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Case Report

A cost effective endovascular approach for management of post-catheterization profunda femoris artery pseudoaneurysm using thrombin

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ARTICLE INFO

Article history:

Received 24 December 2012

Accepted 4 December 2013

Available online 31 December 2013

Keywords:

Pseudoaneurysm

Endovascular

Thrombin

Post-catheterization

Ultrasound guided compression

ABSTRACT

Post-catheterization PSA is one of the most commonly encountered vascular complications of cardiac and peripheral angiographic procedures. We report the case of patient who developed deep-seated profunda femoris artery pseudoaneurysm (PSA) following cardiac catheterization. Despite, repeated ultrasound guided compressions the PSA failed to close and instead produced local site pressure ulcers. The secondary infection followed which precluded use of percutaneous thrombin injection. The PSA was finally closed via a total endovascular technique combining intravascular thrombin injection and coil embolization, thus obviating the need for expensive measures like cover stents or invasive surgical repairs.

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<http://dx.doi.org/10.1016/j.ihj.2013.12.022>

1. Introduction

As the name suggests pseudoaneurysm (PSA) is a contained rupture whose walls are formed by the extravasated blood and surrounding tissue.

Post-catheterization PSA is one of the most common vascular complications of cardiac and peripheral angiographic procedures.

The incidence of PSA after diagnostic catheterization ranges from 0.05% to 2%. When coronary or peripheral intervention is performed, the incidence increases to 2%–6%, especially when aggressive antiplatelet and anticoagulant strategies are used.¹

According to the published studies, rate of spontaneous closure varies from 52% to 85%, and is mainly influenced by the size. Thus in the absence of severe pain, observation of small PSAs (<2.0 cm) is reasonable.² However, if the patient has severe pain, treatment is indicated irrespective of size. One of the most catastrophic complications of PSA is rupture. Although the exact rate is unknown, the risk of spontaneous rupture of PSA is related to size >3 cm, presence of symptoms, large hematoma, continued growth of the sac or infection,^{3,4} thus calling for immediate closure of PSA if the above mentioned attributes are present. We describe a difficult case of post-catheterization PSA arising from branch of profunda femoris artery. Having been deemed inappropriate for closure via ultrasound guided compression (USGC), or ultrasound guided thrombin injection (UGTI), the PSA was closed via endovascular intervention.

2. Case

75 years old man, known case of type II diabetes and hypertension with recent history of acute coronary syndrome, presented to our institute. He had undergone a percutaneous coronary intervention and drug eluting stent implantation, following which within days he started experiencing pain and swelling at the site of vascular puncture. Patient underwent an ultrasound and Doppler interrogation, which revealed a small deep-seated hematoma with communicating PSA tract. As per our institutional practice, ultrasound guided manual compression consisting of 10 min cycles was tried. However, despite repeated attempts successful closure of the PSA could not be achieved, instead local site skin necrosis and subsequent secondary infection of the area developed. Due to local site infection closure via USGTI was not contemplated for the fear of introducing infection into the PSA. A less invasive and cost effective alternative to surgery/cover stent, closure of PSA was planned via endovascular approach using thrombin. Arteriography revealed 5 × 7 cm PSA arising from branch of profunda femoris artery (Fig. 1). Using the contralateral site, a 6 French JR 3.5 guiding catheter (Cordis) was advanced over 0.025-inch guidewire (TERUMO) to reach the branch of right profunda femoris artery. Deep intubation of this guiding catheter into the feeding branch of pseudoaneurysm was done to ensure no back reflux of the dye into the main vessel. At this point, 0.025-inch guide wire was exchanged by 0.014-inch double length PTCA guidewire (BMW, Abbott Laboratories). Super selective catheterization of PSA tract was done

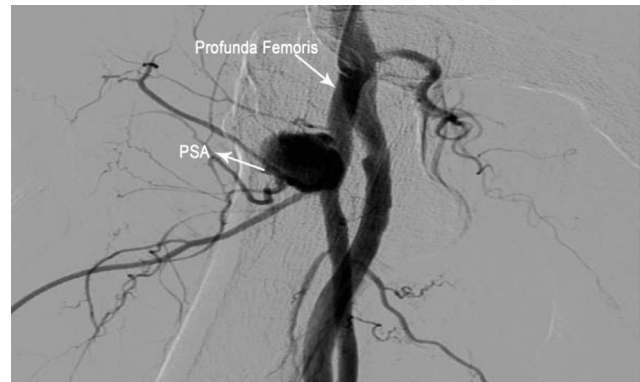


Fig. 1 – Digital subtraction angiogram showing PSA arising from branch of profunda femoris artery.

by passing 2.2 French micro catheter (COOK) over the PTCA guidewire and was further advanced deep into the hematoma sack. Contrast was injected to reconfirm the final position of the micro catheter and to ensure that there was no back flow into the PSA tract and the main vessel. Aliquots of 0.2 mL of

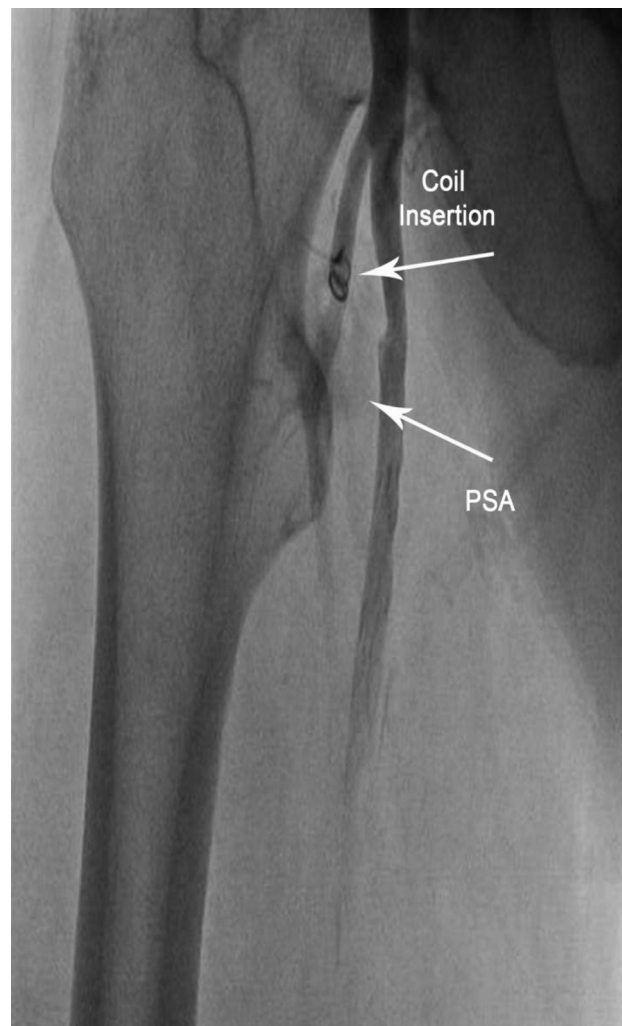


Fig. 2 – Angiogram showing coil insertion following thrombin injection into the PSA.

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