Fifty-nine-year-old man with abrupt-onset claudication

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A 59-year-old man presented to the emergency department with a 10-day history of abrupt-onset right leg claudication. He was a nonsmoker and had no risk factors for peripheral arterial disease or thromboembolism. His neurologic examination findings were normal and his ankle pulses were palpable, but his bedside ankle-brachial index on the right was abnormal at 0.79. He had mild right calf tenderness to palpation. He gave written consent for publication of details of his case, including radiologic and intraoperative images.

Computed tomography angiography showed severe stenosis of the right above-knee popliteal artery (AKPop), with three-vessel runoff to the right foot. Three-dimensional reconstructions of the computed tomography angiogram showed extrinsic compression of the AKPop by a smoothly contoured structure (Cover), and digital subtraction angiography confirmed the classic “scimitar sign” of cystic adventitial disease (A). Surgical exploration revealed an eccentric fusiform dilation of the AKPop (B). There was a thick attachment between this structure and the tissues adjacent to the knee joint that, when divided, revealed a tract exuding a mucinous substance. A coronary dilator introduced in this tract probed approximately 5 mm in the direction of the knee joint. The affected segment of the AKPop was resected and reconstructed with autogenous vein graft. The intima of the excised artery was smooth, and on opening of the cyst itself, a similar thick mucinous substance was once again encountered (C). The patient made an uneventful recovery and was discharged home.

Cystic adventitial disease is identified in approximately one in 1200 cases of claudication, occurring in the popliteal artery 85% of the time. It typically is manifested as claudication in younger patients without risk factors for peripheral arterial disease. 1 Treatment options include cyst evacuation, aspiration, and resection. 2 Because of the risk of recurrence with nonresectional approaches, current recommendations are for excision of the involved segment with autologous reconstruction. Percutaneous angioplasty is contraindicated because of rapid recurrence and a risk of rupture of cyst contents into the arterial lumen.

The dominant etiologic theory for cyst formation proposes that as the affected arteries form in the embryo, isolated nests of mesenchymal cells from adjacent developing joints are incorporated in the vessel wall. These cells then secrete the mucinous substance that ultimately fills the cysts. 3

REFERENCES