

# Adventitial Cystic Disease of the Common Femoral Artery

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## Abstract

Arterial Adventitial Cystic Disease (AACD) is an uncommon type of peripheral vessel disease and its etiology is still unknown. Most cases occur in the popliteal arteries; however, a few cases have been reported in the femoral arteries.

This arterial disease consists of an accumulative mucinous substance in the arterial adventitial layer. This cystic growth produces a clinical claudication or a symptomatic ischemia in the inferior extremity. The most effective treatment is a block resection, with inclusion of the affected arterial segment. This surgical resection should be associated with a posterior arterial reconstruction with a prosthetic by-pass.

**Keywords:** Cystic tumor, peripheral arterial disease, inguinal mass, intermittent claudication.

## Case Report

75-year old male patient with inguinal pulsatile tumoration and localized pain. Clinical symptoms of partial vascular compression or pulse loss are only occasionally present. Magnetic Resonance Imaging (MRI) confirmed venous adventitial cystic disease suspected by computed tomography venography. He showed stenosis of the common femoral artery caused by a cystic formation that impinging on the artery femoral wall (Figure 1 and 2).

Surgical macroscopic findings confirmed the presence of a cystic mass originating from the common femoral artery and compressing the common femoral vein. An elective cystic mass complete excision was performed with polytetrafluoroethylene roofing angioplasty. Following this, a femora-femoral by-pass was performed with Gore prosthesis. There were no intraoperative complications detected.

The anatomopathological report confirmed the presence of an adventitial cyst of the right common femoral artery with correct resection margins. No adjuvant treatment was required.

Postoperative evolution was correct with normal arterial and venous perfusion of the lower extremity. The peripheral pulses were present. Finally, he had no local wound complications. The patient returned home after four days' hospital stay. Symptoms disappeared after excision and, so far, recurrence has not been identified.

## Discussion

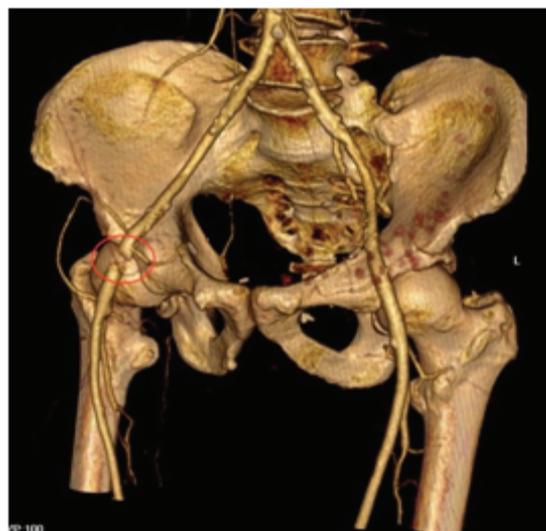
AACD is an uncommon type of non-atherosclerotic peripheral blood vessel disease. This unusual cystic tumor of the blood vessels is characterized by the accumulation of a mucinous substance in the adventitial lay [1].

The disease was first described in 1947 by Atkins and Key [1]. AACD accounts for only 0.1% of cases of vascular disease, and among them, 85% of all cases of AACD occur in the popliteal arteries, while exceptional cases appear in the femoral arteries [1]. The prevalence is 5 times higher in males than in females. The age of occurrence is from

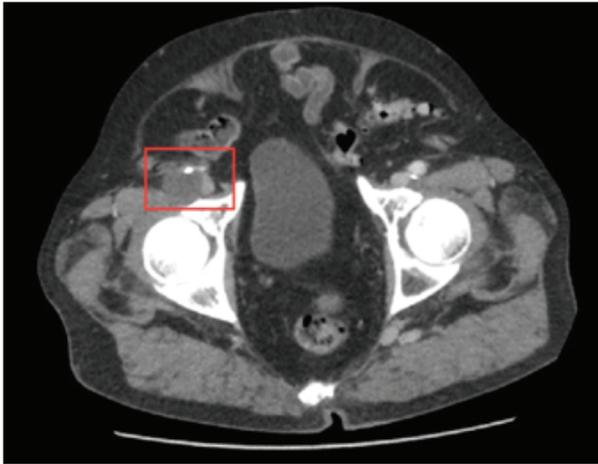
11 to 72 years, and the average age is 42 according to epidemiological studies [1,2].

The pathogenesis of AACD is still unknown, four theories have been proposed: A) It is a systemic disorder of the connective tissue; B) It is a chronic degenerative change due to repetitive trauma; C) The developmental theory, which maintains that a joint-related ganglion-like structure is incorporated into the vessels during embryologic development; and D) The ganglion theory to indicate that arterial adventitial cysts to origin from joint capsular synovial structures [3-6]. So far, obvious causes have not yet been identified.

The symptoms of AACD can include unilateral claudication of the lower extremity, ischemic neuropathy manifestations such as



**Figure 1:** CT reconstruction in 3D. Compression of the right common femoral artery is identified.



**Figure 2:** CT with contrast in arterial phase with the inguinal tumor in contact with right common femoral artery.

paresthesia, pain and rhigosis, arterial obstruction with femoral, popliteal or dorsal pedis weakness or not palpable. The main symptom in our case was the inguinal pain with the movilitization of the leg. In addition, the pulses of the blood vessels of the lower extremities were fully palpable.

An AACD diagnosis can be confirmed by imaging tests. Angiography, ultrasonography, CT scan, and MRI can be performed. Recently, it has been accepted that angiography using 3-dimensional CT alone is now considered enough for diagnosis which is considered to be an important test because it not only determines the place and extention of stenosis but it is also useful in evaluating the entire circulation system [3,6].

There are several methods of treatment for AACD. Aspiration of the cyst under CT or ultrasonography control is a minimally invasive

method, but it is technically difficult and the cyst has a high recurrence rate [1]. Another method is surgical cyst excision without opening the artery. This method also has higher recurrence rate than complete resection involving the vessel with artificial material interposition that provides of better long-term results.

## Conclusion

Femoral arterial adventitial cystic disease is an uncommon peripheral vessels disease. There are multiple theories for its origin, but none are definitive.

When treated with radical surgical resection and posterior arterial by-pass substitution is done, the prognostic is good. With this strategy clinical symptoms disappear and recurrence extremely unlikely.

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