

Case 5

Evaluation of Femoral Artery Pseudoaneurysms with Arteriovenous Fistula using CTA Runoff Scanning

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HISTORY

A 16-year-old male patient, with a known history of trauma, developed a tender pulsatile mass in his left thigh. A CT Angiography (CTA) runoff was ordered to evaluate detailed vascular structures.

DIAGNOSIS

Two saccular pseudoaneurysms were found in the left upper-mid thigh (Fig. 1). Both aneurysms breached into the left superficial femoral artery (Fig. 2). Tumor-like venous structures developed locally, due to a fistula connecting the aneurysms and the femoral vein (Fig. 2). Most of the veins drained into the great saphenous vein, resulting in an ectatic state of the vein. The left femoral artery was significantly dilated. There were neither signs of mural thrombosis nor of wall thickening of the aneurysm. The vascular structures in the right leg appeared to be normal.

COMMENTS

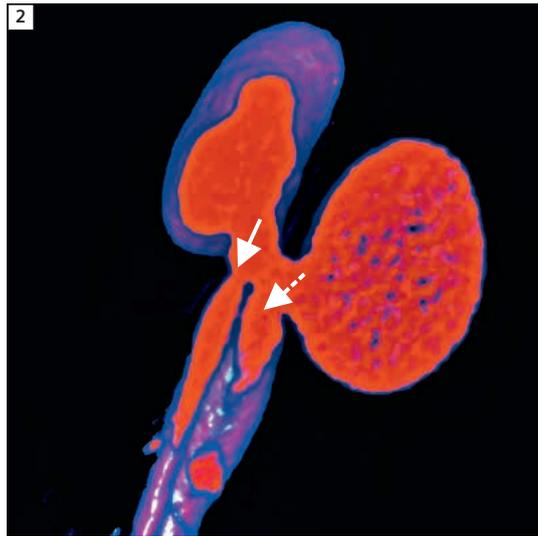
Pseudoaneurysms are common vascular abnormalities caused by the disruption of the vessel wall. A pseudoaneurysm with an arteriovenous fistula is rare. Prompt diagnosis and treatment are necessary to avoid the morbidity and mortality associated with hemorrhage and rupture. Low dose CTA is valuable in the imaging workup and may help enable a quick diagnosis.

EXAMINATION PROTOCOL

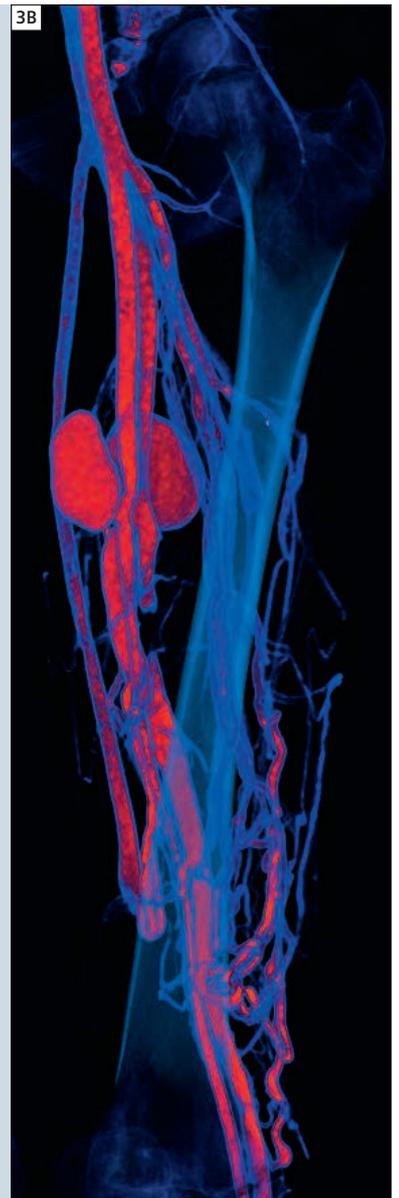
| Scanner | SOMATOM Definition Flash | | |
|---------------------|--------------------------|--------------------------|--------------|
| Scan area | CTA Runoff | Pitch | 0.9 |
| Scan length | 1,102 mm | Slice collimation | 128 x 0.6 mm |
| Scan direction | Cranio-caudal | Slice width | 1 mm |
| Scan time | 16 s | Spatial Resolution | 0.33 mm |
| Tube voltage | 80 kV | Reconstruction increment | 0.7 mm |
| Tube current | 190 eff. mAs | Reconstruction kernel | B26f |
| Dose modulation | CARE Dose4D | Contrast | |
| CTDI _{vol} | 3.72 mGy | Volume | 70 mL |
| DLP | 419 mGy cm | Flow rate | 3.5 mL/s |
| Effective Dose | 1.82 mSv | Start delay | 21 s |
| Rotation time | 0.5 s | | |



1 An overview of the CTA runoff.



2 Thin slab VRT image shows the breach of the aneurysm (arrow) and the fistula to the femoral vein (dashed arrow).



3 The vascular structures can be shown with VRT images using different presets.