

Intravascular migration of a guidewire during central venous catheterization: A Case Report

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Abstract

Central venous catheter placement is a common procedure in intensive care settings. However, it can be associated with certain complications, including guidewire migration—a rare but potentially serious event. This complication highlights the importance of precise anatomical knowledge and strict adherence to procedural protocols, ideally performed by an experienced operator. We report here a case of guidewire migration that occurred during central venous catheterization.

Keywords: Central Venous Catheter; Guide wire; Complication; Migration

1. Introduction

Central venous catheterization is a routine intervention in intensive care and emergency medicine. Despite its widespread use, complications may arise, including mechanical issues, infections, and in rare instances, intravascular migration of the guidewire. Such events can have serious consequences and warrant prompt recognition and management.

2. Case Presentation

An 80-year-old female patient with a history of diabetes and hypertension (on dual therapy) was admitted to the emergency resuscitation room with hypovolemic shock.

Initial management included insertion of two large-caliber peripheral intravenous lines and oxygen therapy. A central venous catheter was planned via the left femoral vein. During insertion, the guidewire inadvertently migrated intravascularly.

After stabilization, a chest radiograph revealed that one end of the guidewire had reached the right internal jugular vein, while the other remained in the left femoral vein.

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Figure 1 Chest X-ray showing the guidewire traversing the inferior vena cava and entering the right atrium



Figure 2 Pelvic X-ray showing the distal tip of the guidewire located in the left Scarpa triangle



Figure 3 Intraoperative image of surgical exposure of the left common femoral vein for guidewire retrieval

3. Discussion

Central venous access is commonly performed in critically ill patients, with up to 50% requiring such access during hospitalization. Mechanical complications, including failed catheter placement and malposition, occur in 5–19% of cases [1].

Guidewire migration is an extremely rare complication, first described by Akazawa et al. [3]. It is often suspected when there is resistance during injection, lack of blood reflux through the catheter, or radiological visualization of the misplaced guidewire.

Retention of a guidewire as a foreign body may lead to arrhythmias, thrombosis, embolic events, or cardiac tamponade if cardiac perforation occurs. Timely recognition and removal are essential. The preferred approach is endovascular retrieval under fluoroscopic guidance. In some cases, such as ours, open surgical extraction is necessary, depending on the location and accessibility of the guidewire.

4. Conclusion

Guidewire migration during central venous catheter placement is a rare but potentially life-threatening event. Proper technique, preventive vigilance, and rapid intervention are key to preventing and managing this serious complication.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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