

Endovascular retrieval of fractured chemoport at the superior vena cava-right atrial junction in 3 years old

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Abstract

A 3-year-old female child, a case of lymphoid leukemia successfully completed her last cycle of chemotherapy. While retrieving the chemoport, the distal part of the port was fractured and migrated distally in the superior vena cava which was seen on the chest radiograph and later confirmed on computed tomography (scan). We present an interesting case where removal of such a fractured port segment was done in toto by means of endovascular intervention through the common femoral vein under fluoroscopy guidance.

Keywords: Endovascular, fluoroscopy, fractured chemoport

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INTRODUCTION

A port is used for administration of chemotherapeutic agents, antibiotics, coagulation factors, enzyme replacement therapies, and contrast agents for radiological imaging. A chemoport is chiefly used for administration of chemotherapeutic agent in the case of oncological diseases.^[1,2] Most commonly, right internal jugular vein is used as an access site. Spontaneous fracture of the device and its distal migration is a rare but known complication.^[3] Such a fractured segment was retrieved through endovascular means and imaging guidance which is generally a safe procedure.

CASE REPORT

A 3-year-old female child was undergoing treatment for her lymphoid leukemia in our hospital. She had an indwelling chemoport for her chemotherapy for the past 4 months and completed her last cycle of maintenance chemotherapy

after which her chemoport removal was planned. A radiograph of the chest showing chemoport *in situ* with its tip being in the superior vena cava (SVC)-atrial junction is seen [Figure 1]. While removing the chemoport before the discharge of the patient, there was an accidental fracture of the chemoport near its skin end. Removal of which was attempted by the surgical team under sedation in the operating theater which was not fruitful due to probable adhesion at the tip of the port as port was *in situ* for longer period. A plain chest radiograph was performed which showed the fractured distal end of the chemoport at the SVC-atrial junction which was further confirmed on the computed tomography scan [Figure 2]. The patient was referred to the Department of Interventional Radiology for further management. Transfemoral venous access was selected as the access option, and the fractured port in the SVC-atrial junction was reached using a 4F catheter, and it was grasped at its distal end using a 10 mm Amplatz Goose Neck™ snare, 120 cm long. The

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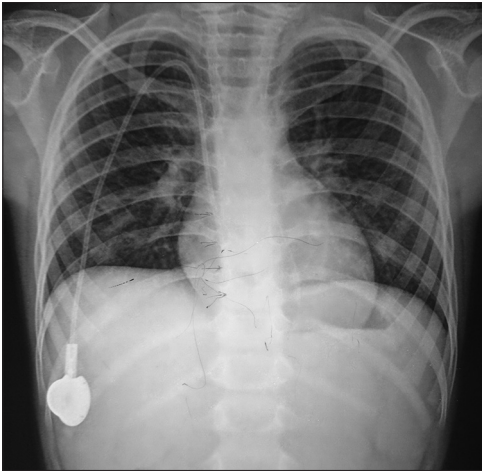


Figure 1: A plain radiograph with a chemoport *in situ*

foreign body (distal fragment, of the chemoport) was then retrieved through the percutaneous transfemoral venous access [Figures 3 and 4]. The child tolerated the procedure well and was given heparin as prophylaxis for 24 h, and the patient was subsequently discharged. Postprocedure period was uneventful. To avert similar scenario in future, fluoroscopy guidance was included in the protocol for difficult retrieval of the *in situ* port and an interventional radiologist was included in the team.

DISCUSSION

Spontaneous fracture of the chemoport followed by its dislocation, embolization, and migration are known delayed complication of the venous line *in situ* and are most

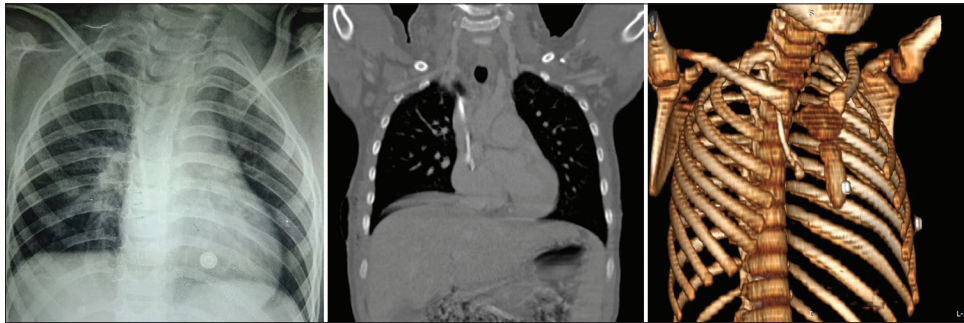


Figure 2: Chest radiograph showing the fractured distal end of the chemoport. Coronal computed tomography chest image confirming the radiograph finding. Three-dimensional reconstructed Volume Rendering Technique (VRT) image of the thorax showing the fractured piece

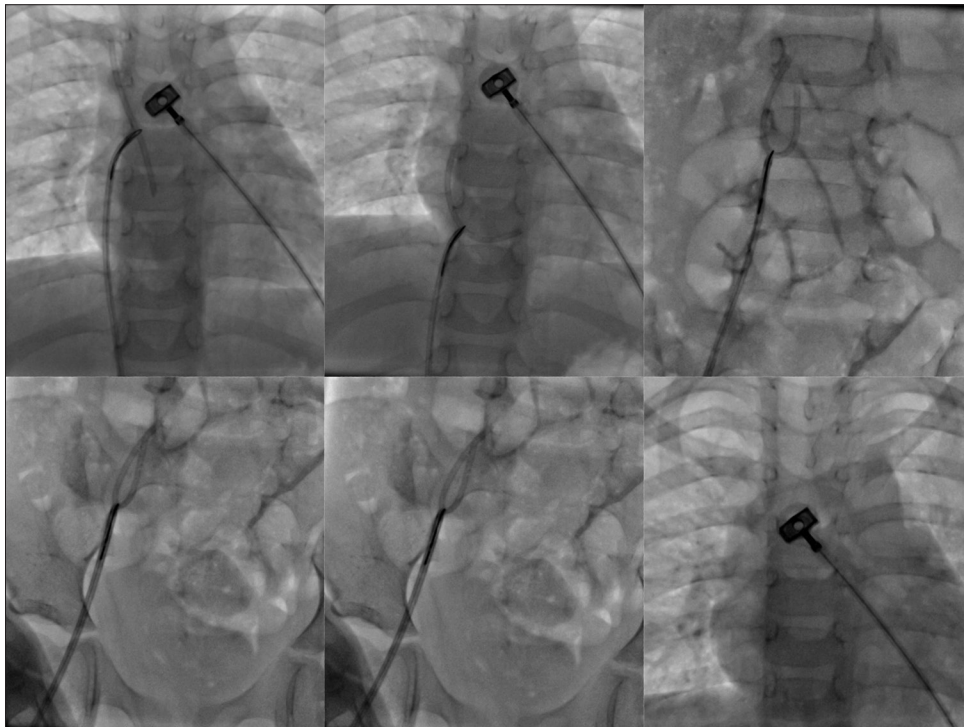


Figure 3: Endovascular trans-femoral venous procedure for retrieval of the fractured chemoport using a snare. The last image shows successful retrieval of the foreign body

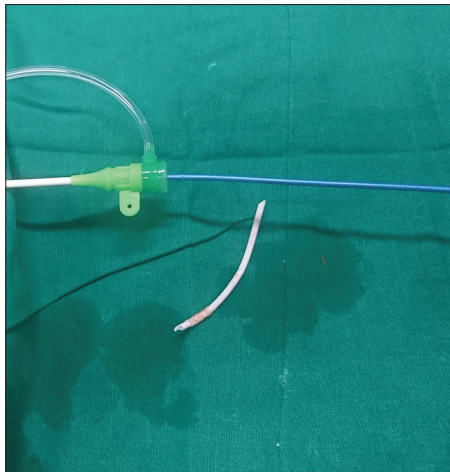


Figure 4: Foreign body which was retrieved showing evidence of fibrinous tissue at its proximal end which was the likely cause of adhesion

commonly encountered during its removal.^[4] The catheter fragment is commonly known to migrate and lodge in the SVC, right atrium, right ventricle, or the pulmonary artery and its branches.^[4,5] Various factors are responsible for the migration and includes vigorous movements of the upper arms and neck and change of thoracic pressure with coughing/vomiting.^[6] The most common location of dislodgment is SVC-atrial junction as seen in our case. Foreign-body retrieval through endovascular approach is a known technique and practised over the years by interventionists. The most usual vascular access sites are the common femoral veins and the internal jugular veins. An appropriately sized sheath should be inserted to allow for easy removal and avoid trauma at the exit site. For a foreign body with a free end like it was in our case [Figure 2], snaring is the most widely used and accepted technique, and the usual device of choice is either a gooseneck snare or dormia basket.^[7] The free end of the foreign body is encircled, facilitated by the perpendicular orientation of the loop with respect to the wire shaft, and then the guiding catheter is advanced to firmly entrap the foreign body/fractured port. The entrapped foreign body is removed along with the retrieval device through the large bore sheath while maintaining tension on the closed snare loop.^[7] Success rates for removal of the foreign body are very good, ranging from 91% to 100%.^[7,8] Success rates of 100% have been reported with snares and the dormia baskets.^[9]

CONCLUSION

Under the guidance of modern imaging technology and the endovascular interventional approach, foreign body in the vascular system either arterial or venous can be easily retrieved. We report such a rare and interesting case in a 3-year-old female child where retrieval of the fractured chemoport was performed under mild sedation in our catheter laboratory.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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