

Rare femoral common vein aneurysm in a young patient with a clinical presentation of recurrent inguinal hernia

Un raro aneurisma de vena femoral común en paciente joven con presentación de hernia inguinal recurrente

Nayely L. Jiménez-Tejeda^{1,2*}, Jorge A. Rodríguez-Ruiz^{2,3}, Karen A. Luna-Montaño³, Oliver A. Bautista-Ley³, and Yara Y. Martínez-Escamilla^{4,5}

¹Department of Angiology and Vascular Surgery, Hospital General Regional No. 2 El Marqués; ²General Surgery Service, IMSS; ³Department of Surgery, Hospital General Regional No. 2 El Marqués; ⁴Department of Angiology and Vascular Surgery, Hospital General de Querétaro; ⁵General Surgery Service, Secretaría de Salud Pública. Santiago de Querétaro, Qro., Mexico

Abstract

Aneurysms are abnormal vessel dilatations that usually occur in the arterial system. The presence of these in the veins is very uncommon, finding only a few reports in the literature. They can be classified into two types: primary and secondary. Clinical presentation in most cases is with thrombosis in situ. A case of 23-year-old man with an 8-month history of a growing mass in the left groin with a history of bilateral hernioplasty, mastectomy due to gynecomastia, and several esthetic procedures, has a history of repetitive trauma from bodybuilding. The patient was attended for pain, finding an image suggesting the presence of a fusiform aneurysm in the proximal third of the left common femoral vein measured 3 × 3 cm in diameter. The patient was taken to the operating room to perform the aneurysmectomy.

Keywords: Venous aneurysms. Femoral vein. Inguinal hernia. Aneurysmectomy. Case report.

Resumen

Los aneurismas son dilataciones anormales de los vasos que se presentan normalmente en el sistema arterial. Su presencia en las venas es poco común, reportándose muy poco en la literatura. Estos se pueden clasificar en primarios y secundarios. El cuadro clínico inicial en la mayoría de los casos es trombosis in situ y en ocasiones a distancia. Se presenta el caso de un paciente de 23 años con aumento de volumen en región inguinal izquierda de ocho meses de evolución, antecedente de hernioplastia bilateral, mastectomía por ginecomastia, así como de múltiples procedimientos estéticos, y cuenta con historial de trauma repetitivo por fisiculturismo. El paciente fue valorado por dolor, encontrando una imagen sugestiva de un aneurisma fusiforme en el tercio proximal de la vena femoral común izquierda y medidas de 3 × 3 cm de diámetro. El paciente fue sometido a aneurismectomía.

Palabras clave: Aneurismas venosos. Vena femoral. Hernia inguinal. Aneurismectomía. Reporte de caso.

*Correspondence:

Nayely L. Jiménez-Tejeda
E-mail: nayely.jimenez.acv@gmail.com

Date of reception: 27-10-2023

Date of acceptance: 11-01-2024

DOI: 10.24875/RMA.23000038

Available online: 11-03-2024

Rev Mex Angiol. 2024;52(1):31-34

www.RMAngiologia.com

0377-4740/© 2024 Sociedad Mexicana de Angiología y Cirugía Vascular y Endovascular, A.C. Published by Permanyer México. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Aneurysms are abnormal vascular dilatations that usually occur in the arterial system. The presence of these in the venous system is very rare, finding only a few reports in the literature. Venous aneurysms are best defined as a local venous dilatation of the three layers of the vascular wall, around 2-3 times the diameter of the affected vessel, not related to other malformations¹, most of them being asymptomatic, leading to an unknown real incidence. They can be classified into two types: primary (congenital) and secondary (acquired). Congenital aneurysms are related to diseases such as Klippel-Trenaunay syndrome or type 1 neurofibromatosis².

Clinical presentation in most cases is with pulmonary thromboembolism or thrombosis *in situ*¹. Due to the extremely rare occurrence of femoral vein aneurysms, there is a few information available about clinical presentation and treatment. Some authors recommend a conservative approach, keeping a strict imaging follow-up every 6 months³. In case of presenting with any clinical manifestation, the best choice up until now is surgical repair. The surgical management may consist of the performance of a tangential aneurysmectomy with a lateral venorrhaphy or resection of the full lesion with primary vessel anastomosis or with a graft (biological or synthetic)².

Due to the high risk of thromboembolism in these patients, a vena cava filter is recommended before the open surgery, or catheter-guided thrombolysis according to the case, continuing an anticoagulant therapy after surgery for 3-6 months⁴.

Case report

A case of a 23-year-old man presented with an 8-month history of an expansive mass in the left groin, which increases with the Valsalva maneuver and causes pain spontaneously. Medical records showed a history of bilateral hernioplasty a year prior, mastectomy due to gynecomastia 18 months before, and several esthetic procedures. The patient is a professional bodybuilder; he denies the use of stimulants and psychotropic agents. There is no family history of vascular or soft-tissue disorders.

The patient was attended for a persistent condition in the left groin, mostly pain without irradiation to other areas, and an inguinal mass that expands in bipedestacion. It was ordered an ultrasound duplex, finding an image suggesting the presence of a fusiform aneurysm in the proximal third of the left common femoral vein measured 3 × 3 cm in diameter (Fig. 1). No additional venous or arterial abnormalities were noted on this scan.

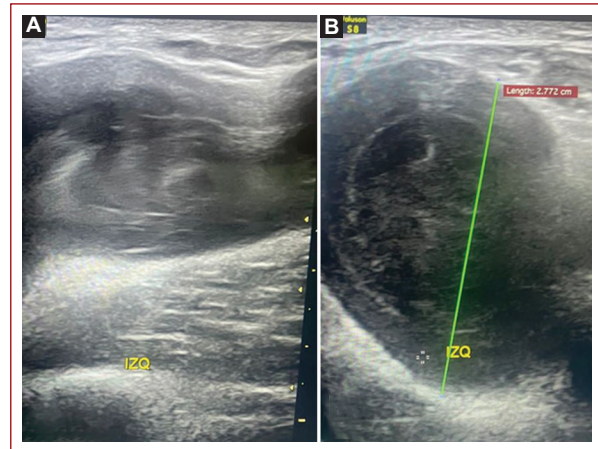


Figure 1. Left pelvic limb ultrasound in a patient in supine position with focus on the lesion, where **A:** in a longitudinal view, the fusiform dilatation of the aneurysm can be observed, proximal to said aneurysm the common femoral vein is intact. **B:** in the transversal view, the aneurysm and its length of 2.77 cm in its longest axis.



Figure 2. **A:** left pelvic limb angiography: There is a dilation and change in the contrast flow on the proximal third of the femoral vein. **B:** control imaging after the placement of an inferior vena cava filter at L2-L3 level.

Before the open surgery, a vena cava filter (Optease®) was placed in the hemodynamic room. Through ultrasound-guided puncture, a 6 FR introductory was placed in the right femoral vein, a control venography was taken, obtaining an image of the contralateral lesion, and the vena cava filter was placed at the L3-L4 level (Fig. 2).

Once the filter was placed, the patient was taken to the operating room to perform the aneurysmectomy. A 10 cm longitudinal incision was made in the left inguinal region, the soft tissue was dissected until the femoral vessels were located, and the aneurysm was freed until the proximal and distal healthy vein was identified (Fig. 3A). A tangential aneurysmectomy was completed,

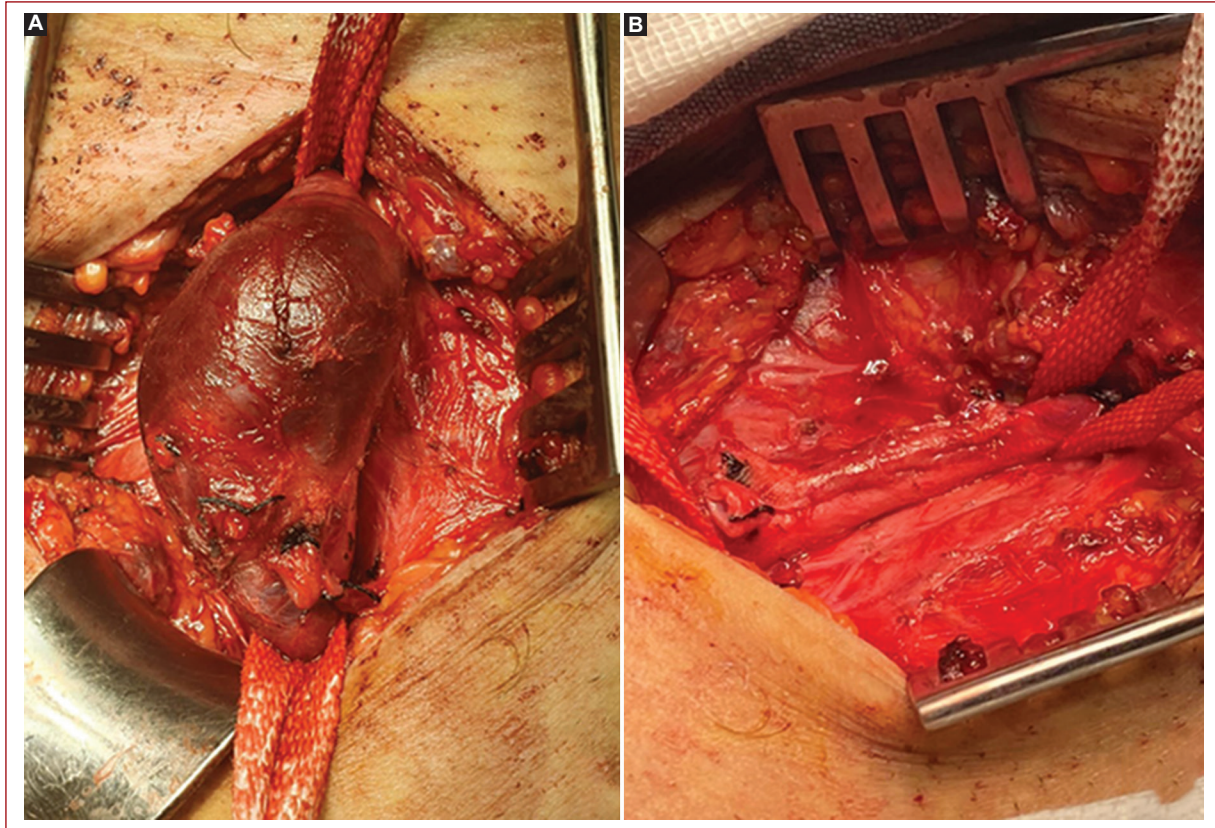


Figure 3. Common femoral vein aneurysm, **A:** before and **B:** after its surgical removal.

removing a weakened vein wall. Prolene suture was used for venorrhaphy, maintaining normal venous diameter (Fig. 3B). Hemostasis was evaluated, confirming adequate flow. The patient was heparanized during the surgery time. Full anticoagulation was started the same day with enoxaparin and switched to rivaroxaban the next day, and anticoagulant therapy was prescribed for 6th month. The vena cava filter was removed after 8 weeks without complications. He continues wearing compression stockings.

Discussion

Osler first described venous aneurysms of the pelvic limbs in 1913. Sequentially others were described, mostly in the popliteal vein (69%)⁵. There are no more than 20 cases documented worldwide of aneurysms in the femoral vein; this could be because they are asymptomatic⁶.

Histopathologic examination of these lesions consists of fibrosis or thickening of the intima layer, even with the media layer being absent or attenuated. In addition to that, an increased expression of the metalloproteinases

of the matrix has been observed, even though there is no evidence of a direct link with aneurysm formation⁵.

Over 65% of patients are asymptomatic, nevertheless, the complications that arise from these vascular anomalies lead to a wide variety of presentations such as thrombosis, embolism, and local effects due to growth, causing swelling, edema, and pain. In most cases, they are misdiagnosed or confused with hernias or soft-tissue masses. These lesions are diagnosed incidentally in most patients or associated with complications of the aneurysm⁷. Pain in the groin was the only symptom in our patient.

Femoral vein aneurysms are extremely rare, having an unknown incidence or prevalence worldwide. Its etiology is multifactorial and is not well elucidated, though some risk factors have been proposed: trauma, inflammation, and some genetic conditions. The diagnosis is done through physical examination, using a Duplex ultrasonography to confirm, one can also use computed tomography or in the last instance an MRI². In this case, we suspect that a history of repetitive trauma was the cause of the aneurysm.

Its management has been controversial because there are no experimental studies with a control group, with a large enough sample to draw statistically significant results, and there are only a few cases of control studies, without a well-established management protocol. Treatment is usually based on the review of other vascular lesions such as popliteal vein aneurysms, which have a higher incidence; the preferred procedure is the aneurysmectomy to avoid complications. The management with a tangential approach and lateral venorrhaphy is the most studied and preferred strategy by different experts; there is no registered case of recurrence. The goal is to eliminate the thrombotic risk and to maintain adequate venous drainage.

Our patient presented regional symptoms due to a lesion of 3 cm in diameter. At the beginning it was not studied as a vascular lesion but as a recurrent inguinal hernia, starting a protocol with image studies, finding the lesion of the femoral vein system. We decided to perform surgery, to avoid thromboembolic events, first by placing an inferior vena cava filter, and after, excising the aneurysm and repairing the defect. The patient continues with his check-ups, without symptoms and without surgical complications.

Conclusions

These types of lesions are very rare and with a certain degree of diagnostic complexity, which is why many specialists in the medical field will probably not see this pathology. There are no well-established criteria for its diagnosis and its management. Furthermore, the wide range of clinical presentations makes it a challenge for physicians. At present, there are several endovascular approaches, but the gold standard is and will continue to be for the near future the open approach. In these cases, the tangential aneurysmectomy with lateral venorrhaphy has a higher success rate.

Funding

The present research has not received any specific grants from public, commercial, or for-profit agencies.

Conflicts of interest

The authors declare no conflicts of interest.

Ethical disclosures

Protection of people and animals. The authors declare that no experiments have been carried out on humans or animals for this research.

Data confidentiality. The authors declare that they have followed their workplace's protocols regarding the publication of patient data.

Right to privacy and informed consent. The authors have obtained informed consent from the patients and/or subjects referred to in the article.

Use of artificial intelligence to generate texts. The authors declare that they have not used any type of generative artificial intelligence in the writing of this manuscript or for the creation of figures, graphs, tables, or their corresponding captions or legends.

References

1. Zarrintan S, Tadayon N, Kalantar-Motamedi SM. Iliac vein aneurysms: a comprehensive review. *J Cardiovasc Thorac Res.* 2019;11:1-7.
2. Teter KA, Maldonado TM, Adelman MA. A systematic review of venous aneurysms by anatomic location. *J Vasc Surg Venous Lymphat Disord.* 2018;6:408-13.
3. Aggarwal V. Pathogenesis and management of superficial venous aneurysms through a case of thrombosed large great saphenous vein aneurysm. *Vascular.* 2021;29:297-300.
4. Zybulewski A, Shukla PA, Swintelski C, Kagen A. Rare popliteal venous aneurysm: a case report and review of the literature. *Vasc Endovascular Surg.* 2017;51:491-2.
5. Román GE, Ruiz MH, Nolasco RA, Hernández QJ, Jiménez LM, Soto CJ, et al. Aneurisma venoso subdiagnosticado como hernia femoral asociado a tromboembolismo pulmonar y revisión de la literatura. *Rev Mex Angiol.* 2011;39:160-3.
6. Johnstone JK, Fleming MD, Gloviczki P, Stone W, Kalra M, Oderich GS, et al. Surgical treatment of popliteal venous aneurysms. *Ann Vasc Surg.* 2015;29:1084-9.
7. Menon D, Onida S, Davies AH. Overview of venous pathology related to repetitive vascular trauma in athletes. *J Vasc Surg Venous Lymphat Disord.* 2019;7:756-62.