

Rupture of Giant Superficial Femoral Artery Aneurysm in a Leukemic Patient Submitted to Chemotherapy

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The superficial femoral artery (SFA) is a relatively rare location for lower limb aneurysmatic disease. In the literature, this disease is described an association between a relatively high growth rate and/or the rupture of aneurysms and chemotherapeutic agents. We report a case of the rupture of a giant SFA aneurysm in a patient during chemotherapy for acute lymphatic leukemia.

Key words: 1. Femoral
2. Arteries
3. Aneurysm
4. Leukemia
5. Chemotherapy

CASE REPORT

An 80-year-old male was admitted to Molinette Hospital due to an acute painful pulsatile mass located in the distal portion of his left thigh (Fig. 1), referred by the patient and relatives to be in progressive enlargement in the last few months. The patient was affected by refractory anemia with excess blasts in transformation, associated with acute lymphatic leukemia. His past medical history included arterial hypertension and type-2 diabetes mellitus treated with oral hypoglycemic agents; no history of smoking was present. Preliminary blood tests showed severe thrombocytopenia (17,000 platelets/ μ L) and anemia (hemoglobin blood level, 7.6 g/dL). The patient's blood pressure was 120/80 mmHg, and his heart rate was 100 bpm. Distal pulses were present, and there were no signs of lower limb ischemia. Echo color Doppler ultrasonography showed the presence of a volumi-



Fig. 1. Voluminous pulsating mass in distal portion of left thigh.

nous aneurysm of the superficial femoral artery with the suspicion of rupture. An urgent computed tomography angiography (CTA) was then performed, which confirmed the presence of a giant ruptured aneurysm of the distal portion of the

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left superficial femoral artery, having a maximum diameter of 75 mm and extending longitudinally for 115 mm, with a voluminous hematoma infiltrating the vastus medialis muscle (Fig. 2). The popliteal and tibial arteries were patent. As a collateral finding, an infrarenal abdominal aortic aneurysm measuring 31 mm was detected. At first, the patient underwent a transfusion of four units of platelets and two of red blood cells. Soon after, under general anesthesia, we accessed the distal superficial femoral artery at the adductor canal through a 15-cm longitudinal incision. The mass was isolated (Fig. 3A), and the hematoma was evacuated. The proximal and distal neck of the aneurysm were isolated and digitally controlled, the aneurysm was longitudinally opened, the intraluminal wall thrombus was removed, and, instead of clamping, two 6-French Fogarty catheters were positioned upstream and downstream. A 7-mm knitted polyester graft (JOTEC GmbH, Hechingen, Germany) was sutured proximally and distally in an end-to-end fashion with a Prolene 5/0 monofilament (Fig. 3B). There were no adverse events during

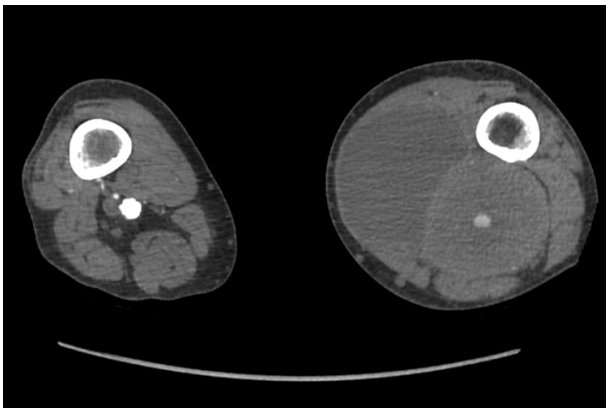


Fig. 2. Preoperative computed tomography scan.

hospitalization. The patient was discharged on the 7th post-operative day upon the recovery of walking. In agreement with the hematologist, due to the high hemorrhagic risk, no antiplatelet therapy was prescribed, as bleeding diathesis is a contraindication of antithrombotic agents. Echo color Doppler ultrasonography at 1, 6, and 9 months showed the patency of the prosthetic repair without any sign of anastomotic pseudoaneurysm. The patient died about one year after surgery due to complications linked to the hematologic disease.

DISCUSSION

The normal diameter of the superficial femoral artery (SFA) is reported to range from 0.78 to 1.12 cm in men and 0.78 to 0.85 cm in women [1]. Isolated aneurysm of the SFA is a rare condition. In the thigh, the distribution of aneurysms is calculated as follows: 80% common femoral, 15% superficial femoral, and 5% profunda femoris artery [2]. Aetiologic factors include atherosclerosis, infections, arteritis, connective tissue disorders, human immunodeficiency virus, and trauma. Some authors demonstrated a correlation with abdominal aortic aneurysms in 60% of the cases; 36% were bilateral [2]. The median age of presentation of SFA aneurysms is 75.7 years; men are most often affected (87%). Patients usually come to medical attention for pain associated with a pulsatile mass. Frequently (52%), the clinical presentation is a rupture. Limb loss is the most severe complication. Furthermore, it is not possible to correlate the size of the aneurysm with the onset of adverse events [2]. The diagnosis is easily made with an ultrasound, but a CTA is mandatory to define the rupture, size, surrounding structures, patency of the distal vessels, and extension. Surgery can avoid limb loss in a majority

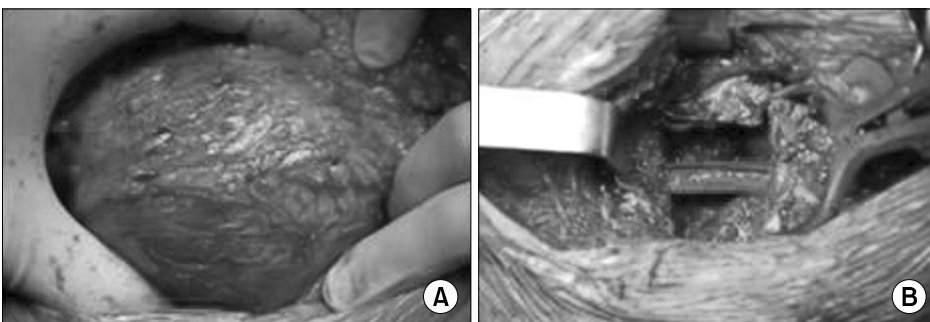


Fig. 3. (A) Intraoperative image showing the isolated aneurysm. (B) Femoral artery reconstructed with polyester graft.

of the cases (94%), and major amputations are frequently performed when severe irreversible ischemia is the predominant symptom [3]. Several procedures are described in the literature, such as excision, ligation, and bypass grafting with an autologous vein or prosthetic material. Nowadays, endovascular repair is also feasible and safe [4], but we ruled it out mainly due to the extension of the hematoma that had to be evacuated and the size of the aneurysm. Thrombocytopenia is a common side effect of azacitidine; our patient's preoperative platelet count was 17,000 platelets/ μ L. Antiplatelet therapy is mandatory after every arterial reconstruction, but we avoided it due to his iatrogenic thrombocytopenia, as bleeding diathesis is a contraindication of antithrombotic agents. A recent study found that chemotherapy in the last 30 days is associated with a higher probability of treating patients affected by abdominal aortic aneurysms in emergency situations [5]. Other researchers have found a correlation between chemotherapy and rapid enlargement and rupture of aortic aneurysms [6-8]. Our patient has been treated for the last five months with cycles of azacitidine 75 mg/m² monthly; he complained of acute left thigh pain during the fifth cycle of treatment. We can suppose that this chemotherapeutic agent may have played a role in the rapid expansion of the aneurysm until its rupture. A possible explanation has been suggested by Zanow et al. [6]: Chemotherapy may induce a downregulation of the synthesis of collagen, elastin, and smooth muscular cells, and a stimulation of metalloproteases, and these combined effects could cause a rapid aneurysm enlargement. To the best of our knowledge, this is the first case of femoral artery aneurysm rupture likely to be associated with chemotherapy.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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