



A Rare Case of Intravenous Catheter Fracture

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Abstract

Intravenous catheter fracture is one of the complications of plastic catheters. We present a case of fracture of peripheral iv cannula that might have happened due to forceful blood transfusion. Fortunately we were able to remove the fractured part of the iv cannula before it landed up in a catastrophic embolic complication.

Introduction

Securing of intravenous (iv) cannula is a key component for almost every patient arriving in casualty and in operating room. Various complications such as infiltration, thrombophlebitis, venous spasm, haematoma, air embolism, infection, as well as injury to nerves, tendon and ligament can occur.^[1] One of the rare complication is fracture of iv cannula which can lead to embolic episodes.

Thus, what might seem to be a simple daily procedure done by any health personnel can lead to deadly complications.

Case Report

A 25 years old female was planned to undergo laprotomy for ruptured ectopic pregnancy. Standard monitoring like ECG, SPO₂ and NIBP was applied. As patient was hemodynamically unstable (blood pressure 80/40 mm Hg) due to

heavy blood loss two iv cannulas were secured. An 18 gauge intravenous cannula on dorsum of left hand and another on the dorsum of right hand. Patient was induced with etomidate and succinylcholine and intubated with 7.0 mm ID cuffed ETT. Blood was pushed with a three way cannula through left hand 18 gauge intravenous cannula. After sometime we noticed that blood was constantly leaking from the cannula from which blood was being transfused. Thus, the transfusion was started from the other cannula. After completion of surgery, while patient was stable, we opened the fixation of cannula from which blood was leaking. While taking out the cannula, we found the catheter was separated from the hub (Figure 1). Hub was taken out while catheter remained in the vein. Fortunately the tip of the hind part of the catheter was still visible so we immediately immobilised the limb, tied a

tourniquet and with the help of a small artery we meticulously withdrew it from the entry point. (Figure 1)

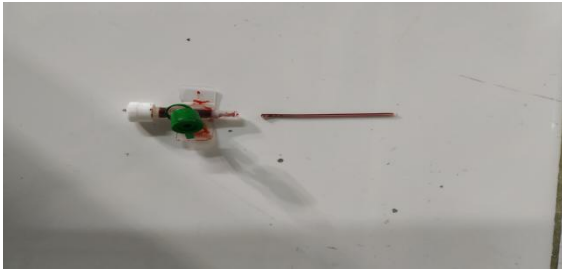


Figure 1: The fractured cannula recovered from the patient

Discussion

Catheter fracture is a rare complication but can have dreaded consequences. It can occur during insertion and removal which may be due to anatomy of the vein or the insertion angle. There are only a few case reports of fracture of iv cannulas, in literature. First case of iv cannula fracture was reported in 1950. It was case of intravascular embolisation of catheter fragment as a complication of central venous catheterization.^[2] The second case report is of femoral catheter used for dialysis.^[4] The reports regarding complication of iv cannula fracture range from sepsis, perforation, thrombosis, dysrhythmias, air embolism, pneumothorax and myocardial infarction^[5]. There is one case report of catheter fracture while trying to reinsert the needle into already advanced catheter.^[3] In our case the probable cause of catheter fracture was forced transfusion through 18 g cannula. There may be a manufacturing defect in the iv cannula. So while pushing the blood the catheter might have separated from hub. There are few precautions to prevent catheter fracture. All medical interventions should be performed after adequate training and experience. Health care personnel who insert peripheral venous catheters must be familiar with the proper emergency interventions in case of catheter fracture within the vein and or adjacent tissue. When catheter is impacted it should be meticulously decannulated under fluoroscopic guidance.

Conclusion

Fracture cannula is not only a rare but also underreported complication. Periodic check-up of iv cannula should be done. Patient should be advised not to do vigorous wrist movement iv cannula to be changed every 48 hours.

References

1. Singh S, Prakash J, Shukla VK, Singh LK. Intravenous catheter associated complications. J Assoc Physicians India 2010;58:194-196.
2. Turner DD, Sommers SC. Accidental passage of a polyethylene catheter from cubital vein to right atrium; report of a fatal case. N Engl J Med 1954;251:744-745.
3. Glassberg E, Lending G, Abbou B, Lipsky AM. Something's missing: Peripheral intravenous catheter fracture. J Am Board Fam Med 2013 ;26:805-806.
4. Szekely J, Racz L, Karaston A. Broken piece in the lungs: a complication of hemodialysis via subclavian cannulation. Int Urol Nephrol 1989;21:533-40.
5. Surov A, Wienke A, Carter JM, et al. Intravascular embolization of venous catheter – causes, clinical signs, and management: A systemic review. JPEN J Parenter Enteral Nutr 2009;33:677-685.