

Femoral pseudo-aneurysm causing DVT

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Section: Cardiovascular

Area of Interest: Veins / Vena cava Extremities Arteries / Aorta

Procedure: Catheters

Procedure: Diagnostic procedure

Imaging Technique: CT-Angiography

Imaging Technique: CT

Special Focus: Obstruction / Occlusion Embolism / Thrombosis Aneurysms Case Type: Clinical Cases

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Patient: 52 years, male

Clinical History:

The patient presented 5 days after cardiac catheterization (right-sided femoral access) with swelling and pain of the right leg. Clinical examination revealed tenderness along the course of the femoral vessels. Furthermore a non-pulsatile mass was palpable in the right groin. Infection parameters were normal and there was no fever. D-dimer was elevated.

Imaging Findings:

Contrast-enhanced CT angiography with arterial and venous phase acquisitions was performed from the abdominal aorta to the trifurcation vessels. A pseudo-aneurysm (PA) originating from the right common femoral artery (CFA) was detected (Fig. 1a). The PA measured approximately 3 cm. It was situated medially to the artery, and compressed the femoral vein. There was a well defined connection/neck between the PA and the CFA (Fig. 1b). In the venous phase scan no contrast filling was present in the right femoral vein (Fig. 2). However, the right iliac veins and popliteal vein were contrast filled. This finding was suggestive of femoral vein DVT, and the diagnosis was confirmed with Doppler and compression ultrasound. The CT scan showed no haematoma or signs of abscess formation in the groin. CT showed swelling of the right leg compared with the left (Fig. 3).

Discussion:

PA formation (false aneurysm) is a common complication of vascular interventional procedures. It may occur in up to 8% of procedures [1]. As the CFA is the most commonly used access artery during interventional procedures, femoral PA is common. It is however uncommon that PA cause DVT, only few cases have been described in the literature [2, 3]. Imaging options in patients with suspected PA, include Doppler ultrasound and CT angiography. Both modalities are effective to diagnose PA. If concurrent DVT is suspected, ultrasound might be advantageous as venous compression testing can be performed. In the present case both modalities were applied; CT was performed first and ultrasound was performed to confirm the DVT diagnosis.

Treatment options for femoral PA include simple compression, ultrasound-guided percutaneous thrombin injection, and surgical removal. Thrombin injection have proven to be an effective treatment of femoral PA [1, 4]. However, when concurrent DVT is present in the femoral vein, thrombin injection should not be performed. The reason is that even though the PA thromboses after injection, it is still necessary to remove it surgically to release the compression

on the femoral vein. Thrombin induce inflammatory reaction around the vessels making surgery difficult [5]. In the present case, the patient underwent successful surgical removal of the PA. The DVT resolved after anti-coagulant therapy.

The important teaching point of the present case is that femoral PA may cause DVT.

Differential Diagnosis List: Femoral pseudo-aneurysm causing DVT, Haematoma, Abscess

Final Diagnosis: Femoral pseudo-aneurysm causing DVT

References:

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Slysko R, Mondek P, Lofaj P, Seřránek V (2004) Post-catheterization pseudoaneurysm of the femoral artery--an unusual cause of femoral vein thrombosis--case report and review of the literature. Rozhl Chir 83:113-7 (PMID: [15216693](#))

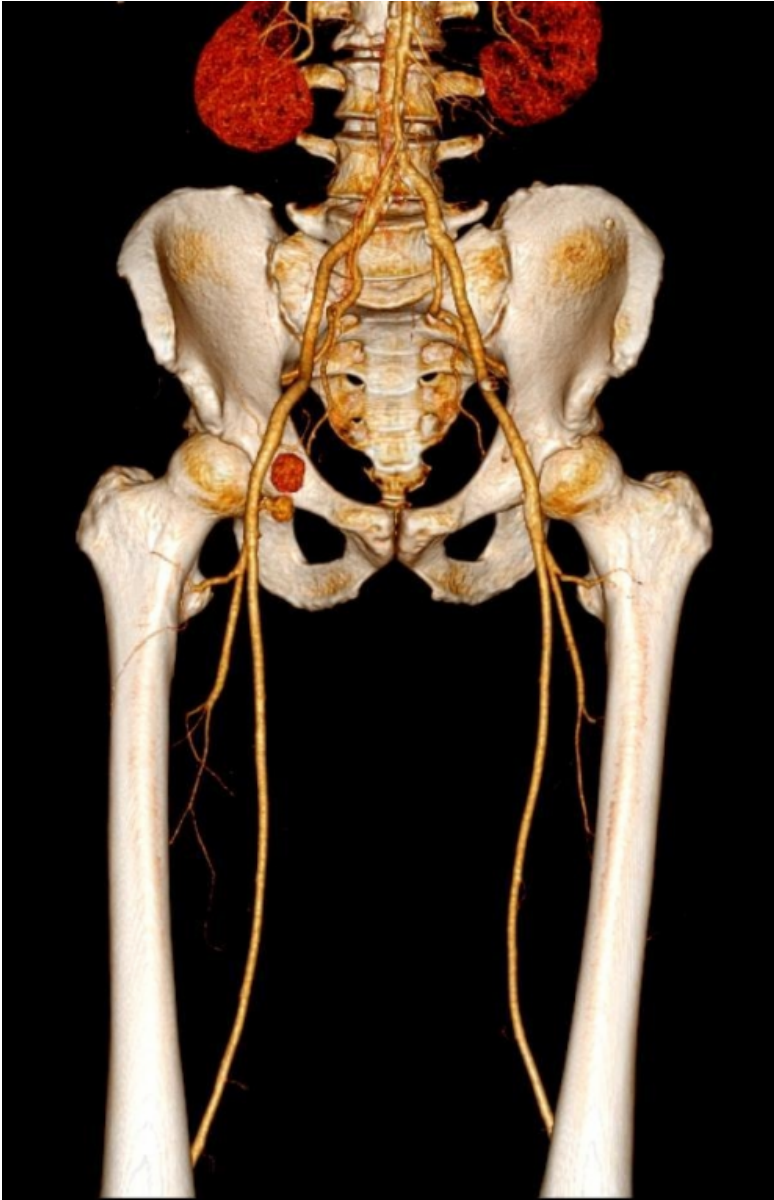
Proschek D, Proschek P, Hochmuth K, Balzer JO, Mack MG, Vogl TJ (2006) False aneurysm of the left femoral artery and thrombosis of the left femoral vein. Arch Orthop Trauma Surg 126:493-7 (PMID: [16810552](#))

Heis HA, Bani-Hani KE, Elheis MA, Yaghan RJ, Bani-Hani BK (2008) Postcatheterization femoral artery pseudoaneurysms: therapeutic options. A case-controlled study. Int J Surg 6:214-9 (PMID: [18455971](#))

Hung B, Gallet B, Hodges TC (2002) Ipsilateral femoral vein compression: a contraindication to thrombin injection of femoral pseudoaneurysms. J Vasc Surg 35:1280-3 (PMID: [12075599](#))

Figure 1

a



Description: Volume-rendered reconstruction showing the pseudo-aneurysm from the right CFA

Origin: Nielsen YW. Department of Radiology, Copenhagen University Hospital Bispebjerg, Denmark

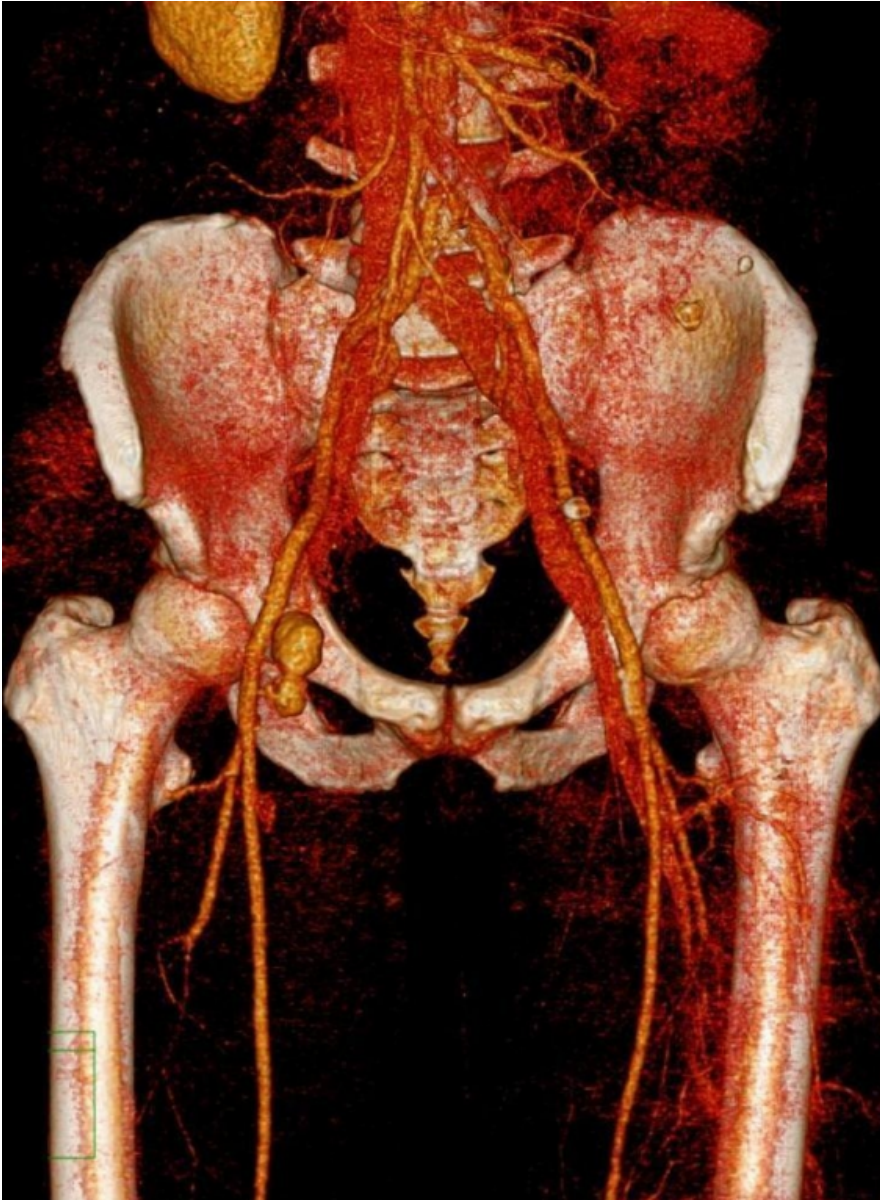
b



Description: Axial source image, showing the connection (arrow) between the right CFA and the pseudo-aneurysm **Origin:** Nielsen YW. Department of Radiology, Copenhagen University Hospital Bispebjerg, Denmark

Figure 2

a

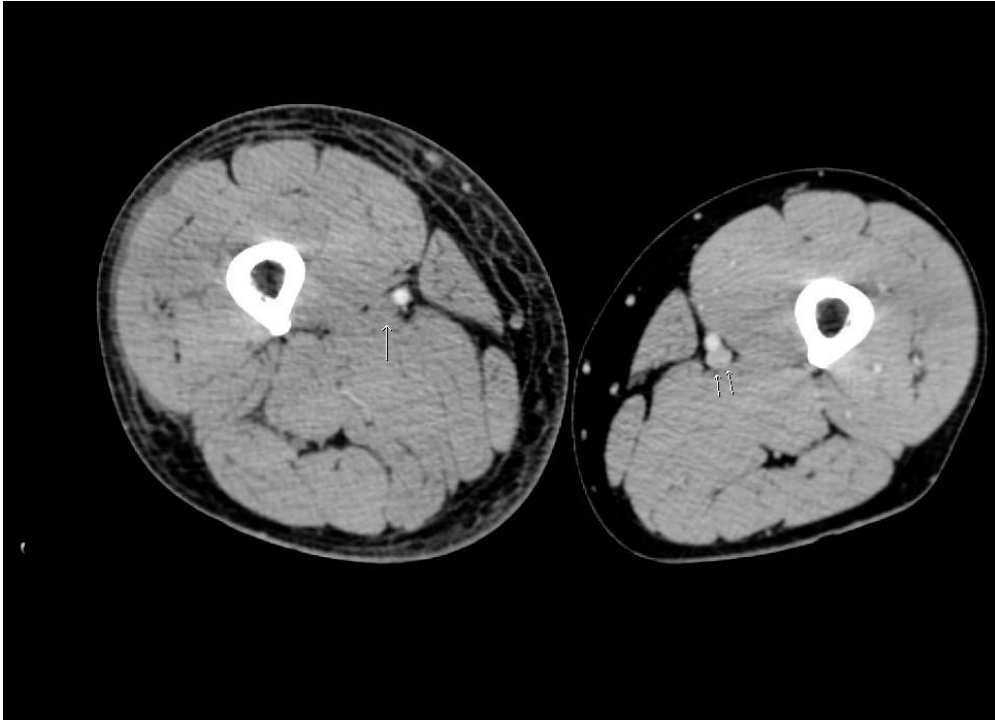


Description: Volume-rendered reconstruction showing no contrast filling of the right femoral vein

Origin: Nielsen YW. Department of Radiology, Copenhagen University Hospital Bispebjerg, Denmark

Figure 3

a



Description: Axial CTA source image (venous phase) showing swelling of the right leg compared to the left. Also note DVT of the right femoral vein (single arrow). Normal left femoral vein (double arrow).

Origin: Nielsen YW. Department of Radiology, Copenhagen University Hospital Bispebjerg, Denmark