Retrieval of embolized tip of port catheter from branch of right pulmonary artery using a macro snare catheter

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Abstract: Rupture of the silicon port catheter is a relatively rare complication. Ruptured part usually embolizes; therefore, removal of foreign body may be difficult. These ports usually migrate to right-sided chambers, main pulmonary arteries, and pulmonary subbranches. Different devices such as snares, basket catheters, and ablation catheters are utilized for retrieval. Hereby, we report successful extraction of an embolized 10-cm tip of a vascular access port using a macro snare catheter.

Keywords: percutaneous intervention, snare, embolized foreign body, pulmonary artery

Introduction

Percutaneous implantation of vascular access ports is frequently utilized for prolonged central venous access, especially in oncologic patients. As the number of interventions increases in parallel to the technologic development, complications do too, exponentially. Embolism of the distal portion of port catheter is a relatively rare complication. These parts usually migrate to right-sided chambers, main pulmonary arteries, and subbranches [1].

In this case, we report successful retrieval of an embolized distal portion of the silicon port from distal branch of right pulmonary artery using a macro snare catheter.

Case Report

A 69-year-old male patient was consulted to our department due to an embolized port catheter tip in the distal branch of the right pulmonary artery. The patient had colon cancer, which was diagnosed and surgically resected 1 year ago. Following resection, adjuvant chemoradiotherapy was performed. Positron emission

Fig. 1. Computerized tomography image revealing a foreign body (arrow) extending from right main pulmonary artery to subbranches
tomography scan revealed a metastatic lesion in liver; thus, chemotherapy was reinstituted using a subclavian port line. Three months later, following a partial response, port line was changed due to malfunction. Control computerized tomography scan of the chest showed a foreign body in right pulmonary artery, extending into subbranches, which was presumed to be a part of the previous port catheter (Fig. 1). After consulting with the patient, we decided to retrieve the embolized foreign material.

Fig. 2. Angiogram of right pulmonary artery using multipurpose catheter (black arrow). Note the foreign material (white arrow), and the distal part of new port catheter (star)

Fig. 3. Retrieval of distal port catheter fragment (white arrow) with a good grip at central portion using macro snare (black arrow)
**Procedure**

Following insertion of a 10-French (F) femoral sheath into the right femoral vein, a 6-F pigtail catheter was advanced to the right ventricle and pulmonary artery. Unfractionated heparin 70 IU/kg was given intravenously. Then, a multipurpose catheter was introduced into the right pulmonary artery using a 300-cm and 0.038-mm exchange wire (Fig. 2). Due to instability, the multipurpose catheter was changed to Judkins Right 4 for better backup. Embolized material was captured and pulled back to the right ventricle (RV) by a macro snare catheter (Andramed, Andrasnare, 20 mm, 125 cm). Unfortunately, we lost control of the foreign material in RV during pull-back at the first attempt because the fragment moved extremely with each heartbeat, and the capture site was very close to the tip. However, we managed to recapture the embolized material at midportion, this time within the right atrium with greater stability, and pulled the sheath and the snare together without complication. Local hemostasis was easily achieved by manual compression. The procedure took 55 min, with the fluoroscopy time of 24 min, using 80 mL Iohexol (Omnipaque 300/100 mL, Nycomed, Princeton, NJ). The radiation dose was 580 mGy.

**Discussion**

Intravascular foreign bodies are a serious complication of endovascular therapies that can be minimized with proper device selection and deployment. Interventional cardiologists and radiologists are frequently challenged with foreign material in vascular and nonvascular area in concert with increasing endovascular therapies [2]. The major causes of embolization are bad connection between the port and the intravascular catheter, severing of the catheter during insertion or removal, pinch-off syndrome, catheter fatigue, and operator inexperience [3]. Pulmonary embolization of the fractured catheters increases the risk of possible complications, such as thrombus formation and infection [4]. As we did in our case, goose neck loop snares are the most popular devices for endovascular retrieval of port fragments, especially those with an accessible free end. Baskets may be more appropriate in poorly accessible fragments [5]. Pigtail or Simmons catheters may also be utilized for repositioning foreign bodies in order to facilitate capture [6].

When an intravascular foreign body is identified, endovascular retrieval of the body should be attempted due to high success rate and minimal morbidity. An interventionalist should force himself to extract the material, whenever the place of the material is suitable for access.

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**Conflict of interest:** None.

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