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Article

PORT-A-CATH CATHETER RUPTURE: CASE REPORT

Ruptura de cateter PORT-A-CATH : reporte de caso

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ABSTRACT

Introduction: The modern management of cancer treatment requires access to the venous system repeatedly for the passage of drugs, fluids, and blood components. Peripheral veins are rapidly damaged by repeated punctures and by fluids that pass through them. To solve this problem, long-term vascular accesses avoid repeated punctures. One type of long-term venous access is the *Port-A-Cath*, which is an implantable device usually in the chest with a central venous catheter. **Case report**: Next, the case of a 34-year-old female with a diagnosis of breast cancer in the right breast is presented. It is treated with a radical mastectomy, and after the procedure a port-a-cath is placed in the left subclavian route for future treatments. The first cycle of chemotherapy is performed, later the patient reports pain at the catheter placement site with increased volume and progressive increase in pain. The patient goes to her health center for an evaluation, they decide to take a chest

X-ray showing the migration of the catheter. The management used was through the seldinger technique at the femoral puncture site with a 6 Fr Amplatz GooseNeck Snare Guide, with which it was possible to extract the foreign body at the level of the left brachiocephalic vein. **Conclusion**: The implantation of a *Port-A-Cath* catheter is associated with some risks in the process. Catheter and patient care should be maintained to decrease the incidence of complications.

Keywords: Breast Cancer, Port-A-Cath, Subcutaneous Port, Seldinger Technique, Amplatz GooseNeck Snare Guide.

1. Introduction

The insertion of a central venous catheter in a human was first reported in 1929. Subsequently, Sven-Ivar Seldinger introduced a technique that facilitates the placement of the catheter in the lumens and body cavities in 1953. The insertion of a central venous catheter by *Seldinger's* technique revolutionized medicine by enabling safe and reliable venous access. The central venous catheter is commonly used in critically ill patients (Amr, Abdelzaher, 2015). New catheter designs, standardization of insertion techniques, use of ultrasound guidance, and improvements in central line care have reduced complication rates. Central venous access is a commonly used procedure for different reasons, approximately 8% of hospitalized patients require central venous access (Eisen, et al., 2006). To place a *Port-A-Cath*, a venous access must be placed in a conventional way, once the guide is in place, local anesthesia is infiltrated into the skin and subcutaneous tissue in the region where the device is planned to be placed. An incision is made through the skin and with electrocautery, a pocket is created to accommodate the device. Once the device is fitted, the pocket size and orientation of the pocket is adjusted. Placing sutures at three different points on the fascia is important to prevent rotation of the port or moving the center of the port away from the surface of the skin, making access difficult. (Freel, et al, 2008)

2. Case Report

Next, the case of a 34-year-old female with a diagnosis of breast cancer in the right breast, treated with radical mastectomy, is presented. After the procedure, a *port-a*-cath is placed in the left subclavian route for future treatments. The first chemotherapy cycle is performed 2 months after the initial diagnosis, later the patient reports pain at the catheter placement site with increased volume and progressive increase in pain. The patient goes to her health center for evaluation, they decide to take a chest X-ray, showing the migration of the catheter (Figure 1) (Figure 2). The management used was under local anesthesia, prior asepsis, and antisepsis of the bilateral femoral region. The right femoral vein was punctured with the *Seldinger* technique at the femoral puncture site. A 6 Fr introducer is placed, a 0.035 x 260 cm hydrophilic guide is advanced over a 100 cm MPA-2 catheter to the superior vena cava, the catheter is removed, and the current introducer is replaced by a long 8 Fr x 80 cm introducer. Subsequently, the Amplatz GooseNeck Snare Guide 6 Fr x 120 cm is introduced up to the left brachycephalic vein (Figure 3); After several attempts, endovascular material was removed, extracting the foreign body through the right femoral puncture site (Figure 4). Later, manual compression is applied for 15 minutes, sterile dressings are placed, and the procedure is terminated without added complications.

Figure 1.
In this image you can see the guide going to the catheter to be able to clamp and extract it

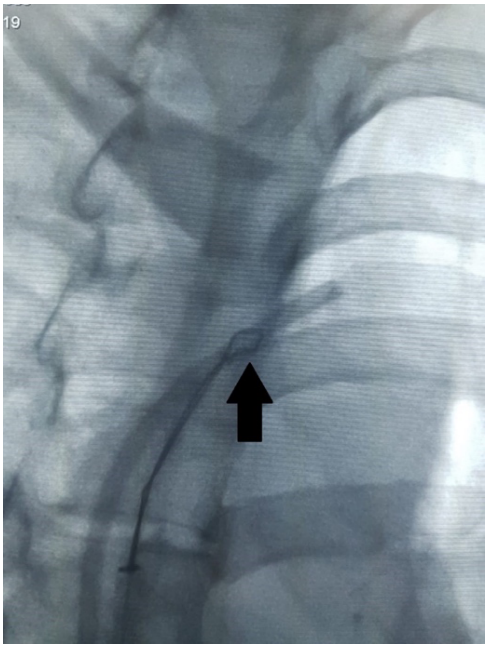


Figure 2.
You can see the migrated catheter in an chest X-Ray due to the rupture of the Port-A-Cath

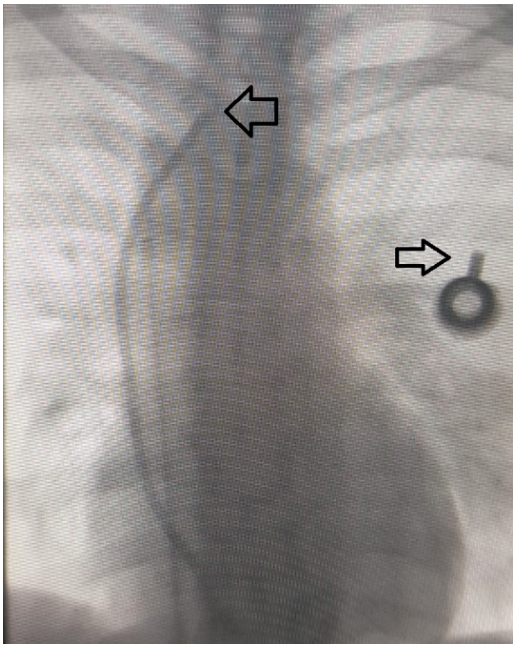


Figure 3.
This image shows how the guide is extracting the catheter, once the catheter has been clamped

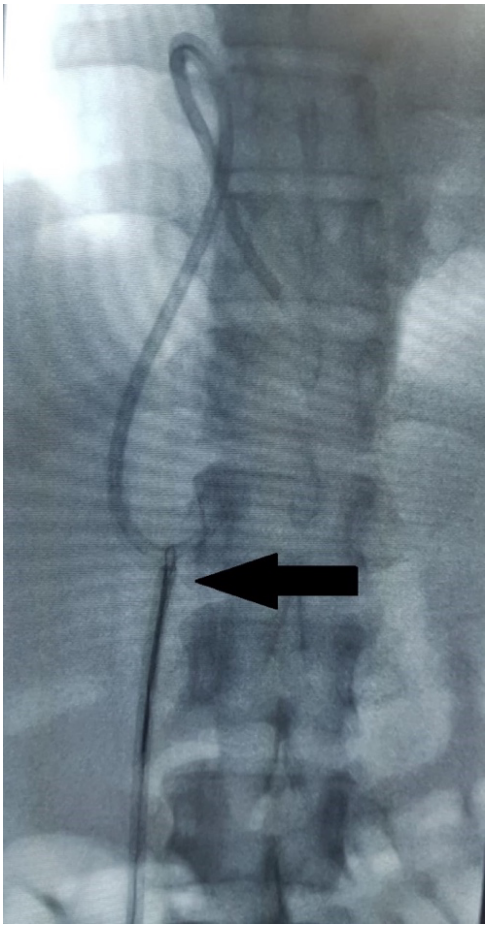
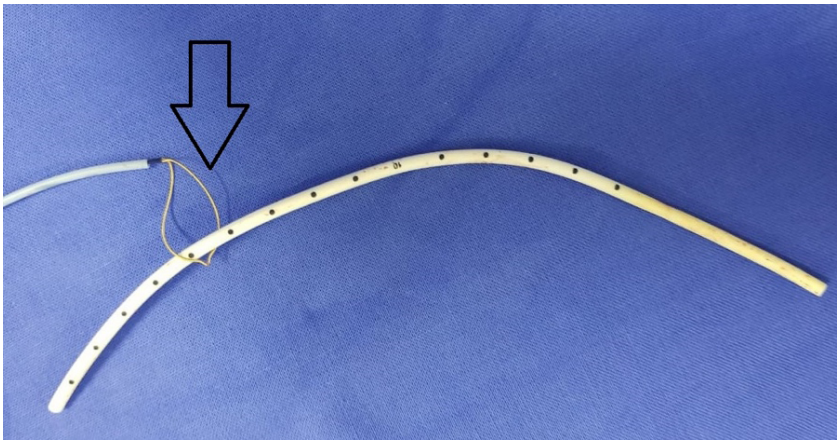


Figure 4.
You can see the catheter of the Port-A-Cath already extracted



3. Discussion

The most common indications for central venous catheter placement include inadequate access to the venous system, administration of fluids and medications, hemodynamic monitoring, and extracorporeal therapy. Also, the central catheter is frequently used to facilitate the insertion of vascular devices such as catheters, pacemakers, vena cava filters and to perform venous interventions. Central venous catheters can be inserted through the jugular, subclavian, femoral, or upper extremity peripheral veins. The optimal site is determined by operator experience, patient anatomy, and clinical circumstances. The position of the catheter tip can be confirmed by one or more of the following studies: chest X-ray, fluoroscope, ultrasound, transesophageal echocardiogram or intracavitary electrocardiography (Eisen, et al., 2012).

Various complications are associated with central catheter placement, including those associated with catheter insertion and problems related to immediate access, malfunction, central vein stenosis or thrombosis, and problems related to catheter insertion. The risk of complications increases with size, multiple implants, and longer catheter permanence (Armand, Polderman, 2002).

Complications of central venous catheter placement are divided into immediate and late. Among the immediate complications are bleeding, arterial puncture, arrhythmia, air embolism, injury to the thoracic duct, catheter malposition, pneumothorax or hemothorax. In late complications we can found infection, venous thrombosis, pulmonary embolism, venous stenosis, malfunction, migration, embolization, myocardial perforation and nerve injury. The rate of mechanical complications is highly operator dependent and the vast majority are diagnosed at the time of insertion (Armand, Polderman., 2002).

A study in New York analyzed 385 cases of central venous catheter placement during a period of 6 months, where the most frequent complication was the impossibility of placing the CVC. Male patients had a higher rate of complications than female patients (37% vs 27%) (Britt, et al., 2009). Complications were also more common in the subclavian approach than in the femoral or jugular approach; however, the subclavian approach is associated with fewer hematologic infections and symptomatic thrombosis. Placement through the subclavian route should be avoided in patients with chronic kidney disease stage 3b or higher due to the placement of hemodialysis catheters (McGee & Gould, 2012). The incidence of mechanical complications was six times higher when insertion was performed more than three times. Indications for immediate catheter removal include sepsis, hemodynamic instability, persistent bacteremia for more than 72 hours despite adequate treatment, suppurative thrombophlebitis of the venous access, and catheter infection.

To prevent complications, the placement of a catheter should be done with the patient in a suitable position, done under sterile conditions, the procedure performed by an experienced operator, guided by ultrasound, and the participation of nurses.

4. Conclusion

The central venous catheter in its different types is a procedure that is performed more and more frequently to treat different pathologies. Complications are directly associated with factors associated with the catheter, factors associated with the patient, factors associated with the puncture site, and factors associated with catheter care. However, one must try to reduce the complications of the application of venous catheters. Having adequate information about the operation of the catheter, as well as a suitable work site and equipment reduce the risk of complications.

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6. Conflict of interest:

There are no conflicts of interest for this publication.

7. Ethical Aspects:

We declare that the manuscript obtained from the subjects who participated in the research or case report had an informed consent without violating any privacy of the patient. The right to privacy of the individual was respected and the information is adequately anonymized and was safeguarded the respect for human rights.

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RESUMEN

Introducción: El manejo moderno del tratamiento contra el cáncer requiere de un acceso al sistema venoso en repetidas ocasiones para el paso de medicamentos, fluidos y componentes sanguíneos. Las venas periféricas son rápidamente dañadas por las repetidas punciones y por

líquidos que pasan a través de ellas. Para solucionar este problema los accesos vasculares de largo plazo evitan las repetidas punciones. Un tipo de acceso venoso a largo plazo es el *Port-A-Cath*, que es un dispositivo implantable usualmente en el pecho con un catéter venoso central. **Reporte de caso:** A continuación, se presenta el caso de una femenina de 34 años con diagnostico cáncer de mama en seno derecho, tratado con mastectomía radical, posterior al procedimiento se le coloca un *port-a-cath* en la vía subclavia izquierda para futuros tratamientos. Se le realiza el primer ciclo de quimioterapia, posteriormente la paciente refiere dolor en el sitio de colocación del catéter con aumento de volumen y aumento progresivo del dolor. La paciente acude a su centro de salud para valoración, se le decide tomar una radiografía de tórax, evidenciando la migración del catéter. El manejo empleado fue a través de la *técnica de seldinge*r por sitio de punción femoral con una *Guía Amplatz GooseNeck Snare 6 Fr* con lo cual se logró extraer el cuerpo extraño a nivel de la vena braquiocefálica izquierda. **Conclusión:** La implantación de un catéter Port-A-Cath esta asociada con algunos riesgos en el proceso. El cuidado del catéter y de paciente debe de mantenerse para disminuir la incidencia de las complicaciones.

Palabras clave: Cáncer de Mama, Port-A-Cath, Puerto Subcutáneo, Técnica de Seldinger, Guía Amplatz GooseNeck Snare.