

## A giant anastomotic late pseudoaneurysm of aortobifemoral graft in the groin: Treatment and management of complications

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### ABSTRACT

Anastomotic pseudoaneurysm is a late complication secondary to graft materials dehiscence due to degeneration, and the femoral artery is riskier than others. Surgical repair is usually recommended for femoral pseudoaneurysms of >2 cm. Redo surgery of the groin brings an ascending risk of lymphorrhea or lymphocele, a condition which has no consensus on the effective treatment. In this article, we present the treatment and management of complications of a rare, non-infected giant left groin anastomotic pseudoaneurysm due to late graft dehiscence in a patient who underwent aortobifemoral graft 20 years ago for Leriche syndrome.

**Keywords:** Leriche syndrome, lymphorrhea, povidone iodine foam pseudoaneurysm, vascular graft separation.

Surgical or invasive interventions, infection, trauma, and vasculitis are some causes of arterial pseudoaneurysms.<sup>[1]</sup> Anastomotic pseudoaneurysm is a late complication secondary to graft materials dehiscence due to degeneration that reported in 1 to 5% of cases, and plenty of them are related to infection with *Staphylococcus* species being the main organism in the culture results.<sup>[2-5]</sup> Injury of the lymphatic system during dissection may cause lymphorrhea, lymph fistula, or lymphocele.<sup>[6]</sup> There is no consensus on the effective treatment of postoperative lymphorrhea or lymphocele.<sup>[7]</sup>

In this article, we present the treatment and management of complications of a rare, non-infected giant left groin anastomotic pseudoaneurysm due to late graft dehiscence in a patient who underwent aortobifemoral graft 20 years ago for Leriche syndrome.

### CASE REPORT

A 72-year-old male patient was admitted with the complaint of a mass in the left groin for nine months and progressively expanding for the last three months. His physical examination revealed a 5×4-cm pulsatile mass in the left groin and non-palpable pulses of the lower extremity. There is no sign of infection. Doppler ultrasonography (USG) revealed a left groin pseudoaneurysm in size of 7×6 cm. He was a current smoker for 40 years, with no history of trauma or infection to the left groin, and he had a history of aortobifemoral graft surgery 20 years ago for Leriche syndrome. He had intermittent claudication for two to three years. Computed tomographic angiography (CTA) revealed a 5×10-cm pseudoaneurysm originating from the left common femoral artery (CFA), the superficial femoral artery (SFA) was occluded, and the deep femoral artery (DFA) was dominated (Figure 1).

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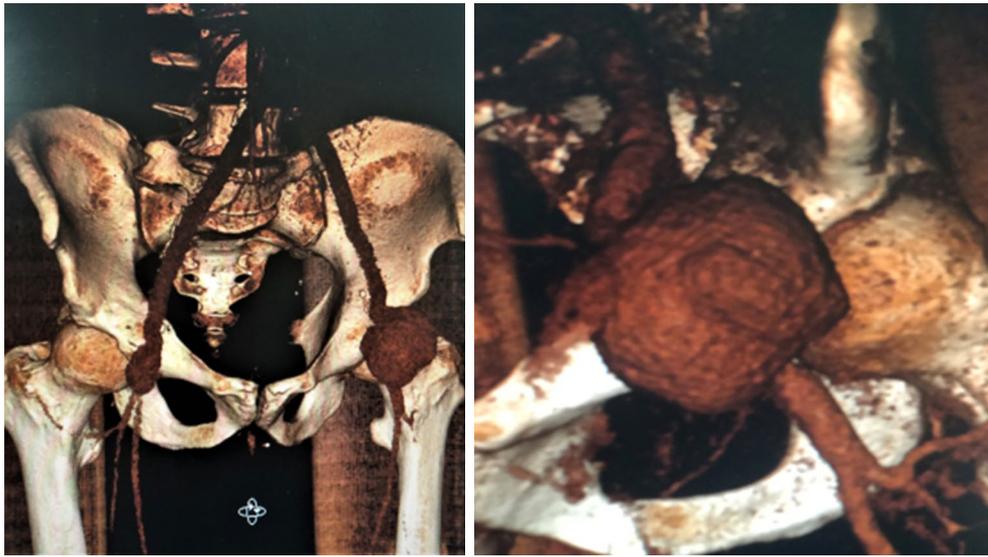
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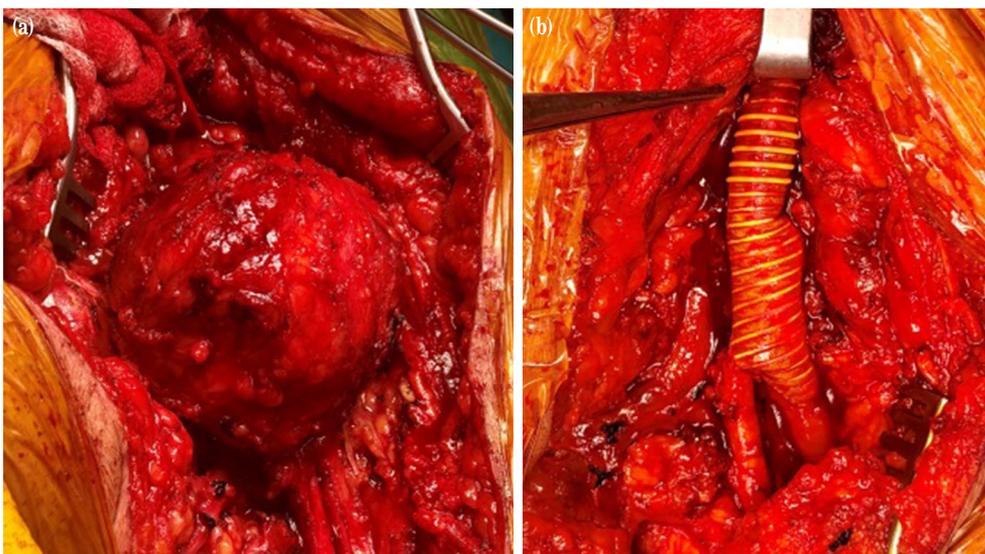


**Figure 1.** Preoperative computed tomographic angiography view of the giant pseudoaneurysm and occluded superficial femoral artery.

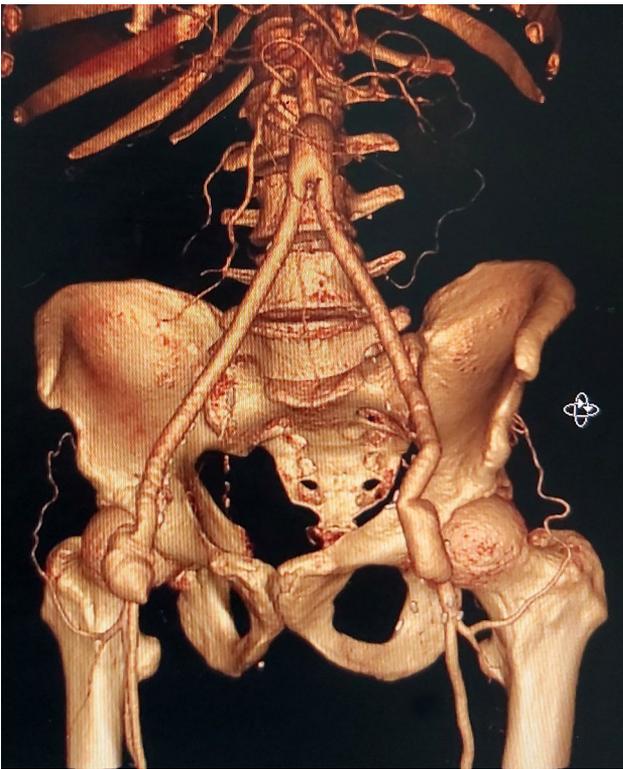
Laboratory test results were within normal ranges with no signs of infection. An urgent operation was planned a written informed consent was obtained from the patient.

Following the induction of general anesthesia, the pseudoaneurysm sac and left CFA, DFA, SFA were explored for proximal and distal control via a longitudinal incision of the left femoral region. Proximal control was achieved retroperitoneally by the incision of the inguinal ligament. When the pseudoaneurysm sac was opened, it was observed

that the left femoral anastomosis of aortobifemoral bypass graft was dissociated with no sign of infection. The graft within the pseudoaneurysm sac was completely detached from the anastomotic site and there was atherosclerotic stenosis in the lumen of the CFA, extending to the SFA. Therefore, it was decided to perform endarterectomy and patch angioplasty intraoperatively. Endarterectomy was performed to secure the SFA and DFA orifices, and bypass was also performed with a 10-mm ringed polytetrafluoroethylene graft via an end-to-end proximal anastomosis with old graft and distal patch



**Figure 2.** (a) Intraoperative view of pseudoaneurysm sac and (b) bypass graft with distal patch plasty.



**Figure 3.** Postoperative computed tomographic angiography view at 12 months.

angioplasty (Figure 2). The layers were closed after replacing a Hemovac drain in an anatomical plane following the bleeding control. Intraoperative graft and tissue cultures were aseptic. On postoperative Day 2, lymphorrhea developed. After four days of follow-up with external intermittent compression, lymphorrhea did not regress and povidone iodine foam (3% povidone iodine) application was performed twice a day for two days via a Hemovac drain and also continued with intermittent compression. After two days of povidone iodine administration, lymphorrhea decreased gradually and completely resolved after four days of the last povidone iodine administration. Patient discharged postoperative 12<sup>th</sup> day. During the in-hospital postoperative follow-up period, venous thrombosis prophylaxis was performed with low-molecular-weight heparin (LMWH) and compression stocking with low pressure. The patient had no complaint at the annual follow-up and control CTA revealed ongoing SFA occlusion (Figure 3).

## DISCUSSION

Recently, an increasing number of cardiovascular interventions and surgery has been performed with the increased life expectancy of patients.

In daily practice, there is also an increase in the number of post-procedural complications including anastomotic pseudoaneurysm formation, which is a late complication secondary to graft dehiscence from the anastomotic site.<sup>[3,8]</sup> and, also, the femoral artery is more risky than others with an anastomotic pseudoaneurysm incidence ranging from 0.5 to 23.7%.<sup>[9]</sup> Complications of arterial pseudoaneurysms include infections, sudden life-threatening bleeding, distal embolization, the compression of surrounding vasculature and nerves, also skin necrosis due to compression. In general, surgical repair is recommended for femoral pseudoaneurysms of >2 cm.<sup>[3]</sup> The basic principles of surgery are the removal of hematoma and damaged tissue continuing with primary repair of artery or the placement of graft interposition.<sup>[3,10,11]</sup> In this case, a huge anastomotic pseudoaneurysm developed after 20 years from aortobifemoral graft operation for Leriche syndrome, and the patient was admitted only with the enlarging mass complaint. A detailed examination revealed intermittent claudication and along with the patient history, CTA was performed with the suspicion of atherosclerotic progression and/or distal embolization, and occlusion of SFA was detected. Furthermore, CTA revealed aneurysmatic dilatation of the right distal anastomosis of aortobifemoral graft and follow-up was planned. Our patient had no history of connective tissue disease or Behçet's disease. According to these findings, an intraoperative strategy was planned, and endarterectomy and a large distal anastomosis were performed to secure SFA and DFA orifices.

Emergent repair of anastomotic pseudoaneurysms has higher morbidity and mortality.<sup>[9]</sup> Therefore, surgeons usually prefer elective repair; however, it has mortality and limb loss rates ranging from 0 to 4.4%.<sup>[10,11]</sup> and the mortality rate increases up to 20% in the presence of graft infection.<sup>[9]</sup> In the literature, the rates of postoperative hematoma, seroma, and wound infection are 2%, 3%, and 6%, respectively.<sup>[10]</sup> Also, complications of myocardial infarction and stroke have been described in the postoperative course of patients.<sup>[11,12]</sup>

Lymphorrhea development should be expected in patients with redo surgical procedures of the groin. The operation of our patient was performed in this view with careful dissection, and also suspicious regions were ligated, cauterized, or sutured cautiously. Nevertheless, prolonged lymphorrhea developed. Various beneficial approaches have been reported for

the treatment of lymphocele and lymphatic fistula after groin surgery, including drainage, compression, simple dressing changes, negative pressure therapy, local radiation, the elevation of extremity, surgical ligation or cauterizing of the leaking lymphatic duct, and the removal of infected graft also with using muscle flaps, if necessary.<sup>[13]</sup> In addition, successful results of foam sclerotherapy with polidocanol have been reported.<sup>[7]</sup>

In our case, treatment with polidocanol foam via a Hemovac drain was preferred, rather than surgical treatment. In such patients with redo surgery, the removal of the Hemovac drain should not be rushed and it should be ensured that the drains are not blocked.

Accidental entry to the pseudoaneurysm sac before proximal and distal control may lead to major acute blood loss which threatens the patient's life. To achieve proximal control as expected, the huge pseudoaneurysm mandated the incision of the inguinal ligament, and this retroperitoneal proximal control was not complicated. Nevertheless, lymphorrhea prolonged the hospital stay and also increased the risk of postoperative thrombosis and/or bleeding complications due to the LMWH use.

In conclusion, in such cases of late complications that may present with pseudoaneurysms in the groin, it is necessary to identify the atherosclerotic process from the beginning thoroughly by questioning the patient and continuing with further examinations to predict the complications that may occur during or after surgery. These types of complicated cases can be successfully treated without any complication with careful preoperative imaging and appropriate surgical planning. If a complication develops despite all precautions, the management of each patient should be individualized while deciding on the method of treatment.

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