

Stuck Port-A-Cat: A Case Report of a Successful Removal

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Abstract

Case Report

Introduction: Totally Implantable Venous Access Devices (TIVADs) are critical for efficient drug administration in cancer treatment, but their use can lead to serious complications, including catheter fractures. These fractures may result in severe conditions such as pulmonary embolism, arrhythmias, endocarditis, and myocardial perforation. In pediatric patients, TIVADs are often removed after therapy, but removal can be complicated if the catheter adheres to the central vein wall due to prolonged use. This study presents a novel technique to simplify the removal of catheters that have adhered to vessel walls. **Case Presentation:** A 67-year-old man with bronchial adenocarcinoma, who had undergone neoadjuvant chemotherapy via a port-a-cath for a year, required catheter removal after six treatment sessions. During removal under local anesthesia, the catheter was found to be obstructed and could not be extracted without risking vein rupture or catheter fracture. The anesthesiologist proposed using a metallic guide from the central line kit to stiffen the catheter. This method successfully facilitated removal without complications. Post-removal, localized epithelialization was observed around the catheter. **Discussion:** Removing long-term tunneled or port catheters can be challenging due to adhesion to central veins, with risks including catheter fracture or vascular injury. Various advanced techniques, such as oversheathing with an introducer sheath or balloon dilation, have been described. Our method, utilizing a metallic guide to stiffen the catheter, reduces stress points and the risk of fracture, while also allowing easier percutaneous transvenous retrieval if needed. This approach enhances the safety and efficacy of catheter removal at minimal additional cost. **Conclusion:** The removal of a stuck peripherally inserted central catheter (PAC) presents significant risks, but employing a metallic guide can facilitate safer and more effective removal. This technique, while not a perfect solution, improves patient safety and minimizes potential complications during catheter retrieval.

Keywords: Port-a-cat, PAC removal, metallic guide, Catheter fracture.

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INTRODUCTION

The totally implantable venous access device (TIVAD) is an essential tool widely used for drug access and infusion during cancer treatment, significantly improving patients' quality of life by allowing efficient administration of chemotherapy and other medications. However, complications can arise from the use of these devices, with catheter fractures being among the most severe. Such fractures can lead to serious conditions like pulmonary embolism, arrhythmias, endocarditis, and myocardial perforation. In pediatric cases, where TIVADs are employed for repeat intravenous therapy, these devices are often removed once therapy concludes. Yet, the removal process can become complicated if the catheter adheres to the central vein wall due to long-term use. In such situations, using excessive force to retrieve

the catheter risks fragmentation. We present a novel, simplified technique designed to facilitate the removal of catheters that have become tightly adhered to vessel walls after prolonged use.

CASE PRESENTATION

This concerns a 67-year-old man, a chronic smoker, undergoing treatment for bronchial adenocarcinoma with neoadjuvant chemotherapy, administered via a port-a-catheter inserted one year ago. After 6 sessions of treatment, a decision was made to remove it.

The patient was admitted to the operating room, he was stable, clinical examination was normal. Under local anesthesia, the surgeon began removing the port-a-cath. After removing the subcutaneous chamber, the

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catheter inserted into the subclavian vein was blocked and could not be removed.

Due to the risk of vein rupture or catheter fracture and fragment migration, the surgeon did not force the removal. A solution was proposed by the anesthesiologist to introduce the metallic guide from the

central line kit inside the catheter to stiffen it and then remove the whole assembly.

After inserting the guide, the removal was successful without any incident. After removal, localized epithelialization was found around the catheter, which prevented its extraction (Figure 1).

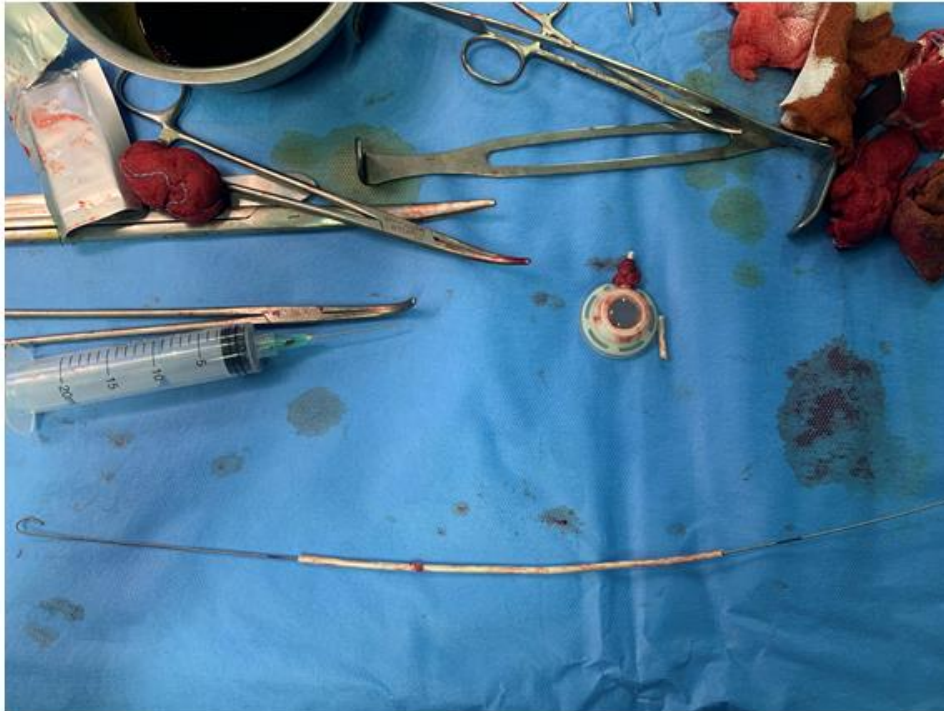


Figure 1: Intubated PAC with metallic guide after removal, showing the epithelialization in the distal part

DISCUSSION

Removing long-standing tunneled or port catheters can be challenging when the catheter is adherent to the central veins. Excessive traction in these situations may result in catheter fracture or vascular injury. Several advanced percutaneous techniques for catheter removal have been described, including oversheathing the catheter with an introducer sheath and endoluminal balloon dilation [1].

Another technique was described to aid in removing a stuck catheter. Instead of relying on a forceful "pull-out" maneuver, which risks catheter breakage, they used a guidewire with a soft J-shaped tip and a stiff body. The guidewire's soft tip prevents punctures, while the stiff body helps straighten the catheter. By applying a "push-in" force, the catheter is squeezed and gradually detaches from the vessel wall [2].

Finally, a fractured chemotherapy port catheter was removed percutaneously by the balloon-supported retrieval method, this technique can be used in emergency situations in the absence of necessary retrieval systems rather than elective procedures [3].

In our case we used the metallic guide from the central line kit, we believe this serves the following beneficial functions: Mechanically, as the catheter stretches and collapses upon retraction it distributes the force circumferentially along the length of the catheter as well as reduces angular kinking, mitigating stress points of fracture. Second, in case of fracture, the distal portion should remain intubated by the J-tip guidewire, reducing embolic potential. Third, it allows more facile percutaneous transvenous retrieval if indicated. Though this does not represent a perfect solution to the "stuck" catheter problem, this technique increases safety and efficacy of removal with easy application at minimal additional cost.

CONCLUSION

Removing a stuck peripherally inserted central catheter (PAC) can pose significant risks, including severe complications. To ensure patient safety, a variety of techniques are available as outlined in the literature. In our case, employing a metallic guide proved effective in facilitating the safe removal of the PAC, avoiding vein injury and catheter fracture. This approach highlights the importance of using appropriate methods to minimize risks and ensure a successful retrieval process.

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Ethics Approval and Consent to Participate: Military hospital Mohammed 5 of rabat ethical committee approved the study.

Consent for Publication

Written informed consent was obtained from the patient to publish this case report. A copy of the written consent is available for review by the Editor-in-Chief of this journal if requested.

Competing Interests: The authors declare no competing interests.

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