

Case Report

A case report on retrieval of retained guidewire- a rare complication after central venous catheterization

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ABSTRACT

Central venous catheterization (CVC) is a routine technique which is widely used in fluid resuscitation, parenteral nutrition, haemodialysis and continuous invasive hemodynamic monitoring. CVC via the Seldinger technique is a minimally invasive procedure which is increasingly and widely performed. Popularity of the Seldinger technique of vascular cannulation has resulted in widespread use of spring guide wires. Though employed to make vascular cannulation easier and safer, guide wires are not without potential hazard. While the complication rate of inserting CVC catheters is approximately 11.8%, the intravascular loss of the guide wire during CVC placement is a rare but serious complication which is completely avoidable by appropriate care.

Keywords: Central venous catheterization, Retained guide wire, Complications of CVC

INTRODUCTION

Central venous catheters (CVCs) are an integral part of patient care in the intensive care unit. Complications associated with CVCs occur in nearly 15% of patients, mainly mechanical complications (5–19%), infectious complications (5–26%) and thrombotic complications (2–26%).¹ Guide wire retention is a rare complication of central venous catheter placement, and has been related to operator fatigue, inexperience, and inattention and inadequate supervision of trainees. The true incidence of guide wire loss after intraoperative placement of central venous catheters is unknown. Worsening of patient's clinical condition during catheter placement and complex procedures necessitating more than one guide wire insertion are recurring scenarios in cases involving guide wire loss. We represent an unusual case of patient who developed DIC following retained guide wire.

CASE REPORT

An 18-year-old female who had normal vaginal delivery 7th days back presented with chief complain of fever with

chills and vomiting since 3 days and admitted in medicine ward. On examination patient was disoriented, temperature was raised to 104-degree F, pulse rate was 140/min, blood pressure (BP) was 92/60 mmhg with respiratory rate (RR) of 24/min. On general examination icterus and pallor were present. Respiratory examination shows decreased air entry with basal crepts. Femoral vein catheterisation done and routine investigation sent. After catheterisation, patient developed sudden breathlessness and patient was kept on ventilator support. Laboratory investigations showing haemoglobin (Hb)-8 gm%, TC-20000/cu mm, FDP - 800 mg/dl, D-dimer - 9.7 mg/l. Patient was given 7 unit of packed cell volume (PCV) and fresh frozen plasma (FFP). Patient improved over next 7 days. Patient was weaned off from ventilator. Chest X-ray was done showing metallic guide wire in chest extending up to neck. Computed tomography (CT) thorax was done showed guide wire in IVC extending up to SVC to right jugular vein. Patient was taken for surgery. Exploration of right femoral vein with venotomy with removal of guide wire and repair with prolene 5-0 was done. Post-operative period was uneventful.

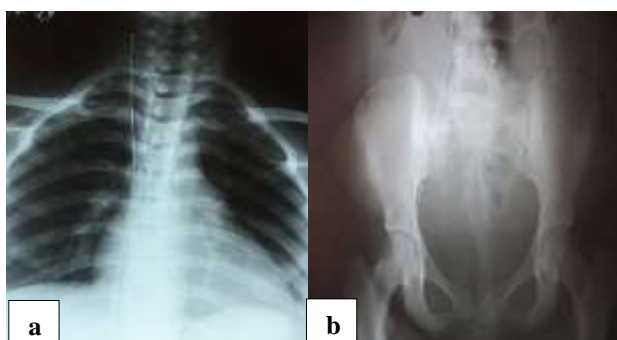


Figure 1: CXR (PA) view and X-ray KUB showing metallic guide wire extending from inguinal region up to neck.

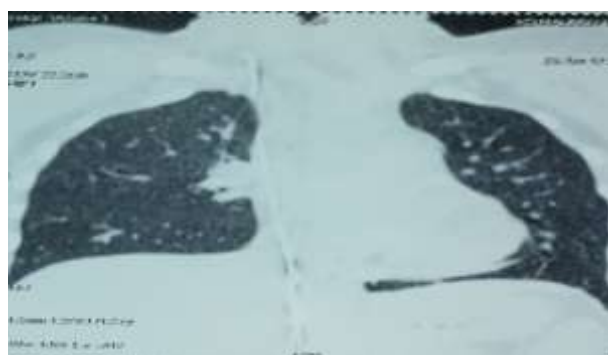


Figure 2: Thorax CT showing guide wire in IVC extending up to SVC to right jugular vein.



Figure 3: Intraoperative picture showing of right femoral vein after venotomy and removal of guide wire was done.

DISCUSSION

Retained guide wire is also a rare but important complication which is completely preventable. The occurrence of this complication led to a reflection on the several steps of the process of Central venous catheter insertion, analysing what went wrong and what should be made differently. The procedure must be performed by experienced person supervised by someone with the appropriate expertise. It is mandatory to hold the guide

wire firmly while the catheter is “rail-roaded” through it, and never to insert both simultaneously.² An immediate post procedural radiograph is important to confirm the position of catheter and to detect complications. Retained central line guide wires or embolization of catheter fragments are rare but can lead to life-threatening embolic complications depending to the site they are being entrapped. Embolism from fragments of catheter or guide wire can be fatal up to 20%.³ Patients usually present with respiratory symptoms, dysrhythmias, myocardial or vessel wall perforation, tamponade, sepsis, superior vena cava syndrome, or symptoms related to the various thromboembolisms and may rarely be complicated by endocarditis.⁴ Late complications manifest diversely and suggest a wide range of differential diagnoses including sepsis syndromes, parasitic infections with febrile paroxysms. The preferred removal method is percutaneous retrieval and surgery is reserved for removal failure. It can be best performed under fluoroscopic guidance depending on the location and size of the foreign body via a gooseneck snare catheter during endovascular snare method by a vascular interventionist. Rarely, the patient must undergo a sternotomy to have the wire removed by a cardiac surgeon. However, the best way to avoid these consequences is to prevent them.

CONCLUSION

Percutaneous central venous puncture is a procedure requiring advanced operating skills, expert supervision, and meticulous attention to detail. To prevent adverse effects trainees should be aware of proper technique and all possible complications. The interventional angiography is usually successful as the first line therapy if available.

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