

## Case Report

# A complication of coronary angiography: rare presentation of pseudo aneurysm with groin swelling

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**Received:** 4 December 2014

**Accepted:** 16 December 2014

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## ABSTRACT

Pseudo aneurysm (PSA) is one of the most common vascular complications of cardiac and peripheral angiographic procedures. In this case we had an old man presenting with a large hard immobile pseudo pulsatile, severe painful swelling in groin region post 21 days of coronary angiography.

**Keywords:** Iatrogenic hematoma, Pseudo aneurysm, CAG complication, Arterial rupture, Vascular rupture

## INTRODUCTION

A pseudo aneurysm (PSA) is a contained rupture; there is a disruption in all 3 layers of the arterial wall. PSAs may occur under 4 circumstances: (1) after catheterization; (2) at the site of native artery and synthetic graft anastomosis (e.g., aortofemoral bypass graft); (3) trauma; and (4) infection (e.g., mycotic PSA). PSAs that occur after cardiac and peripheral endovascular procedures i.e. when an arterial puncture site does not adequately seal is the most common complication. Pulsatile blood tracks into the perivascular space and is contained by the perivascular structures, which then take on the appearance of a sac. Hematoma and the surrounding tissue form the wall of the PSA.

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%.<sup>1</sup> When coronary or peripheral intervention is performed, the incidence increases to 2% to 6%. In 1

series where diagnostic ultrasound was performed on 536 consecutive patients who underwent catheterization, the incidence of PSA was 7.7%, with 83% of the PSAs associated with interventional procedures.<sup>2</sup> Despite a low incidence, PSAs are commonly encountered when more complex coronary and peripheral interventions are performed, especially with the use of potent antithrombotic and antiplatelet therapy. Since 1996, the number of peripheral interventions has more than doubled to an estimated 750 000 procedures in 2005.<sup>3</sup> In 2003, the Centers for Disease Control/National Center for Health Statistics estimated 1.4 million inpatient diagnostic cardiac catheterization procedures, and 1.2 million angioplasties were performed in the United States.<sup>4</sup>

It has been suggested that PSAs may thrombose spontaneously. In 1 study, spontaneous thrombosis occurred in 72 of 82 patients with PSA <3 cm at a mean of 23 days,<sup>5</sup> whereas in another prospective study only 9 of 16 patients had spontaneous thrombosis at a mean of 22 days. Failure to thrombose was associated with size

>1.8 cm and concomitant use of anticoagulation or antiplatelet agents.<sup>6</sup> Most of the studies that suggested observation occurred prior to the era of aggressive antithrombotic and dual antiplatelet therapy. The rate of spontaneous thrombosis in patients who take aspirin+clopidogrel or warfarin is really not known. In the absence of severe pain, observation of small PSAs (<2.0 cm) is reasonable. However, if the patient has severe pain, treatment is indicated.

The most catastrophic complication 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, or continued growth of the sac.<sup>5,7,8</sup> although most post catheterization PSAs are sterile, infection of a PSA significantly increases the risk of rupture as well as septic emboli.<sup>9</sup>

### CASE REPORT

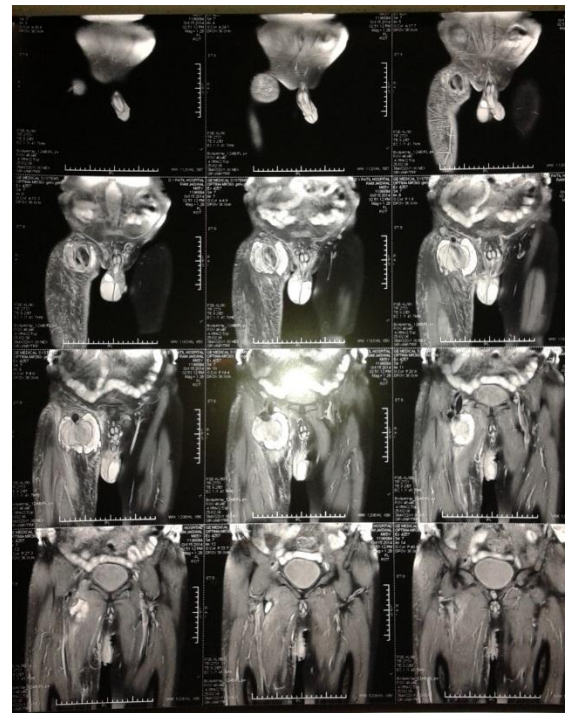
A 64 year old man presented with a 21 day history of severe pain and swelling in his right groin (Figure 1). The groin pain was making walking difficult for him. No history of any recent trauma, he had undergone coronary angiography three weeks earlier. The procedure was uneventful. He was discharged from hospital 5 days after the procedure. Patient had no fever or discharge from the groin puncture site. He was otherwise in good health. He was on drugs like aspirin and clopidogrel, as he took those for ischemic heart disease. There was no history of Fever, neuropathy, venous thrombosis, claudication, and limb ischemia.



**Figure 1: Groin swelling.**

On clinical examination he had a 12 x 10 cm large, hard, immobile, pseudo pulsatile, exquisitely tender mass in the proximal medial right thigh, just distal to the right groin skin crease. The healed needle puncture site was close to the mass. Distal pulses in the right lower limb were strong, and the limb was warm with no skin changes or visible bruising. A clinical diagnosis of iatrogenic right femoral artery pseudo aneurysm was made. A Doppler ultrasound of the right femoral artery was requested to confirm the diagnosis and guide further management.

The Doppler ultrasound confirmed the presence of a large (8 x 8 cm) rounded sac superficial to the distal right common femoral artery, partially thrombosed pseudo aneurysm of the proximal part of superficial femoral artery, thrombophlebitis of right Short saphenous vein. The sac was directly connected to the artery by a narrow neck and a high velocity jet of arterial blood was seen flowing into the sac, consistent with a pseudo aneurysm of the right common femoral artery. MRI partially thrombosed pseudo aneurysm in the subcutaneous and intramuscular plain in the upper 1/3 of thigh, just below the inguinal region arising from the right superficial femoral artery (Figure 2 & 3).



**Figure 2: MRI film.**



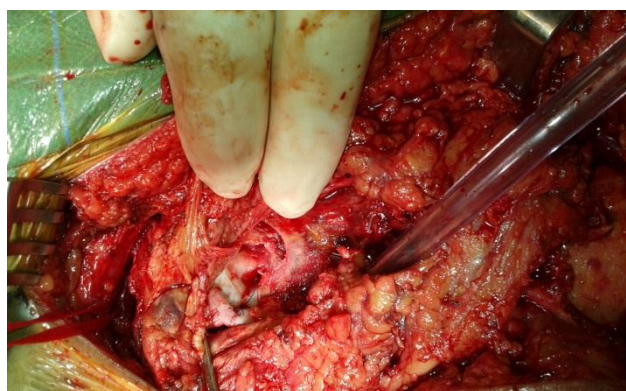
**Figure 3: Zoomed image of pseudo aneurysm on MRI.**

## DISCUSSION

Surgical management of PSA is still an important in Rapid expansion, Failure of other therapies, Skin necrosis etc. the increased incidence of femoral artery PSAs when the puncture site is not in the common femoral artery, but rather is located in the superficial or deep femoral artery or the external iliac artery.<sup>11</sup> In a meta-analysis of randomized trials, there was no increased vascular complication rate with Angio-Seal (St. Jude Medical, St. Paul, Minn) or Perclose (Abbott Vascular Devices, Redwood City, Calif) for patients who underwent either diagnostic catheterization or percutaneous coronary intervention.<sup>12</sup>

PSA is never so large that it has or will cause skin necrosis. Various treatment modalities of PSA came into existence post 1990's such as ultrasound guided compression repair, ultrasound guided thrombin injection, FemStop compression devices,<sup>13</sup> coil insertion,<sup>14</sup> fibrin adhesives,<sup>15</sup> or balloon occlusion have been used with variable success.

In this case large amount was clot (Figure) was evacuated from the PSA, active bleeding was present from the rent in femoral artery, the rent was repaired (figure 4) and no anastomosis was done, femoral pulsation felt proximally and distally.



**Figure 4: Active bleeding was present from the rent in femoral artery, the rent was repaired.**

## CONCLUSION

PSA being the most common complication post cag surgical intervention is still the most preferred modality in spite of advanced modalities when swelling is present in groin region.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: Not required*

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DOI: 10.5455/2320-6012.ijrms20150174

**Cite this article as:** Khan NS, Thomas J, Shaikh TP, Lal V, Deolekar S, Mahapatra B. A complication of coronary angiography: rare presentation of pseudo aneurysm with groin swelling. *Int J Res Med Sci* 2015;3:364-7.