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Combined Treatment of a Postoperative Pseudoaneurysm of the Left Internal Mammary Artery by Coil Embolization and Thrombin Injection

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Aneurysms or pseudoaneurysms of the internal thoracic (or mammary) arteries (ITA) have various etiologies, most commonly a known complication after sternotomy. Treatment is required in every situation due to the risk of rupture. Several percutaneous or open techniques have been described.

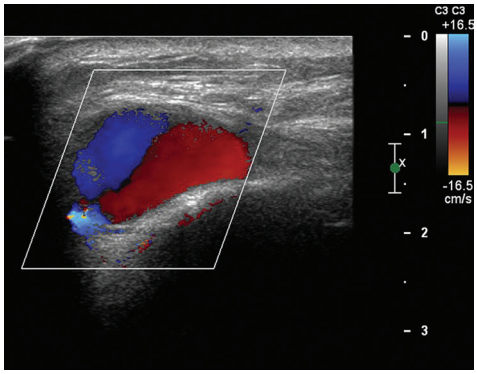

Figure 1: Doppler ultrasound of the pulsatile mass at the level of the second rib demonstrating the pseudoaneurysm originating from the left internal mammary artery. The classical yin-yang sign is illustrated here corresponding to bidirectional flow with swirling of blood inside the aneurysmal cavity

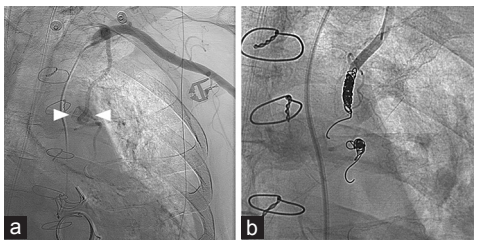

Figure 2: Angiographic views before (a) and after (b) embolization after selective injection of contrast through the left internal mammary artery. (a) The pseudoaneurysm is recognized at the level of the second sternal wire (white arrowheads). (b) Result after embolization of the left internal thoracic artery proximal and distal to the aneurysm. Notice the anchoring technique used for both coils vaso-occlusion. No residual flow is visible through the occluded artery

A 77-year-old male patient underwent surgical replacement of the aortic and mitral valves for severe aortic stenosis and severe mitral regurgitation. On the 11th postoperative day, a pulsatile sternal mass was palpable at the level of the second left rib. Doppler ultrasound revealed a subcutaneous pseudoaneurysm (19 mm × 11 mm × 18 mm) originating from the left ITA with a 3 mm neck [Figure 1]. Exclusion of the aneurysm was performed by transcatheter embolization through a right common femoral access. Tornado coils (Cook Medical, Bloomington, Indiana, USA) were used to close the ITA proximal and distal to the aneurysm [Figure 2]. Unfortunately, postoperative ultrasound at day one showed a residual flow within the aneurysm with incomplete thrombosis [Figure 3] that was confirmed

Figure 3: Multiplanar reconstruction of the computed tomography angiography in arterial phase in first postoperative day. Unfortunately, despite the embolization, the pseudoaneurysm (white arrowheads) is still opacified through collateral vessels which required a complementary direct injection of thrombin

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by computed tomography angiography. Therefore, under ultrasound guidance, 1000 UI of thrombin were injected percutaneously into the pseudoaneurysm sac. Immediate thrombosis was achieved without any residual flow.

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Conflicts of interest

There are no conflicts of interest.