RETRIEVAL OF LOST GUIDE WIRE FROM IVC UNDER FLUOROSCOPIC GUIDANCE

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ABSTRACT

A guide wire is routinely used during central venous catheterization to facilitate the placement of the catheters, however, the use of a guide wire carries a certain risk of complications. The guide wire may get kinked, looped or may suffer breakage during the process of insertion. It may also get dislodged into a vessel. These complications may damage the vessel resulting in major hemorrhage, or thromboembolism. We report a case of guide wire dislodgement during right internal jugular central line placement. The guide wire got lodged in the inferior vena cava with its J loop in the right common femoral vein. The guide wire was successfully retrieved by an interventional radiologist using a minimally invasive percutaneous technique in an interventional radiology suite under fluoroscopic guidance.

Introduction

Central venous catheterization is a common procedure performed at bedside by physicians without the help of fluoroscopy. It is essential to take care of basic precautions while performing this procedure, so that the chances of associated complications can be minimized. In the past, in cases of lost wires, retrieval was performed by vascular surgeons using venous cut down technique. Now this is mostly handled by interventional radiologists using fluoroscopic guidance. Awareness of this less invasive technique for retrieval of guide wires will save patient from more invasive surgical procedures, especially when most of these patient are poor surgical candidates because of their co-morbidities.

Case Report

A 37 years, young man came to our emergency room with complaints of severe abdominal pain, distension and profuse vomiting. About four weeks back, he had laparoscopic cholecystectomy. On the basis of his clinical, radiologic and laboratory investigations a diagnosis of acute necrotizing pancreatitis was made. During his hospital course, a central venous catheter was placed via right internal jugular vein approach at bedside in the ICU. However, unfortunately the guide wire inadvertently got slipped and dislodged distally in the IVC, which was not noticed and informed at that time.

A CT scan of the abdomen was performed for evaluation of pancreatitis, which revealed the guide wire in the inferior vena cava (IVC) with its J tip in the right common femoral vein (CFV).

The interventional radiology team was called for percutaneous removal of the wire. Under fluoroscopy, the wire was visualized in IVC with its distal end in the common femoral vein (CFV). Initially, attempts were made to retrieve wire directly from the right common femoral vein, which were not successful as the wire kept moving more into the right superficial

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femoral vein. So using left femoral vein approach, a snare was advance up into the inferior vena cava near right atrium; the guide wire end was hooked into the snare and the catheter was successfully pulled along with the snare through a 9 Fr. vascular access sheath The guide wire was successfully retrieved and the patient had an uneventful course without any complications related to the procedure.

Figure 1: Dislodged guide wire in IVC showing J tip in CFV.

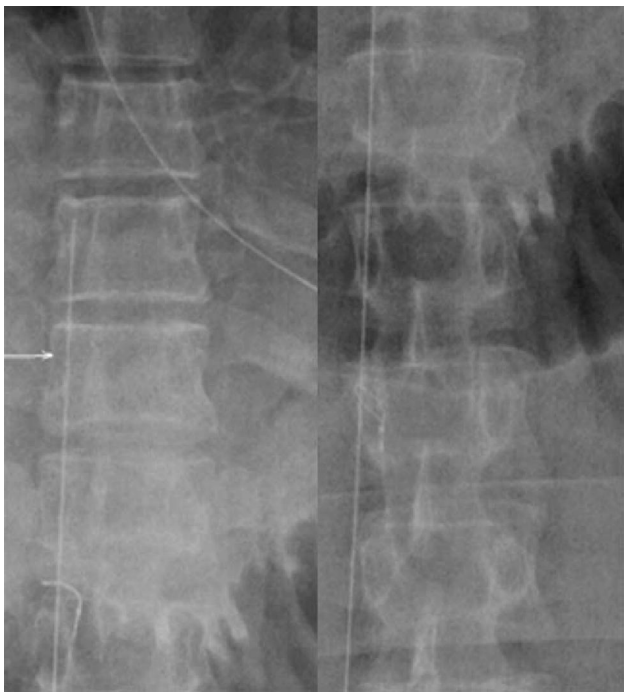

Figure 2: Steps of wire retrieval. A) snare around wire. B) early looping of wire.

Figure 3: Steps of wire retrieval. Loop of wire in left EIV and CFV

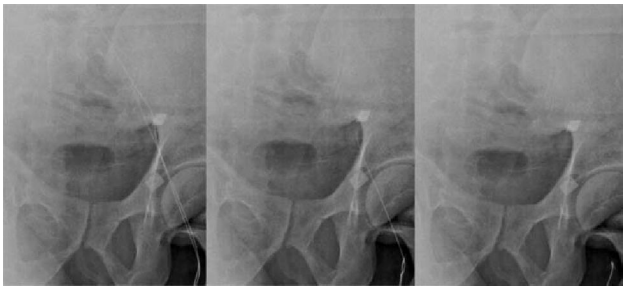

Figure 4: Retrieval of wire. a to c) Loop of wire completely out.

Discussion

Although central line placement is a relative easy and safe bed side procedure, guide wire-related complications can occur during insertion of central venous catheters (CVC) and can be associated with increased morbidity and mortality.[1,2] The increased frequency of such line placement procedures in operating rooms, emergency rooms and intensive care units makes the chances of seeing this occasional complication relatively high.

Guide wires are flexible structures, which makes them prone to become kinked or knotted.[3] Excessive force may cause vessel damage or may result in breakage of the wire with intravascular dislodgement of the

broken part In this case it may be prudent not to use force to pull out the catheter or the guide wire.
The entire wire may get completely dislodged into a vessel. If proper precautions are taken, inadvertent intravascular dislodgement of an entire guide wire, as in our case, is a complication which can easily be avoided.[4] The wire lost may be asymptomatic and found incidentally on an examination done later however occasionally it may result in thrombosis of vessel, cause vascular damage or lead to arrhythmias.[5,6] In order to avoid these complications, we advise that the operator should have control of the distal end of the guide wire (the end of the wire outside the patient) at all times. Interventional radiology techniques being less invasive are preferred over surgical method for retrieval and removal of these lost or broken wires.[4]
When intravascular dislodgement of a piece or whole of a guide wire occurs, a basket retrieval catheter or a loop snare catheter can be used percutaneously under fluoroscopic guidance. These techniques are associated with a success rate up to 92%.[4] In certain cases when the snares are not available a local snare can be made by taking a long 300 cms 0.014"or 0.018" wire and advancing it through a catheter in the form of loop. Surgical intervention may be indicated only if these methods fail to remove the wire because of their invasive nature and associated complications.[5,8]

Conclusion

Guide wire handling is important during catheter placement using Seldingers technique. Part of it should be held at all times to avoid losing it. Percutaneous fluoroscopic guided retrieval of lost guide wire in an interventional radiology setting is an effective and minimally invasive way of performing this procedure.

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