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Case Report

Pinch off Syndrome - A Rare Complication of Chemo Port

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ABSTRACT

A central venous access device is an intravenous device whose internal tip lies in a large central vein. Central venous access devices are routinely used in patients with cancer for infusing medications, delivering chemotherapy agents and parenteral nutrition. Transection and embolization of a chemo port, so called "Pinch-off" syndrome (POS), is a rare complication. The reported incidence is approximately 1.6 percent. Here in this paper we would like to present the complication-chemo port fracture in our patient and also discuss the relevant literature regarding presentation, diagnosis of chemo port catheter fracture and other complications associated with central line placement as well as the various available treatment options.

Key words: Pinch-off syndrome (POS), chemo port, central venous access device.

INTRODUCTION

A central venous access device is an intravenous device whose internal tip lies in a large central vein. Central venous access devices are routinely used in patients with cancer for infusing medications, delivering chemotherapy agents and parenteral nutrition. Chemo port enables long-term chemotherapy in cancer patients. [1] Chemo port is a central venous device which serves various purposes in oncology practice apart from optimum delivery of chemotherapy. Internal jugular vein catheterization is a fairly common procedure for inserting a chemotherapy port. However, such catheterization may be associated with serious life threatening complications, which have been reported to occur in 6.2–10.7% of patients. [1] Various complications can be encountered including a higher risk of pneumothorax, puncture of the carotid or subclavian artery, cardiac tamponade, or hemothorax. Other less serious risk factors include infection, thrombosis, or factors related to maintenance of the central line. The first reported case of embolized foreign bodies, including catheters, ports, instruments, and devices, was in 1954. [2] Various early and late complications have been frequently reported with the use of these devices. Transection and embolization of a chemo port, so called "Pinch-off" syndrome (POS), is a rare complication and the reported incidence is approximately 1.6 percent, with a range of 0.1 to 2.1 %. [3] Timely recognition and management is important to minimize the morbidity and mortality. Here in this paper we would like to present the complication-chemo port fracture in our patient and also discuss the relevant literature regarding complications associated with central line placement as well as the various available treatment options.

CASE REPORT

A 72-year female patient had been diagnosed with carcinoma right breast in 2016. She was treated with right modified radical mastectomy and chemo port was inserted via Left subclavian vein without fluoroscopic guidance in 2016 for planned adjuvant chemotherapy. Scheduled chemotherapy completed in 2017 and was on regular follow-up. After the 1-year of routine follow-up a chest x-ray revealed the chemo port catheter to be fractured at the site of insertion in subclavian vein and she was asymptomatic at that time. (Figure 1-4). The patient was transferred to the catheterization laboratory, and the fragmented catheter through Right femoral vein approach and snared using 7F JR guide and 15mm snare under fluoroscopy without complications. The proximal percutaneous portion of the catheter was removed through an infraclavicular incision and follow up chest X-ray revealed no left out fragments.

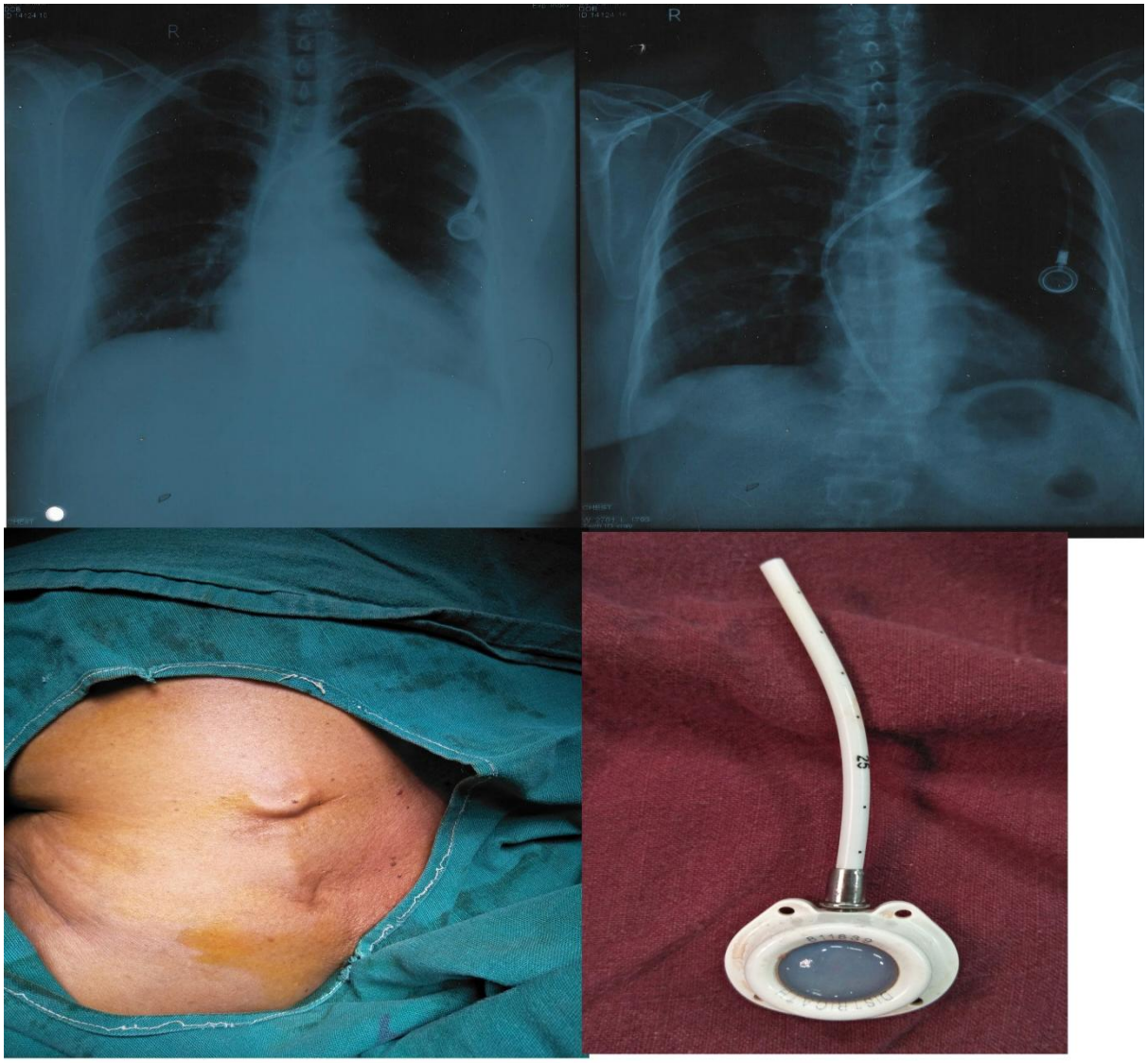

Figure 1-4: 1. Chest X- ray showing chemoport before fracture. 2. Fractured chemoport 3. Subcutaneous position of proximal fractured chemoport 4. Proximal chemoport after removal.

DISCUSSION

Chemo port is an implantable venous access device that can be inserted with or without fluoroscopic guidance which are being used at a greater frequency in the field of oncology. Chemo port usage has been increasing in recent times. Intravenous port systems can be implanted

in the infraclavicular region via the subclavian. Right internal jugular vein (RIJV) is often selected as an ideal vein for central venous access for chemo port access because of its straight course, reduced risk of malposition, and thrombosis. The injection port reservoir is located subcutaneously and is connected with the actual port catheter which reaches intravenously into the vena cava superior just above the atrium of the right heart.

Generally, chemo port placement is well tolerated in majority of patients; however complications do occur leading to the removal of chemo port.

Chemo port may be associated with complications. These may arise during or just after insertion or later. Early complications although uncommon, include pneumothorax, arrhythmias, implanted site infection and bleeding. Late complications include bloodstream infections, venous thrombosis, patency impairment, air embolism and catheter fracture. Mechanical complications associated with chemo port are catheter line displacement, twisted port, catheter fracture with leakage or migration or embolization. Catheter fracture and embolization is an extremely uncommon complication with an estimated incidence reported to range from 1.1% to 2.1%. [4] Kavitha Srivatsa et al., study demonstrated the incidence of catheter fracture is 2.3%. [5] The usual site of catheter rupture is in the space between the first rib and the clavicle. This is the site where the catheter inside the subclavian vein gets compressed between the clavicle and the first rib. This was first described by Aitken and Minton as the "pinch-off sign". [6] The most common clinical sign seen with this condition is difficulty in flushing the chemo port. Plausible explanation for the mechanism of difficulty in flushing is the mechanical obstruction of the catheter developed due to repeated compression as a result of catheter "pinch off syndrome". The repeated compression leads to impairment of catheter patency, fracture and subsequent embolization.

Embolization of fragments of central venous catheters is a rare but a potentially serious complication of catheter placement. Intravascular embolization of catheter fragments was first described as a complication of central venous catheter placement in 1954. [2]

Alexey Surov et al., [7] study suggested that most embolized catheter fragments were located in the pulmonary arteries (35%), followed by right atrium (27.6%), right ventricle (22%), and superior vena cava or peripheral veins (15.4%).

Most catheter fragments were extracted using percutaneous interventional techniques via the femoral vein. This approach was reported first in 1962 and represents the gold standard for the removal of intravascular foreign bodies in the venous system. [8]

Periodic evaluation of the intra-vascular catheter is important for the early detection of an embolized catheter. This provides a good opportunity to safely remove foreign bodies and prevent subsequent complications. Evaluation of the exact position and size of the foreign body should be carried out prior to non-surgical or surgical procedures.

In conclusion, chemo port is a boon for majority of the patients because of the ease of treatment it makes in the regular physical activity of patient's life, it still has got complications leading to increased morbidity and occasional mortality. Early identification of these complications helps in avoiding major devastating injury. Nevertheless, knowing the appropriate and correct use and not forgetting potential complications, an intravenous port system is a comfortable and safe device

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