An Intra-Arterial Knotted Guide Wire

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Abstract Central access is essentially an integral part of critical care, both for invasive monitoring and therapeutic interventions. Seldinger technique is the method for the insertion of a central line. It requires the following steps: cannulation of vessel followed by guide wire insertion, dilation of the tract and the vessel and the insertion and securing of the central line followed its maintenance—each of this step has its own complication.

Keywords Knotted guide wire · Complication of catheter knotting · Knotted Seldinger wire

Images in Surgery: an Intra-Arterial Knotted Guide Wire

Central access is essentially an integral part of critical care, both for invasive monitoring [1] and therapeutic interventions. Seldinger technique is the method for the insertion of a central line. It requires the following steps: cannulation of vessel followed by guide wire insertion, dilation of the tract and the vessel and the insertion and securing of the central line followed by its maintenance—all these steps have their own complications [2].

Images of the knotting of guide wire are presented in this article. Proper care is mandatory in handling the guide wire for effective use and to prevent complication as described by Monaca et al. [3]. A guide wire knot [4] is a rare complication. Our patient was admitted in the medical intensive care unit in septic shock and on supports. An arterial line was planned for invasive monitoring of intra-arterial blood pressure. After insertion of the guide wire, an attempt was made to advance a catheter over the guide wire, but it was not possible and bedside X-ray showed a coiled-up guide wire. Extraction was attempted under fluoroscopy but failed. Hence, it was decided to extract the guide wire surgically.

On exploration, the femoral artery was found to be lacerated, and the guide wire had travelled for a short distance intramurally in the femoral artery and had entered the arterial lumen forming a knot (Fig. 1). The arteriotomy made by the guide wire was explored and the guide wire was retrieved (Fig. 2). The arteriotomy was closed with 7-0 Prolene.

Postoperatively, the patient's general condition improved and recovered from his medical condition. The postoperative period was otherwise uneventful.

The best way to prevent complications mentioned is to avoid them in the first place. Primary requirements include good knowledge of the components used in inserting the central line and adequate experience.

In this case, the fluoroscopic extraction of guide wire was attempted, but it failed. This problem can possibly be avoided if done under ultrasonic guidance. Repeated attempts on insertion can damage the guide wire [5],

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Fig. 1 Intra-operative picture

Fig. 2 Retrieved guide wire

and replacing it with a new guide wire can prevent knotting [6].

Conclusion

There are few intra-arterial guide wire knotting cases reported in the literature. This article is for highlighting the existence of the rare possibility of a guide wire knotting. Critical care clinicians should be aware of this and necessary steps have to be taken to avoid procedure-related complications.

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