



## Percutaneous Retrieval of a Fragmented Port-a-Cath With the Snaring Technique

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### Abstract

**Background:** Long-term use of central venous catheters is common in cancer patients for chemotherapy. The remaining of these catheters after the end of the treatment period can be associated with complications such as thrombosis and catheter fragmentation.

**Case Report:** This report presents a 42-year-old woman with a history of colon cancer whose inner part of the vascular access was detached from the outer part after removing the central venous catheter, and the catheter remained inside the internal jugular vein. After preparing the patient's chest X-ray, the catheter was removed from the femoral vein by percutaneous retrieval and successfully taken out using the snaring technique.

**Conclusion:** Overall, percutaneous retrieval is a safe way to remove intravascular foreign bodies that can prevent major surgical complications.

**Keywords:** Port-a-cath, Percutaneous retrieval, Snare

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### Introduction

Port-A-cath is an implantable tool that can be used to provide frequent intravenous access to prescribe parenteral medications, fluids, nutrients, blood sampling, and long-term chemotherapy (1).

The device consists of two parts, the outer (port) and inner (catheter) ports, which are often made of titanium and polyurethane or silicone, respectively (2).

Prolonged use of port-a-cath may lead to complications such as infection, occlusion of blood vessels, internal bleeding, blood clots, and extravasation (1). Accordingly, it is withdrawn after the end of the medication period or in situations where there is no longer a need for vascular access (3).

When removing the chemo port, it is possible to break it and keep the inside part for various reasons, leading to further complications and problems for the patient (4).

By detecting a broken piece and the remaining catheter, its exit through the percutaneous is one of the alternatives to surgery (5, 6) using interventional cardiology methods such as snaring (7).

This study focuses on describing a case of a port-a-cath fracture in which the outer and inner parts are separated from each other during surgery, and the inner part remains in the central arteries. The use of snaring technology allowed us to successfully remove the inner part through percutaneous access to the femoral vein.

### Case Report

Our case was a 42-year-old woman with a history of colon cancer who underwent surgery in 2017 to perform port-a-cath chemotherapy sessions on the right internal jugular vein by the percutaneous method.

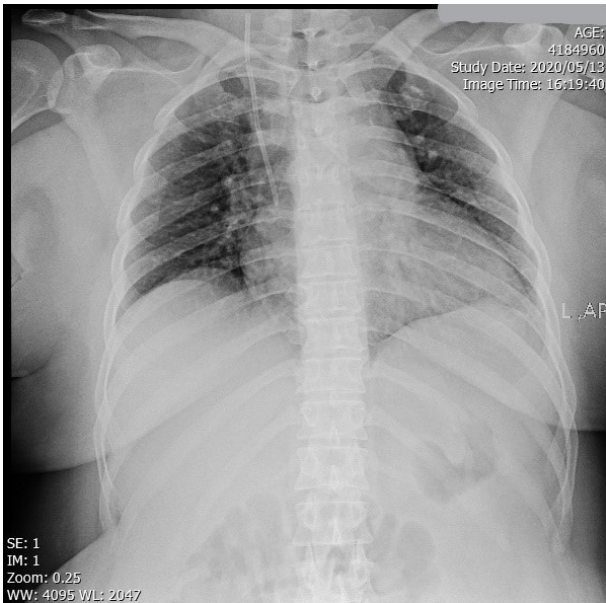
After completing chemotherapy sessions in 2020, the patient was admitted to the hospital for catheter removal. During the operation, due to fibrosis at the entrance of the catheter, its inner part was stuck to the vessel wall and separated from its outer part.

The findings of a chest X-ray confirmed the catheter remaining in the right internal jugular vein so that its distal end was in the superior vena cava (Figure 1). The patient was then immediately referred to the interventional cardiology service.

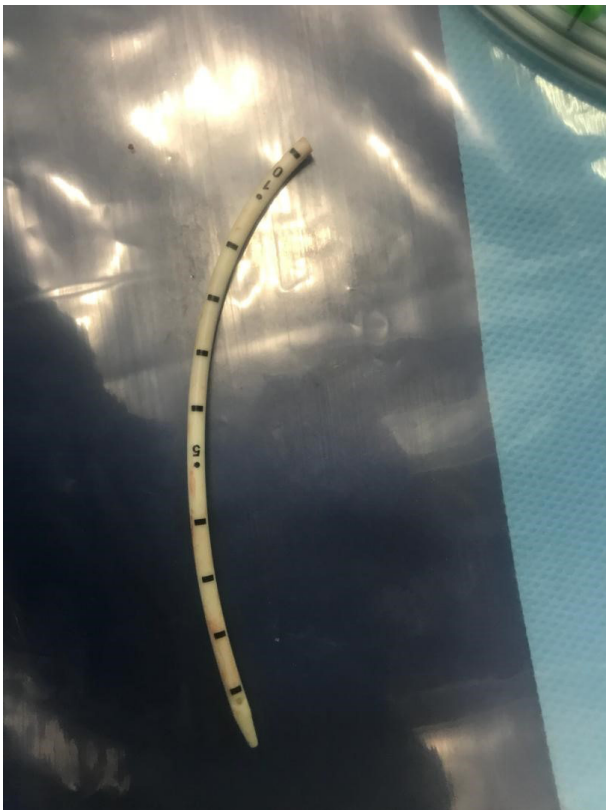
Venography was performed through the right femoral vein. While the end of the proximal catheter was attached to the right internal jugular vein, the distal end of the catheter was taken under a fluoroscopic view with SNARE 6S and successfully removed through a percutaneous sheath introducer (Figure 2), and then a prophylactic antibiotic was prescribed to the patient.

### Discussion

The special feature of this case is the failure of catheter removal surgery and the remaining of the internal part of the catheter in the embedded place and the adhesion of the catheter to the wall of the right internal jugular vein.



**Figure 1.** Conventional X-ray Showing the Residual Catheter in the Right Internal Jugular Vein and Superior Vena Cava.



**Figure 2.** The Removed Catheter After Percutaneous Retrieval.

Although the long-term use of port-a-cath in patients requiring long-term vascular access is highly satisfactory (8), the side effects of using these catheters should always be considered as well (1). These side effects can occur during implantation, treatment, explanation, and the like (1).

Poor catheter connection to the port, damage to the catheter at the point of connection to the port during

assembly or implantation, catheter fatigue, catheter damage due to chemotherapy, and pinched-off syndrome can cause damage to the catheter and detachment of it from the port (6, 7, 9).

If the inner part of the catheter is not removed, there is a possibility of dangerous side effects such as thrombosis and displacement of the inner part of the catheter (4, 10).

The interesting thing about our case was that the inner part of the catheter was hardly attached to the wall of the internal jugular vein. Jugular vascular wall fibrosis and endothelialization are some of the reasons for justifying the catheter adhesion at the implant site (4), but the therapeutic results of this case require further research on vascular fibrosis in cancer patients treated with intravenous access.

Although the catheter remained completely inside the vessel in the mentioned case, there are rare reports of incomplete exit of part of the catheter and its remaining piece in the vessels (4). Therefore, it is recommended to use chest X-ray graphics after the catheter removal to confirm its lack of remaining.

The transcatheter retrieval method, which was performed for this patient, has been one of the safest and most effective methods in another study (7). Although other intra-vascular tools (e.g., a pigtailed catheter) may be used depending on the patient's condition, this procedure will prevent systemic surgery (5).

The study limitations were a lack of patient information and follow-up. Other information about the described patient was unavailable due to selective admission to our center for removing the catheter.

## Conclusion

Equipping catheterization laboratories with intra-vascular instruments such as loop snares for removing intra-vascular foreign bodies can prevent systemic surgery to take out these objects.

The snaring technique can also be successfully applied in patients with a catheter adhered to the vessel wall.

## Conflict of Interest Disclosures

The authors declared no conflict of interests.

## Acknowledgments

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## Ethical Statement

This report provides readers with no information regarding the patient's identity. In addition, this study (with the code of IR.HUMS.REC.1399.316) was approved by the Ethics Committee of Hormozgan University of Medical Sciences (<https://ethics.research.ac.ir/IR.HUMS.REC.1399.316>).

## Authors' Contributions

HF was involved in the supervision and treatment process. DH and MMS participated in data collection, patient follow-up, and manuscript writing.

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**Informed Consent**

This report does not provide readers with any information about the patient's identity.

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