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Case Report

Loss of a guidewire

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Introduction

Central venous cannulation (CVC) is a common procedure being done in intensive care units (ICU) and operation rooms (OR). It is a safe procedure in the hands of well-trained professionals. However, some known complications include arterial punctures, hematoma formation, infections and very rarely loss of the guidewire, which is used during the procedure. Inattentiveness and poor technique can result in the loss of guidewire in the blood stream. If this happens, it needs to be immediately recognized and retrieved by interventional radiology techniques. We describe such a case where during the procedure of CVC, a guidewire was lost, but was immediately recognized and retrieved.

Case report

A 62-year-old male patient underwent resection and anastomosis for small bowel obstruction and developed

anastomotic leaks postoperatively. He was in a critical condition and required central line for total parenteral nutrition (TPN), intravenous antibiotics, and inotropic support. The patient was shifted from the ward to the intensive care unit (ICU), where it was planned to cannulate the right internal jugular vein (IJV). Anatomical landmarks were used to identify the right IJV and cannulation was performed. The procedure was being conducted by less experienced residents in the ICU. Just as the guidewire was passed and the track dilated, the residents were distracted from the procedure, due to a distress call from the adjoining cubical. One of the residents rushed to the next cubical while the other paused for a few moments and continued with the CVC placement. The unsupervised resident did not catch the guidewire distally but threaded the catheter. The electrocardiography showed a sinus rhythm throughout. A 7.5 Fr triple lumen central venous catheter was inserted. While flushing the catheter, especially the distal port, resistance was met, but this caused no suspicion and all ports were flushed and de-aired and a check radiograph was done.

On the postoperative chest radiograph, a thin radio-opaque shadow was seen extending from the mid 1/3rd of clavicle to the femoral vein (Fig. 1), with the J-tip at the level of neck of femur (Fig. 2). This was the guidewire.

The consultants were informed urgently and the patient was transferred to the interventional radiology suite immediately for corrective procedure. The guidewire was removed by the interventional radiologist, under fluoroscopic guidance, using a gooseneck snare (Fig. 3). Mild sedation and local analgesia was given for the removal of the guidewire. During the procedure, the patient was comfortable with no hemodynamic variations except for few ectopic beats that were encountered when the guidewire negotiated the right atrium. The patient was given heparin intravenously to counter

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Fig. 1 – Postoperative chest radiograph showing guidewire extending from mid clavicle to femoral area.

Fig. 2 – Postoperative radiograph showing J-tip of the catheter at neck of femur.

any thrombotic clots that must have accumulated on the guidewire and which could have dislodged into the bloodstream. Postoperatively, the patient was sent to the ward and the medical management continued.

Fig. 3 – Guidewire removed under fluoroscopic guidance.

Discussion

CVC is now a common procedure done in intensive care settings and operation rooms.¹ There are many indications for CVC insertion, our patient needed a CVC insertion for TPN, was on prolonged antibiotics, and would have required inotropic support. All of these require a CVC insertion. There are some complications of CVC insertions, which include arterial punctures, hematoma formation, ventricular perforation, infections, and rarely loss of the guidewire.² The factors which may predispose to loss of guidewire during performing the procedure include, inattentiveness, distractions, inexperienced person, and a fatigued operator. Loss of a guidewire is usually missed and detected later when complications occur or as an incidental finding. There should be suspicion of retained guidewire when there is no back flow of blood from CVC, and this can be confirmed radiologically. Most of the complications are due to embolism of part of the catheter or guidewire.³ Complete guidewire as such may remain asymptomatic. Though there are no data on complications, it is theoretically possible that retained guidewire may cause arrhythmias, thrombosis, embolism, and vascular rupture. The guidewire once detected should be promptly removed by interventional radiologist.⁴

In this case, all the predisposing factors and signs of guidewire loss were present. Interventional radiology remains the method of choice of removal of the guidewire, and therefore the patient was heparinized and the guidewire was caught with a gooseneck snare passed via the right femoral vein using radiographic control. Other methods of removal using endovascular forceps or dormia basketing may increase chances of endovascular trauma. Usually the guidewire as in this case is removed along with the vascular sheath.⁵

Conclusion

One of the rare complications of CVC can be loss of the guidewire. Utmost care should be taken while doing a CVC insertion. One while learning must do so under supervision, and must not be distracted during the procedure. The guidewire should be held at the tip while inserting the catheter. In case it is suspected that the guidewire has been misplaced, a prompt radiograph needs to be taken and immediate interventional radiological removal is a must.

Conflicts of interest

The authors have none to declare.

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