

Case Report

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Intravascular Migration of a Metal Guide When Laying a Central Venous Route: About a Case



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Summary

The placement of a central catheter in resuscitation is a common practice gesture, but it is linked to important complications; the most common ones are infections, mechanical complications and pulmonary embolisms. Other complications, although exceptional, can be observed. We report a rare case of intravascular femora-cardiac migration of a metal guide after attempted catheterization of the femoral vein by the Seldinger technique. This exceptional complication is potentially dangerous because it generates cardiac arrhythmia, embolism, vascular and / or cardiac perforation that can put at stake the immediate vital prognosis of the patient. The treatment is based on the excision of the catheter by interventional radiology under radiology using a Lasso probe or failing that by traditional surgery. It is this last method that we used for the extraction of the metal guide under general anesthesia with propofol.

Keywords: Central Venous Route, Complication, Metal Guide, Intracardiac Migration

Introduction

The placement of a central catheter in resuscitation is a common practice. This gesture can be punctuated by complications, the frequent ones are infections and mechanical complications [1-3]. Other complications although exceptional can be observed. We report a case of femora-cardiac intravenous migration of a metal guide after an attempt to catheterize the femoral vein by the Seldinger technique.

This exceptional complication is potentially dangerous because it generates a heart rhythm disorder (arrhythmia), vascular and / or heart perforation that can put at stake the patient's vital prognosis. The treatment is based on the extraction of the catheter by interventional radiology under radiology using a Lasso probe [4-6] or failing that by traditional surgery [7,8].

Observation

We report the clinical case of a 24-year-old patient, weighing 70 kilograms, a student who was hospitalized in the nephrology department of the Bouaké Hospital and University Centre for

acute renal failure, in whom an indication for dialysis was asked. As the patient did not have an arteriovenous fistula, the placement of a central venous route was indicated.

This placement of the central catheter was performed by a doctor enrolled in the Diploma of Special Study (DES) of nephrology. During the placement of the central catheter at the level of the right femoral vein by the Seldinger technique, there was a migration of the entire metal guide into the right femoral vein (Figure 1) which lodged in the superior vena cava (Figure 2) via the primary iliac vein.

The patient was put on low molecular weight heparin at a curative dose of 1 mg/kg/12 hours, a cardiovascular surgery opinion was requested and a paraclinical assessment was performed. Standard X-rays of the abdomen without preparation from the front taking the pelvis and the tele-heart from the front made it possible to highlight a radiopaque metallic foreign body coming from the iatrogenic intravenous right femora-auricular (Figure 1-3).

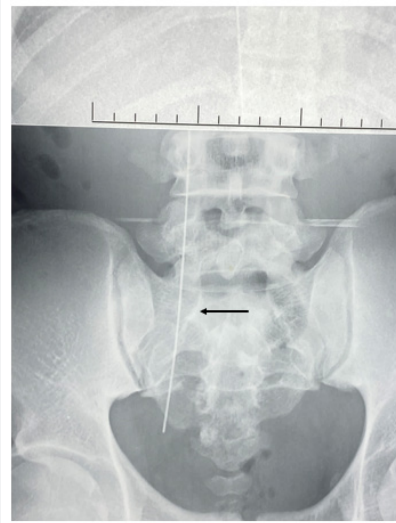


Figure 1: X-ray of the front pelvis showing the metal guide in the right femoral vein.

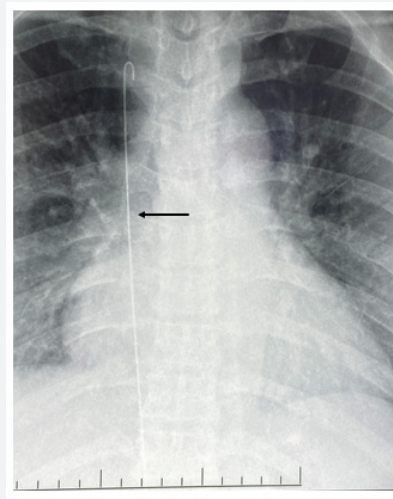


Figure 2: Front chest x-ray showing the migration of the metal guide intracardiac through the inferior vena cava.

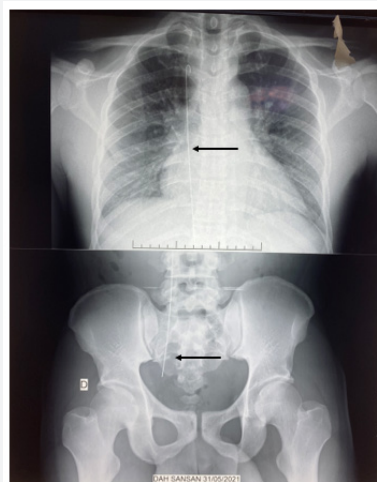


Figure 3: Visualization of the metal guide in the right femoral vein, the superior vena cava and intracardiac.

We selected the diagnosis of a migration of the metal guide of the central catheter during the placement of a central venous route through the right femoral vein. An operative indication for the surgical extraction of this metal guide has therefore been laid. After a clinical evaluation and a paraclinical assessment, the patient was classified as ASA III. He was admitted to the operating room 48 hours after the incident occurred.

The procedure was performed under general anesthesia with orotracheal intubation. It lasts 50 minutes of clock. The patient received premedication combining atropine (0.5 mg) and madapolam (2 mg). Induction was done with 200 mg of propofol,

100 micrograms of fentanyl and 4 mg of vecuronium. Maintenance was provided by isoflurane. The extraction was done by traditional surgery after a right inguinal approach. Then a dissection of the right femoral iliac pedicle highlighting the right iliac vein.

The identification of the metal guide was done by palpation through the right iliac vein (Figure 4). Then a transverse incision of the iliac vein and the extraction of the metal guide (Figures 5-11) already identified using a curved Kelly clamp after clamping upstream and downstream for 8 minutes. Finally, a vein suture or vein repair with "prolene" 6/0 was performed.



Figure 4: Identification of the metal guide in the right iliac vein.

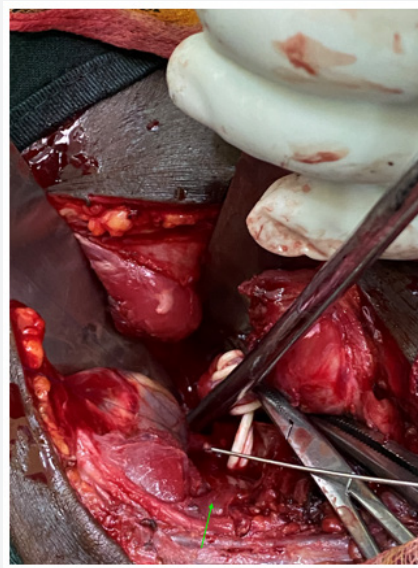


Figure 5: From the metal guide of the right iliac vein.

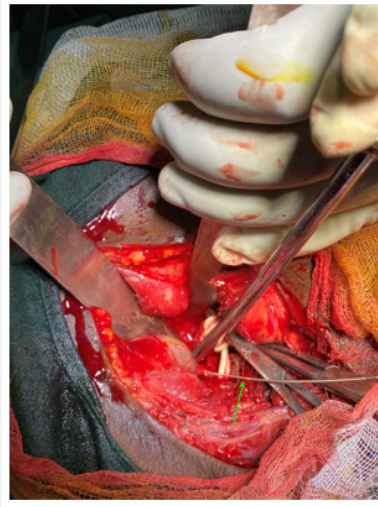


Figure 6: From the metal guide of the right iliac vein.

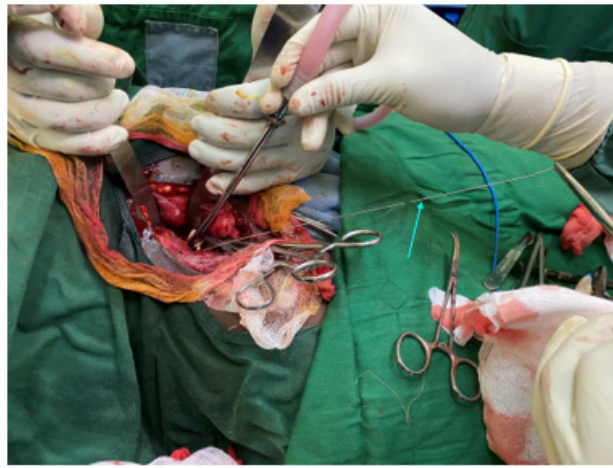


Figure 7: From the metal guide of the right iliac vein.



Figure 8: Metal guide after extraction.

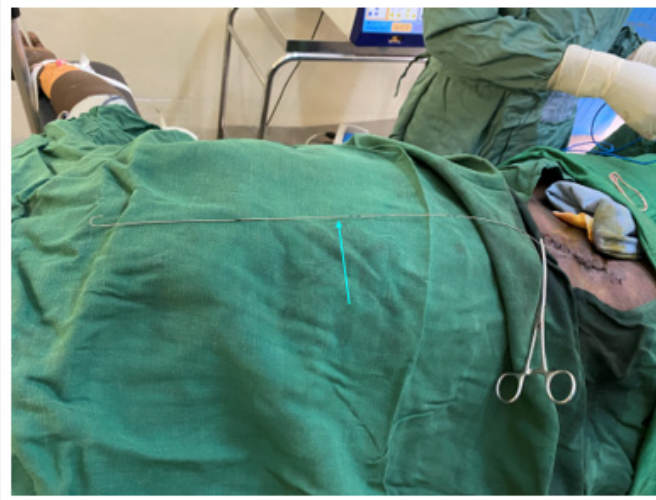


Figure 9: Metal guide after extraction.



Figure 10: Metal guide after extraction.

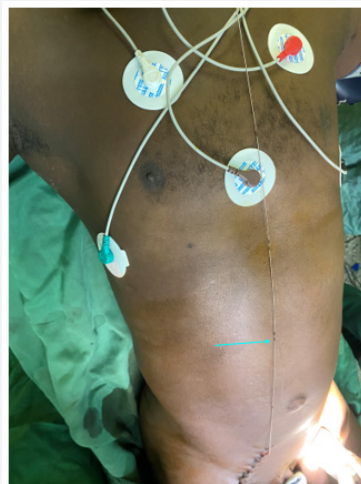


Figure 11: Metal guide after extraction.

A central venous route at the level of the left femoral vein was placed in the operating room to allow the realization of his dialysis. The intervention took place without any particular incident with an alarm clock on the operating table. Blood loss was estimated at about 50 ml. The patient received dialysis when he left the operating room, then he was hospitalized in the nephrology department for further management.

Discussion

The use of a central venous route in an emergency is a common practice whose indications, risks and complications are well known [9-12]. Patients with renal impairment require the placement of a central catheter to benefit from dialysis. In France, from the CUB-REA 2000-2001 database including 40,413 resuscitation patients, the incidence of the use of central venous catheter is estimated at 30% [13]. This gesture of common practice is not without any risk.

Thus, in 10 to 20% of cases, complications are observed, the most frequent ones are catheter infections, gas pulmonary embolism and mechanical complications (heart rhythm disorders, pneumothorax, vascular lesions) [14-20]. The reduction of these complications, the consequences of which are sometimes dramatic, motivated the development of recommendations by several teams [14]. For the prevention of infections, rigorous surgical asepsis is now required for the placement of a central catheter.

As for mechanical complications, the solution seems to be found through the increasingly common use of ultrasound, through echo-guided venepuncture. The placement of a central catheter should be done by or in the presence of an experienced practitioner. The migration of the metal guide intravenously is an exceptional complication that is practically no longer seen in the West. Only one case has been described in recent years (2009), and that was at the HASSAN II University Hospital in Fez [15].

The main circumstances of occurrence are an inexperienced practitioner or emergency gestures made in haste [21,22]. In our case, the catheter was placed during a permanence by a student enrolled in the Diploma of Special Studies (DES) of nephrology and having little practical experience. The observation of such a complication that has become practically non-existent in Europe revives the debate on the need for the training of our doctors (intern, DES), as well as permanent supervision during practical hospital internships.

In this regard, the shortage of qualified doctors in our developed countries limits the possibility of permanent supervision of interns and DES doctors by hospital practitioners during on-call care. These different measures will make it possible to avoid the occurrence of such complications whose consequences are dangerous because they engage the patient's vital prognosis.

The treatment is based on the excision of the metal guide, ideally by interventional radiology under radioscopy using a Lasso probe; or failing that, by traditional surgery [8]. It is this last technique that we used in our context for the extraction of

the metal guide, after putting the patient on curative heparin therapy. This allowed us to avoid the consequences inherent in this complication that are embolism and the risk of vascular and / or cardiac perforation.

Conclusion

The placement of a central venous route in patients with renal insufficiency who do not have an arteriovenous fistula is essential for their renal dialysis. Intravascular migration of the metal guide during the placement of the central venous route remains rare for the practitioner, but very dangerous for the patient. Diagnosis is easy. Management must be rapid in order to avoid cardiac complications that can engage the vital prognosis of patients hence the interest of a good control of the central venous route by practitioners.

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