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Case Report

Endovascular treatment of a ruptured true superficial femoral artery aneurysm ☆,☆☆

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ABSTRACT

Isolated true aneurysms of the superficial femoral artery are rare and less common than those of the common femoral artery. They occurred commonly in elderly men in about 87% and most of them are located in the middle third of the artery. Due to the deep anatomic location of the middle and distal third of the superficial femoral artery, most of these aneurysms reach a mean diameter of 8.4 cm at diagnosis. The most common clinical presentation includes a pulsatile thigh mass associated with pain, but rupture and distal ischemia can occur as well. The treatment of the true superficial femoral artery aneurysm consists of exclusion with bypass or interposition graft. Endovascular treatment has been used recently as an alternative treatment, in both emergency and least urgent cases. We present a rare case of a male patient with a huge thigh hematoma due to a ruptured true superficial femoral artery aneurysm.

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Case report

A 72-year old male patient was transferred to the emergency department of our hospital with a huge hematoma of his right thigh, associated with localized pain and difficulty of walking. The patient had a history of arterial hypertension under medication, but no history of major or minor trauma. The physical examination revealed a large hematoma on the middle third of the right thigh, extending to the proximal third of the right lower extremity. Peripheral pulses were present on the posterior tibial artery, but were diminished compared to his left foot. A color-duplex ultrasound was performed on an urgent

basis and revealed a large true aneurysm of the middle third of the right superficial femoral artery with a maximum diameter of 8.8cm. The patient was, immediately, transferred to the angiographic suite, where the ruptured aneurysm (Fig. 1) was restored using three endovascular stents (VIABAHN Endoprosthesis, GORE) in a tapered way (Fig. 2). The patient was hemodynamically stabilized and peripheral pulses were restored (Fig. 3). Before the patient's discharge on the fourth postoperative day, a computed tomography angiography (CTA) of the abdomen and lower extremities was performed and a contralateral aneurysm of the middle third of the left superficial femoral artery was diagnosed. Endovascular repair of the aneurysm of the left lower extremity was performed

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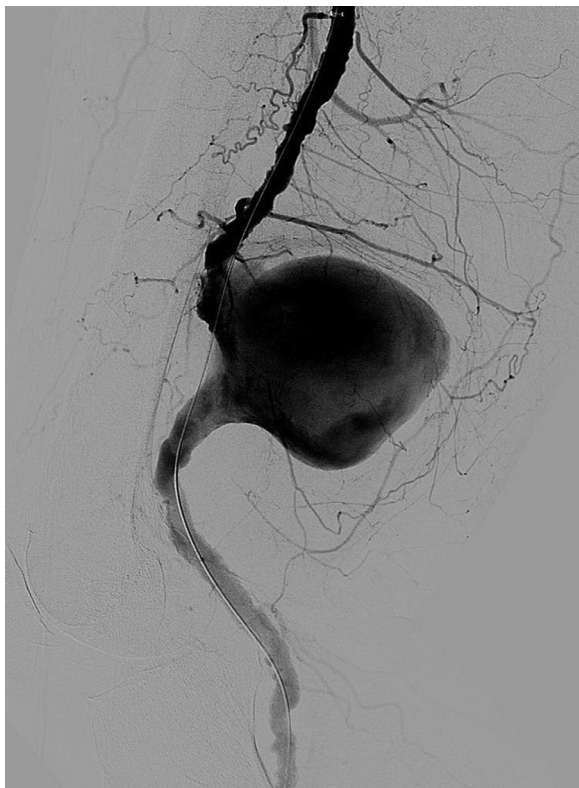


Fig. 1 – Angiography revealed a true aneurysm of the right superficial femoral artery.

scheduled one month after the initial event. At the follow of six months, the patient had palpable peripheral pulses and no complications or symptoms of claudication were reported.

Discussion

Isolated true aneurysms of the superficial femoral artery are rare and less common than those of the common femoral artery. They more commonly manifest as proximal extensions of popliteal artery aneurysms. They occur in elderly men in about 87% and most of them are located in the middle third of the artery. These aneurysms are frequently bilateral (26%), and the vast majority of patients have a synchronous aneurysm at another anatomic location. An extensive review by Leon et al. [1] reported 61 cases of isolated superficial femoral artery aneurysms. Due to the deep anatomic location of the middle and distal third of the superficial femoral artery, most of these aneurysms reach a mean diameter of 8.4 cm at the time of diagnosis. The most common clinical presentation includes a pulsatile thigh mass associated with pain, but rupture and distal ischemia can occur as well.

Because of the rare nature of this specific aneurysm, the natural history is not well known, and no specific aneurysm diameter has been identified at which the incidence of compli-



Fig. 2 – The ruptured aneurysm was repaired with the deployment of three Viabahn endoprosthesis in a tapered way.

cations increases and repair should be mandatory. Superficial femoral artery aneurysms with a diameter of 2.5cm or more, are usually repaired, especially those that are known to have grown over time. Duplex ultrasound scanning is an accurate imaging modality for diagnosis and for following up smaller asymptomatic aneurysms. Angiography remains a valuable imaging modality to assess inflow and outflow vessels, especially for preoperative cases.

Open surgical repair includes either the exclusion with a bypass graft or the placement of an interposition graft. Vein grafts are preferred for any repair, especially when the reconstruction is crossing the knee joint. Although long-term follow-up is not available, there are a few case series that report an excellent limb salvage rate with no mortality [2,3]. As reviewed by Perini et al. [4], open surgical repair for isolated superficial femoral artery aneurysms reported limb salvage and graft patency rates of 88%, and 85%, respectively, with a mean follow-up of 41 months. Although endovascular repair has been reported in only a few cases of these rare aneurysms, it is likely that percutaneous repair will become an alternative method, as the profile of the endovascular devices is reduced and their deployment becomes easier. However, long-term data on the effectiveness of this treatment method are not available at this time.



Fig. 3 – After the deployment of the stents, the arterial circulation is repaired and peripheral pulses are restored.

In conclusion, we present a rare case of a male patient with a huge thigh hematoma due to a ruptured true

superficial femoral artery aneurysm. An endovascular repair was performed with no postoperative complications.

Author contribution

C.P. provided substantial contributions to conception and design, acquisition of data, analysis and interpretation of data. K.N. drafted the article and revised it critically for important intellectual content.

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