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Traumatic Popliteal Artery Pseudoaneurysm Developed during a Soccer Game

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A 38-year-old male was admitted to our hospital due to painful swelling of his right popliteal fossa. He had been kicked in his right popliteal fossa during a soccer game about three weeks earlier. Computerized tomographic angiography of the lower extremity demonstrated a 4-cm-wide, 3-cm-long aneurysmal change of the popliteal artery. He underwent aneurysmectomy and graft interposition using a great saphenous vein graft. Pathologic findings of the resected specimen were consistent with those of a pseudoaneurysm.

Key words: 1. Aneurysm
2. Trauma
3. Wounds and injuries
4. Leg injuries
5. Pseudoaneurysm

CASE REPORT

A 38-year-old male was admitted to our hospital due to painful swelling of his right popliteal fossa. He had been kicked in his right popliteal fossa during a soccer game about three weeks earlier. Because his symptoms did not improve, he visited our hospital for accurate diagnosis and proper treatment. His vital signs were stable, and the results of routine blood tests were within normal ranges. Computer tomography (CT) angiography of the lower extremity demonstrated a 3-cm-long aneurysmal change of the popliteal artery (Fig. 1). He refused to undergo stent implantation because he wanted to play soccer games without the worry of complications related to the stent after being discharged from the hospital. A 10-cm-long incision on the medial aspect of the right knee was made under general anesthesia. After muscle dissection, we found a pseudoaneurysm with a fibrous wall and hematoma, which was excised. We tried to perform a direct anastomosis of the two divided ends of the popliteal artery, which turned out to be impossible because of severe adhesion between the popliteal artery and adjacent structures. There were local inflammatory changes of the resected margins of the vein and sufficient trimming for construction of the anastomosis were performed. We harvested about 5 cm of the great saphenous vein through the same incision, and interposed the vein graft between the two ends of the popliteal artery (Fig. 2). Pathological findings of the resected specimen were consistent with those of a pseudoaneurysm. The patient was discharged on the seventh postoperative day without complications.

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Fig. 1. Pre-operative CT angiography of the lower extremity showing an approximately 3-cm aneurysmal change (white arrow) of the right popliteal artery.

Fig. 2. Post-operative CT angiography of the lower extremity showing disappearance of the aneurysm.

DISCUSSION

The incidence of traumatic popliteal pseudoaneurysm is low, estimated to be 0～3.5% of all popliteal artery aneurysms of various etiologies [1]. Nearly 70 cases of popliteal pseudoaneurysms have been described [2]. Popliteal pseudoaneurysm is most commonly caused by trauma. Traumatic popliteal pseudoaneurysm is developed after penetrating trauma rather than blunt trauma. Bony structure changes, such as exostosis and osteochondroma and iatrogenic procedures, for example, following a total knee arthroplasty or acupuncture can cause popliteal pseudoaneurysms [3-5].

A popliteal pseudoaneurysm presents painful swelling, a pulsatile mass, a murmur, or a palpable thrill over its localized region [3]. Diagnosis of popliteal pseudoaneurysms can be done by physical examination, duplex ultrasound scanning, or computer tomography.

Surgical treatment should be performed to prevent severe complications such as rupture or thromboembolism [3]. An endovascular stent can be used as an alternative. Endovascular stent therapy offered several advantages over open bypass surgery. The obvious advantages of the endovascular stent in the femoropopliteal segment are lower morbidity and mortality, a shorter hospital stay and recovery time, and preservation of the saphenous vein for possible future vascular bypass surgery [3]. However, the outcomes of endovascular stent therapy in the popliteal artery have not been as effective as for other arteries [4]. Balloon expandable stents have high frequency of stent deformation under crush trauma and complications with long term patency so their use is not proposed in femoropopliteal arteries [4]. Only self expanding stents are currently used in femoropopliteal arteries but stent erosion and fracture can occur when there are excessive mechanical stresses and repeated compressions in the artery of the knee [6]. There are a few reports of elective endovascular treatment of pseudoaneurysms of the popliteal artery [3].

The traditional approach for treatment of popliteal pseudoaneurysm is resection and reconstruction with vein graft interposition. Hematoma and blood clots were found in many cases of popliteal pseudoaneurysm. Therefore, conventional open surgery is usually recommended to perform bypass surgery and remove the large blood clot from the popliteal fossa [7].

REFERENCES

1. Gillespie DL, Cantelmo NL. *Traumatic popliteal artery pseudoaneurysms: case report and review of the literature.* J Trauma 1991;31:412-5.

2. Megalopoulos A, Siminas S, Trelopoulos G. *Traumatic pseudoaneurysm of the popliteal artery after blunt trauma: case report and a review of the literature.* Vasc Endovascular Surg 2006;40:499-504.
3. Reijnen MM, de Rhoter W, Zeebregts CJ. *Treatment of a symptomatic popliteal pseudoaneurysm using a stent-graft and ultrasound-guided evacuation of the haematoma.* Emerg Radiol 2009;16:167-9.
4. Vaidhyanath R, Blanshard KS. *Case report: insertion of a covered stent for treatment of a popliteal artery pseudoaneurysm following total knee arthroplasty.* Br J Radiol 2003; 76:195-8.
5. Kao CL, Chang JP. *Pseudoaneurysm of the popliteal artery: a rare sequela of acupuncture.* Tex Heart Inst J 2002;29: 126-9.
6. Solis J, Allaqaband S, Bajwa T. *A case of popliteal stent fracture with pseudoaneurysm formation.* Catheter Cardiovasc Interv 2006;67:319-22.
7. Woolgar JD, Reddy DS, Robbs JV. *Delayed presentation of traumatic popliteal artery pseudoaneurysms: a review of seven cases.* Eur J Vasc Endovasc Surg 2002;23:255-9.