1086 **Successful IVUS-guided removal of an angiographically invisible foreign body causing popliteal artery occlusion**

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A 69-year-old man presented with new-onset intermittent claudication in the left calf (Rutherford class 3). One month prior, he had undergone thoracic endovascular aortic repair (TEVAR) via the left common femoral artery (CFA) for Stanford type B aortic dissection without complications. At discharge, his ankle-brachial index (ABI) was 0.97, but had decreased to 0.57. Duplex ultrasound revealed total occlusion of the left popliteal artery. Endovascular treatment was planned to restore perfusion and evaluate the underlying cause.

A 6-Fr guiding sheath was inserted via the left CFA using an ipsilateral antegrade approach. Initial angiography confirmed popliteal artery occlusion. As antegrade guidewire crossing was unsuccessful, intravascular ultrasound (IVUS) was performed, revealing a tubular, highly echogenic structure at the occlusion site that was not visible on angiography, suggestive of an intravascular foreign body.

A retrograde approach was then established via the left anterior tibial artery. Using antegrade IVUS guidance, a retrograde guidewire was advanced through the lumen of the foreign body into the antegrade sheath, achieving guidewire externalization. Retrograde IVUS confirmed the foreign body's location. An antegrade 4-Fr ONE Snare device was used to grasp and retrieve a portion of the object, with retrograde IVUS providing push support. The extracted material was identified as the distal tip of an 18G puncture needle outer sheath, presumed to have been retained during the previous TEVAR and subsequently embolized to the popliteal artery.

Due to the size of the remaining fragment, the antegrade sheath was exchanged for an 8-Fr sheath, and an additional portion was removed using the same technique. However, the final segment was too large for percutaneous retrieval and was successfully removed surgically through a small incision. Post-retrieval IVUS confirmed complete removal of the foreign body. Thrombus aspiration and balloon angioplasty were subsequently performed to restore flow. The patient's ABI improved to 0.90 post-procedure, and he remained asymptomatic at 6-month follow-up.

This case highlights the critical role of IVUS in detecting and guiding the retrieval of angiographically invisible intravascular foreign bodies.