Abstract

Knee arthroscopy is a common procedure to treat sports injuries. It is a safe procedure with less injury to soft tissues and very few complications. Pseudoaneurysm of the popliteal artery and/or arteriovenous fistulae is a rare complication of arthroscopic procedure of the knee. We report a case of popliteal artery pseudoaneurysm with arteriovenous fistulae after arthroscopic procedure of the knee in a younger sportsman.

Keywords: Arteriovenous fistulae, arthroscopy, popliteal artery, pseudoaneurysm

Introduction

Arthroscopy is among the most commonly performed surgical procedures for treating knee injuries, especially sports ones.[1] Few complications are described in literature. Pseudoaneurysm of the popliteal artery and/or arteriovenous fistulae is a rare complication of arthroscopic treatment of the knee, <2%.[2] We report a new case of pseudoaneurysm and arteriovenous fistulae of the popliteal artery after arthroscopic procedure of the knee.

Case Report

A 22-year-old man twisted his right knee while football playing. He consults 1 month later, examination of the knee found lateral meniscus signs with the limitation of flexion. Magnetic resonance imaging showed a lesion of the medial meniscus. Arthroscopy of the knee was performed with subtotal meniscectomy.

Six months later, the patient presented signs of lower limb ischemia after effort, claudication, and pallor. We found, at the examination of popliteal region, a pulsatile mass with a thrill; lower limb was cold and distal pulses were present but weak. There were no systemic symptoms, such as Burnham’s bradycardia phenomenon and right heart failure. Computed tomography (CT) scan showed a pseudoaneurysm of the popliteal artery, with 3 cm anterior-posterior diameter; a neck of pseudoaneurysm measures 0.9 cm. Popliteal vein early filling was detected in CT scan, a sign of popliteal arteriovenous fistulae [Figure 1].

Surgery procedure was performed: under general anesthesia, the patient placed on ventral position, and posterior incision. After control and clamping of the popliteal artery, we opened the pseudoaneurysm and controlled the popliteal arteriovenous fistulae by suture using polypropylene 6/0 [Figure 2]. We excised a wall of pseudoaneurysm and performed popliteo-popliteal bypass using 4 cm of ipsilateral reversed great saphenous vein [Figure 3]. After surgery, distal pulses were normal. After 1 month, the patient did well and he could walk 200 meters without claudication. Popliteal incision was healing well and no palpable mass. After 3 months, we performed a Doppler ultrasound which showed a good flow in the venous graft and in distal arteries. After 6 months, the patient returned to normal function.

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Discussion

Arthroscopy still the most commonly performed surgical procedures for treating knee injuries, especially in sportsmen. The use of this procedure has grown rapidly because it entails less injury to soft tissues and a few numbers of complications. However, many unexpected injuries will be caused and diagnosed during operative procedure by the surgeon or many times later, by patients themselves.[3] Pseudoaneurysm after arthroscopic procedures, performed on the knee, are one example of these injuries.

Pseudoaneurysms occur in 75% in men, especially sportsmen and young. Even though the number of women who practice sports is growing, the ratio of sports injuries is lower among women.[3]

Pseudoaneurysms are caused by incomplete injury to the arterial wall, which cause extravasation of blood that is contained by the surrounding tissues forming a wall of this pseudoaneurysm.[1]

Pain is the most common symptom but nonspecific. The presence of pulsatile mass or hemarthrosis, found in some cases, leads to a high degree of suspicion.[4]

The diagnosis can be made clinically through the presence of a painful pulsatile mass of growing size, in association with palpable thrill and auscultation of a systolic murmur. The diagnosis can be confirmed by Doppler ultrasound, or better CT scan, which allows precise description of the mass and its entourage.[1]

Pseudoaneurysms of popliteal artery can lead to serious complications: hemorrhage by rupture of the pseudoaneurysm, neurological and venous compression by a large pseudoaneurysm, thrombosis, and distal embolization which can lead to limb ischemia and possibility of limb loss.[5]

Treatment should be performed as soon as possible to prevent complications. Therapeutic embolization of pseudoaneurysms has been performed successfully in many cases. Endovascular procedure has also been performed in some cases with good results.[2] Taboada Martín and Capel Alemán[2] reported a case of arteriovenous fistula and popliteal pseudoaneurysm after arthroscopic meniscectomy in a 48-year-old man; endovascular treatment was performed with a Viabahn® stent graft. The most common therapeutic procedure was opening or excision of pseudoaneurysm with saphenous vein grafting with excellent results.[6]

Conclusion

The possibility of pseudoaneurysm with popliteal arteriovenous fistulae, although rare, should always be ruled out whenever a patient develops a pulsatile swelling or mass after arthroscopy of the knee. Evaluation of circulation to the limb immediately after the procedure is critical. Results of saphenous vein grafting are excellent, and treatment should be performed as soon as possible.

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Conflicts of interest

There are no conflicts of interest.
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