A 51-year-old male presented with intermittent claudication of the right calf for 1 year. The right ankle-brachial index at rest and during exercise was 0.96 and 0.87, respectively. Total occlusion of the right popliteal artery (PA) was detected on a volume-rendered three-dimensional computed tomography (CT) image (Figure 1A), but popliteal aneurysmal dilatation occluded by a hypoattenuating filling defect was revealed on a contrast-enhanced CT axial image (Figure 1B). Interestingly, an angiography revealed no significant stenosis at the lesion (Figure 1C). The intravascular ultrasound revealed no definite atherosclerosis but extravascular hypoechoic lesion compatible with a cyst (Figure 1D). Finally, the T2-weighted magnetic resonance imaging (MRI) (Figure 1E) revealed that multi-lobulated cysts (arrowheads) extending from the articular surface to the PA (arrow) encompassed the PA circumferentially. These findings were consistent with cystic adventitial disease (CAD). After excision of the cystic wall (Figure 1F, arrowheads), the medial layer of PA (Figure 1F, arrow) was exposed. The entire cyst and underlying PA were excised and replaced with a synthetic graft. At 6-month of follow-up, he remains free of symptoms.

CAD is a rare non-atherosclerotic vasculopathy where mucinous cyst forms within the adventitia of the arteries and veins. This can cause luminal narrowing and various symptoms depending on the vessel affected. The etiology of CAD remains unclear but articular (synovial) theory appears most well-founded. The MRI in our case also demonstrated that cysts connected with the knee joint. This joint connection could explain the mechanism of the symptom and the discrepancy between the CT and angiography findings. Instead of a graft, simplified treatment such as joint connection ligation could be done if we had a better understanding of the etiology of CAD. Our case highlights the importance of multi-modality images to make a differential diagnosis in a patient with intermittent claudication and define the etiology of CAD.
Conflict of Interest
The authors have no financial conflicts of interest.

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REFERENCES


Figure 1. The discrepancies among imaging modalities and surgical finding in patient with cystic adventitial disease. Total occlusion of the right PA was suspected on a volume-rendered three-dimensional CT image (A) but popliteal aneurysmal dilatation occluded by a hypoattenuating filling defect was revealed on a contrast-enhanced CT axial image (B). On contrary to the CT finding, a conventional angiography revealed no significant stenosis at the lesion (C). The IVUS revealed no definite atherosclerosis but extravascular hypoechoic lesion compatible with a cyst (D). Finally, the T2-weighted MRI revealed that multi-lobulated cysts (E, arrowheads) extending from the articular surface to the PA (E, arrow) encompass the PA circumferentially. After excision of the cystic wall (F, arrowheads), the medial layer of PA (F, arrow) was exposed. CT = computed tomography; IVUS = intravascular ultrasound; MRI = magnetic resonance image; PA = popliteal artery.