

Intravascular Foreign Bodies: A Single-Institution Experience and Description of a Novel Modified Percutaneous Retrieval Technique

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To the Editor: Catheters are frequently used as diagnostic and therapeutic devices that are frequently placed in critically ill patients. In addition, with the advantage of radiologic technology, the number of minimally invasive endovascular procedures has increased, and consequently the reports of intravascular foreign bodies (IFBs)^[1,2] and the numerous described IFBs retrieval technique.^[3] Despite the importance of the subject, there is a lack in the reports of iatrogenic IFBs in Mexico; therefore, we report our experience in the management of adult patients with this complication and described a new IFBs removal technique.

Overall, 13 patients underwent percutaneous IFBs retrieval at our institution from 1999 to 2016. Eight were females; twelve had free intravascular catheters located within the right venous system, right atrium (RA), right ventricle (RV), or pulmonary artery (PA); one case had a metal guide located in the left ventricle and aortic arch. The extracted IFBs include five central catheters, two vascular catheters port, three catheter tip, one Swan-Ganz catheter, and two metal guidewires (one located in LV and aortic root) [Figure 1a].

The technique used for the IFB removal was chosen according to the location and object characteristics. Patients with catheters located within the right venous system, RA, RV, or PA underwent right heart catheterization, utilizing Günther Tulip Vena Cava MReye Filter and Retrieval set of COOK Instrument, which utilizes a metal gooseneck handle for the removal. For the patient with a guidewire housed in the left ventricle and aortic arch, due to the limited institutional resources, we had the need to innovate, taking into account the classic GooseNeck Snare catheter technique,^[3-5] we create a gooseneck-like recovery technique, which consists of the following steps: (1) left catheterization; (2) the steel core of the Argon Teflon guide 0.032 was removed [Figure 1b], and then the Teflon guide was placed within the straight Judkins guiding catheter 6 Fr to create a gooseneck-like catheter [Figure 1c and 1d]; and (3) the Teflon gooseneck-like catheter was maneuvered until the wire end was held and the IFB was recovery.

For the patient who underwent the Gooseneck Snare-like catheter recovery technique with a Teflon guide without steel core,

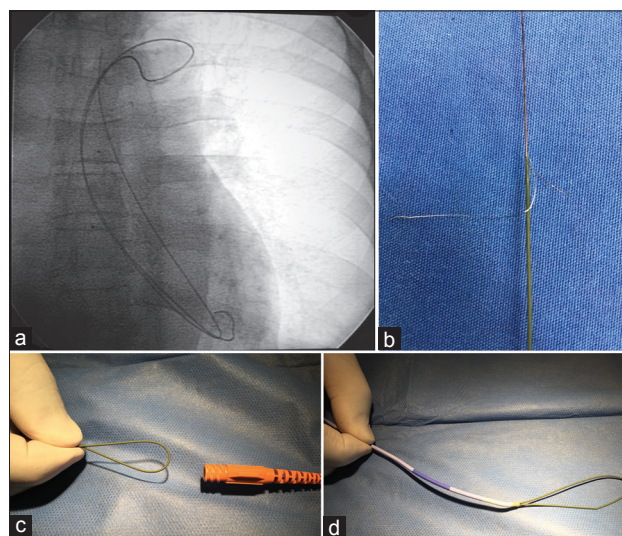


Figure 1: (a) Guidewire into the left ventricle and aortic root, (b) remove the steel core from the Teflon guidewire, (c) insert the Teflon guide into the Judkins guide, (d) introduce the Teflon guidewire until a gooseneck-like is created.

extraction was achieved without arrhythmias or complications. During all the procedures, the guidewire was frequently injected with unfractionated heparin solution to prevent thrombus formation.

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Overall, 11 IFBs were removed without complications, and in two cases, extraction was not achieved. In the first unsuccessful case, the catheter fractured a year earlier and was adhered to the endothelium, the lower distal branch of the right PA. The second unsuccessful case was an IFB located in the left main PA branch, which upon manipulation migrated to the interlobar artery.

IFBs are commonly the result of a poor placement technique, incorrect catheter use, or long period exposure. In addition, it is clinically important to consider that IBFs have a wide range of complications from asymptomatic cases to patients with phlebitis, pain, arrhythmias, cardiac perforation, thrombosis, endocarditis, IFB migration through the venous system, pulmonary embolization, or even death. Thus, when the clinical status of the patients allows, IFBs should be recovered within 24 h after diagnosis is made, to decrease the risk of complications.^[3]

In conclusion, in the majority of the patients, the metal handle in gooseneck and basket is an advantageous method for IFBs removal. However, the newly described technique that uses the Teflon guidewire to creating a gooseneck-like catheter should be considered another option for IFB removal when institutional resources are limited.

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Conflicts of interest

There are no conflicts of interest.

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