Case Report

Accidentally Missed Guidewire during Insertion of a Dialysis Catheter

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Abstract

Missed guidewire is a rare and potentially avoidable complication of central venous cannulation. Unsupervised insertion by trainees, distraction during insertion, and high workload may increase the risk. Simple measures such as holding onto the wire at all times until removal from the vessel, routine use of central venous catheter insertion checklist, and vigilant supervision of the trainees may help prevent missing of the guidewire.

Key Words: Central venous cannulation, dialysis, missed guidewire

Introduction

Missed guidewire during the insertion of central venous catheter is a rare and potentially avoidable complication of central venous catheterization.[1] It is frequently underreported due to its iatrogenic nature and medicolegal issues.[2] Unsupervised insertion by trainees, distraction during insertion, and high workload may increase the risk.[3] Here, we report the missed guidewire during the insertion of dialysis catheter, which was subsequently detected during postprocedure chest X-ray.

Case Report

A 58-year-old male patient, a known case of chronic kidney disease, presented with hyperkalemia and uremic encephalopathy, which was refractory to medical therapy. He was planned for urgent hemodialysis. Following the initial failed attempt to insert dialysis catheter by in-house internal medicine resident, anesthesiology resident was called for the procedure in the hemodialysis ward, at the middle of the night. The patient was agitated due to uremic encephalopathy. A 12 Fr dialysis catheter was successfully inserted through the right internal jugular approach in second attempt, with Seldinger technique under real-time ultrasound guidance. The catheter was secured and postprocedure chest X-ray was advised. X-ray revealed missed guidewire within the catheter with its proximal end still in the segment of catheter outside the skin. The segment of catheter with the guidewire was grasped with the artery forceps. The patient was transferred to radiology suite. Both the catheter and guidewire as an assembly were removed together under fluoroscopic guidance.

Discussion

Missed guidewire can be associated with the complications such as migration of catheter into the circulation,[4] embolism from fragment of catheter or guide wire,[5] and cardiac tamponade.[6] Guidewire should be removed as quickly and completely as possible.[7] The guidewire already lost into the circulation can be retrieved by interventional radiology using gooseneck snares, endovascular retrieval forceps, or Dormia baskets; surgical removal may be needed.[6] In our patient, since the guidewire was still inside within the portion of catheter outside the skin, it could be successfully removed as an assembly with the catheter under fluoroscopic guidance.

In this case, the catheter was inserted by a trainee who was not supervised. The procedure was performed at the middle of the night during the busy schedule of the resident doctor. Moreover, the patient was agitated due to uremic encephalopathy, causing distraction, and the procedure was performed outside the familiar environment of operating room. All these factors could have contributed to missing of the guidewire.[3]

However, simple steps such as making sure that the wire is visible at the proximal end before the catheter is advanced, railroading the catheter over the guidewire into the vein...
and not pushing catheter and wire together, and holding onto the wire at all times until removal from the vessel may help prevent missing of the guidewire.[1,7] Always inspecting the wire for complete removal at the end of the procedure and routine use of central venous catheter insertion checklist may be imperative.[6,9] Moreover, continuing education along with simulator-based skill development, vigilant supervision, and shared workload during out of hours working are likely to prevent such complications.[3,10]

**Conclusion**

Missed guidewires are not uncommon and are potentially associated with complications. Simple, practical measures may be valuable to prevent this potentially avoidable complication of central venous cannulation.

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**Conflicts of interest**

There are no conflicts of interest.

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