in the catheter during the clamping and the catheter along with the guidewire was pulled out uneventfully.

Early recognition by clinical vigilance and radiological confirmation can prevent distal migration of the retained guidewire in the catheter to the heart or inferior vena cava and prevent undesired morbidity and mortality. The “clamp technique” [Figure 1b] has been described in some case reports when the intraluminal location of the guidewire was suspected. Negative pressure with a 10 mL syringe was maintained during the guidewire retrieval to prevent distal migration. The post-procedure literature review suggested that the suction technique has been described in the bench model of porcine skin for guidewire retrieval.^[4]

Human factors like distraction, lack of supervision, high workload and emergent placement, and lack of procedural checklist for central line cannulation have been suggested as the main cause of losing the guidewire during the procedure.^[5] Following such incidences, simulation studies have also tried to explore the preventive factors and management techniques of such “never events” but the study on mannequin models is limited by their inability to replicate them in real clinical scenarios due to the rarity of such incidences and ethical concerns.^[6]

The early recognition of retained intraluminal guidewire is important as the retrieval with clamp technique and simultaneous suctioning of the distal port channel can prevent unnecessary vascular intervention procedures.

Our case scenario also emphasises the prevention of a catastrophic complication by early recognition using the simple procedural checklist followed in our institution. The checklist was developed after a previous incidence of an inadvertent migration of the guidewire in our institute. Emphasis on the gravity of this rare complication during trainee education, supervision by experienced professionals, vigilance by an assistant during the procedure, and imperative use of the checklist during such procedures are a few important measures to prevent such complications.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients 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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