Claudication Due to Cystic Adventitial Degeneration
A Classical Differential Diagnosis of Atherosclerotic Peripheral Artery Disease

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A 50-year-old man, a professional international alpine-skiing coach, presented at the Department of Vascular Surgery with a short history of intermittent ischemic muscle pain of the right lower leg. Reversible claudication typically occurred during physical activity and was relieved after a short rest. At the time point of presentation, the subjective limitations, however, were only low. His medicinal history included traumatic knee injuries from skiing accidents that had been treated surgically twice. Clinical examination revealed no palpable mass in the popliteal fossa but loss of foot pulses with knee flexion (Ishizawa sign). In addition, peripheral oscillography revealed a vascular circulation disorder of the right lower limb, and grade I atherosclerotic peripheral artery occlusive disease was clinically suspected. Therefore, contrast medium–enhanced computed tomography angiography of the infrarenal arterial vascular tree was performed to assess the degree of suspected atherosclerotic stenoses and to exclude another cause of claudication (eg, a postsurgical popliteal artery stenosis).

Computed tomographic angiography with 3-dimensional reconstructions (Figure, A) showed no arterial calcifications and no atherosclerotic plaques but a cystic extraluminal mass along and around the popliteal artery (Figure, B and C, arrows) extending to the tibiofibular trunk (Figure, D, arrows). The diagnosis was cystic adventitial degeneration causing an extraluminal extrinsic compression of the popliteal artery leading to a mild vascular stenosis (Figure, D). Because the subjective limitation was low and the patient did not wish for a surgical vascular patch operation, he was released with the advice for clinical consultation in case the claudication symptoms increased.

Cystic adventitial degeneration is a vascular condition characterized by a collection of mucinous material within the adventitia of an affected vessel. In contrast to atherosclerotic plaques, cystic adventitial degeneration is a condition characterized by the absence of significant intimal and medial calcification or atheromatous degeneration. It typically affects young and middle-aged adults, particularly males, and is more common in the iliac, femoral, and popliteal arteries. The condition is associated with chronic pain, intermittent claudication, and occasionally gangrene. The diagnosis is often made by imaging studies, such as computed tomography angiography or magnetic resonance imaging, which can visualize the extraluminal mass compressing the arterial lumen. Treatment options include medical management, endovascular interventions, and surgical resection, depending on the severity of symptoms and the size of the cystic mass.
rosis, patients are most commonly nonsmoking middle-aged previously healthy men who classically present with sudden-onset rapidly progressive calf claudication often after trauma or knee surgery. The important physical examination sign is loss of foot pulses with knee flexion (Ishizawa sign).

The cause of cystic adventitial degeneration is debated, with several pathogenetic theories having been advanced. The most prominent 3 of these are (1) microtrauma to the vessel from repeated stretching injuries, culminating in progressive degeneration of the arterial adventitia; (2) embryological inclusion of mucin-secreting cells within the adventitia of the artery; and (3) adventitial cysts as ganglia originating from the adjacent joint space or tendon sheath.

Contrast medium–enhanced computed tomography angiography is an ideal method to diagnose this vascular disease and to differentiate cystic adventitial degeneration from other causes of claudication (eg, atherosclerosis).

Disclosures

None.

References

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_Circulation_. 2012;125:1926-1927
doi: 10.1161/CIRCULATIONAHA.111.064105
_Circulation_ is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
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Print ISSN: 0009-7322. Online ISSN: 1524-4539

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://circ.ahajournals.org/content/125/15/1926

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