

Surgical management of iatrogenic tibio-peroneal trunk false aneurysm

Hèla Ben Jmaà *, Mohamed Seddik, Faten Dhouib, Saif El Hak Hadhri, Aiman Dammak, Imed Frikha

Department of cardiovascular and thoracic surgery Habib Bourguiba hospital Sfax Tunisia. Faculty of medicine University of Sfax Tunisia.

*Corresponding Author: Hèla Ben Jmaà, Department of cardiovascular and thoracic surgery Habib Bourguiba hospital Sfax Tunisia.

Received date: July 01, 2024; Accepted date: July 19, 2024; Published date: August 02, 2024

Citation: Hèla B. Jmaà, Mohamed Seddik, Faten Dhouib, Saif E. Hak Hadhri, Aiman Dammak, et al, (2024), Surgical management of iatrogenic tibio-peroneal trunk false aneurysm, *J Clinical Research and Reports*, 16(3); DOI:10.31579/2690-1919/399

Copyright: © 2024, Hèla Ben Jmaà. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

The number of iatrogenic vascular injuries is increasing because of great number of therapeutic and diagnostic procedures. The causes of pseudo-aneurysms are mainly orthopedic interventions, such as fracture, dislocation, or surgery.

We present a 20-year-old patient with past medical history of trauma, and osteosynthesis of the tibia and the fibula, who complains of calf swelling and pain with a tibio-peroneal trunk false aneurysm.

The aneurysm was repaired by resection and direct suture of the artery, with favourable postoperative course.

Keywords: Iatrogenic; arterial false aneurysm; tibio-peroneal trunk; surgery

Introduction

A false aneurysm is a fibrous containment of arterial contents after the arterial wall has been disrupted [1]. It can be caused by trauma or iatrogenic injury after surgical or orthopaedic procedures.

Case report:

A 20-year-old male presented with a pain and swelling on his left leg. He has prior history of leg trauma, and he underwent osteosynthesis of the

tibia and the fibula (figure 1). One month later, the patient has noted a swelling of the left leg.

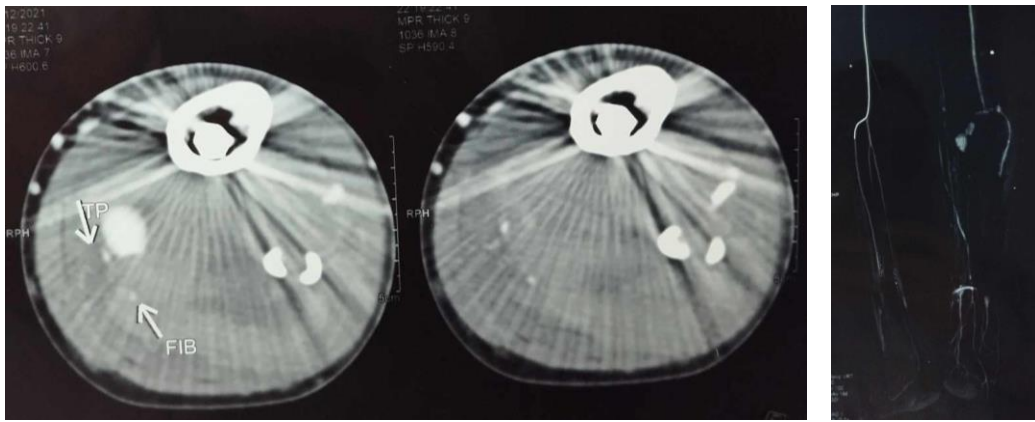
On examination, he had a pulsatile mass in the medial side of the left leg.

Ultrasound showed a circulating false aneurysm in the leg measuring 20 x 18 x 16 mm. Its origin wasn't well individualized.

Additional CT-scan confirmed that the false aneurysm originates from the tibio-fibular trunk (figures 2 and 3).



Figure 1: Radiography showing osteosynthesis of the bones of the leg.



Figures 2 and 3: CT scan showing the false aneurysm of the tibio-peroneal trunk.

Treatment of the aneurysm was performed by surgical excision.

We dissected the supra-articular popliteal artery. After systemic heparinisation, the artery was clamped. An incision of the mass revealed

a hematoma infiltrating the muscles of the leg, and lateral wound of the tibio-fibular trunk (figures 4 and 5).

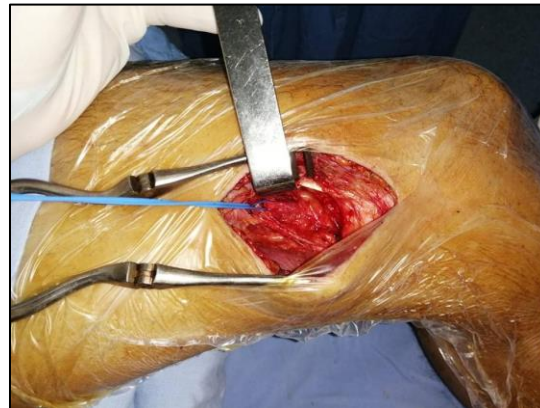


Figure 4: Intra-operative photography showing the control of the supra-articular popliteal artery.



Figure 5: Intra-operative photography showing hematoma in the infra-articular vascular access.

Reconstruction was performed with direct suture of the lesion. There were good pulses distal to the anastomosis. Eight-month follow-up was uneventful.

Discussion:

Peripheral false artery aneurysms have an incidence of less than 1%, and most of them are located in the popliteal artery [2]. They can occur as a result of trauma or iatrogenic injury to the arterial wall [3].

Infra-popliteal pseudo-aneurysms may be located at the ankle resulting from sprains, fractures and even osteophytes [4].

Anterior tibial artery and fibular artery pseudo-aneurysms are rare, and can be observed after arthroplasty, orthopedic interventions such as fracture, dislocation, or surgery [5, 6]. Rare cases of a dorsalis pedis

artery, and lateral plantar artery pseudo-aneurysms are also described [7, 8]. The tibio-peroneal trunk location is exceptional.

Localized injury to the wall of the artery leads to blood extravasation which soon becomes tamponaded by the surrounding tissue. Subsequent fibrosis leads to the formation of a pseudo aneurysm which communicates with the lumen of the artery via its neck [5].

Few false aneurysms spontaneously resolve and require no treatment [9]. They may cause complications including pain, bleeding, rupture, infection, peripheral embolisation or deep venous thrombosis due to venous compression [10].

Also, it compresses adjacent nerves, and they may present with swelling of the calf, pain, paralysis and paresthesia [11, 12].

Early recognition and diagnosis are necessary to provide prompt treatment [13]. In most cases, it is diagnosed acutely after the injury or operation, usually within the very first weeks. However, in a few cases, a pseudo-aneurysm can form within weeks to 5 years [14]. In our patient, the diagnosis was made one month after the operation.

Diagnostic tools for confirming the diagnosis are ultrasound, CT-scan, and magnetic resonance imaging [15].

They can be treated by external ultrasound-guided compression and close follow-up. Surgical exploration with direct repair or grafting with saphenous vein, was previously the treatment of choice of these false aneurysms [16].

The frequency of endovascular repair by stent-grafts after iatrogenic vascular lesions increased over time. De Roo et al. are among the first to publish their success with a covered stent graft to manage an iatrogenic pseudo-aneurysm of the anterior tibial artery. At 1-year post stenting, their

patient's stent remained patent with no recurrence of the pseudo-aneurysm [17].

In our present case, the arterial injury was small, and direct suture was possible without stenosis.

Conclusion:

Tibial fractures are a commonly seen injury in orthopedic surgery. Osteosynthesis is considered the standard of care of these traumas. Iatrogenic pseudo-aneurysms of the leg arteries complicating osteosynthesis are rare. Surgical management of pseudo-aneurysms is the gold standard.

Recently, the endovascular technique has been commonly used as an alternative treatment if we did not find the source of bleeding in exploration.

Conflict of interest: no conflict of interest

References:

- Berard X, Bodin R, Saucy F, et al. (2011). Current management of true aneurysm of the dorsalis pedis artery. *Annals of Vascular Surgery*; 25, 255.e16–265.e13.
- Tim A. Sigterman, Dennis E.J.G.J. Dolmans, Rob J.Th.J. Welten, Attila Krasznai, Lee H. (2013). Bouwman. Anterior tibial artery aneurysm: Case report and literature review. *International Journal of Surgery Case Reports* 4 243–245.
- Montvilas P, Hede JS. (2001). Traumatic pseudo aneurysm of peroneal artery. *Ugeskr aeger* 163(7): 931-932.
- Sharma S, Bhargava B, Mahapatra M, Malhotra R. (1999). Pseudo-aneurysm of the superficial femoral artery following accident trauma: result of treatment by percutaneous stent-graft placement. *Eur Radiol*; 9: 422-424.
- Karim A, Parvaiz A, Alner M, Gosling C, and Lagattolla N. (2003). Massive False Aneurysm of the Peroneal Artery Treated by Endovascular Stenting. *EJVES Extra*; 7, 30-32.
- Clayton E.S.J, Mathew P, Chauhan A., Hussein A.A. (2005). False aneurysm of the lateral malleolar artery following a closed Weber A ankle fracture. *Injury Extra*; 36, 64-68.
- Ris HB, Klaiber C. (1989). Hemarthrosis of the ankle secondary to false aneurysm caused by impingement from an osteophyte. *J Bone Jt Surg*; 71(6): 935-937.
- Upponi SS, Solan M. (1998). Spontaneous resolution of a traumatic false aneurysm of the peroneal artery. *Injury*; 29(10): 787-788.
- Bole P, et al. (1976). Traumatic pseudo-aneurysms: a review of 32 cases. *J Trauma*; 63-70.
- Darius Aw Kang Lie, Tan Choon Chieh, Ch'ng Jack Kian, Chng Siew Ping. (2017). A case report of an anterior tibial artery pseudo-aneurysm open surgical management: A rare complication post total knee arthroplasty. *International Journal of Surgery Case Reports*; 37: 196-199.
- R.A. De Roo, P. Steenvoorde, H.M. Schuttevaer, A.J. Den Outer, J. Oskam, P.P. Joosten, (2004). Exclusion of a crural pseudoaneurysm with a PTFE-covered stent-graft, *J. Endovasc. Ther*; 3: 344–347.
- P.A. Rivera, J.B. Dattilo, Pseudoaneurysm, Stat Pearls Publishing, Stat Pearls, D Inamdar, M Alagappan, L Shyam, S Devadoss, A Devadoss. (2005). Pseudoaneurysm of anterior tibial artery following tibial nailing: A case report. *Journal of Orthopaedic Surgery* 13(2):186–189.
- D Inamdar, M Alagappan, L Shyam, S Devadoss, A Devadoss. (2005). Pseudoaneurysm of anterior tibial artery following tibial nailing: A case report. *Journal of Orthopaedic Surgery* :13(2):186–189
- J.L. Yu, E. Ho, A.P. Wines. (2013). Pseudo-aneurysms around the foot and ankle: Case report and literature review. *Foot and Ankle Surgery* 19 194–198.
- Singh PK, Banode P, Shrivastva S, Dulani R. (2011). Pathological fracture of the fibula due to a late presenting posterior tibial artery pseudoaneurysm: a case report. *J Bone Joint Surg Am* 93: 54,
- Yamaguchi S, Mii S, Yonemitsy Y, Orita H, Sakata H. (2002). A traumatic pseudoaneurysm of the dorsalis pedis artery: report of a case. *Surg Today* 32: 756-757,
- Gentile AT, Zizzo CJ, Dahukey A, Berman SS. (1997). Traumatic pseudo-aneurysm of the lateral plantar artery after endoscopic plantar fasciotomy. *Foot Ankle Int* 18: 821-822,



This work is licensed under Creative Commons Attribution 4.0 License

To Submit Your Article Click Here: [Submit Manuscript](#)

DOI:10.31579/2690-1919/399

Ready to submit your research? Choose Auctores and benefit from:

- fast, convenient online submission
- rigorous peer review by experienced research in your field
- rapid publication on acceptance
- authors retain copyrights
- unique DOI for all articles
- immediate, unrestricted online access

At Auctores, research is always in progress.

Learn more <https://www.auctoresonline.org/journals/journal-of-clinical-research-and-reports>