



Double primary venous aneurysm of the small saphenous vein



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Venous aneurysms are rare lesions and of little significance in every day clinical practice. While in many cases asymptomatic they can be the cause of great morbidity due to thrombosis and subsequent possibility of pulmonary embolism. Venous aneurysms are classified in deep and superficial according to affected vein. The diagnosis is based mainly on Doppler ultrasound, while computed tomography, magnetic resonance imaging and venography provide more details. Treatment of venous aneurysms should be surgical. We present a case of a double aneurysm of the lesser saphenous vein which according to our knowledge is the first case reported in literature.

KEY WORDS: Superficial veins, Varices, Venous

Introduction

Venous aneurysms are characterized by their rarity and little clinical significance, although they can become potentially life threatening causing pulmonary embolism ^{1,2}. Multiple definitions have been given in order to describe this pathology but the definitive one is still controversial. These definitions include amongst others the following: a) a solitary area of venous dilatation in communication with a main venous structure by a single channel that presents all three layers of the normal vein wall ¹, b) a segment of a vein that is 1.5 times the

diameter of the vein on either side of the segment in question ³, c) a localized area of venous dilatation that occurs in a nonvaricose vein that is not associated with a arteriovenous communication or pseudoaneurysm ⁴. Venous aneurysms are classified based on etiology into primary, which are congenital, and secondary which are related to trauma, inflammation, altered venous hemodynamics, reflux, hypertension, degenerative changes, stretch injury, postthrombotic syndrome and physiological stimulations ¹⁻⁵. Also venous aneurysms are divided into superficial and deep based on the involved vein ^{3,5}. Deep vein aneurysms seem to be greatly associated with thrombosis, pulmonary embolism and present more severe morbidity than superficial ¹⁻³. Superficial vein aneurysms, and especially primary, are thought to be very rare and only a few cases of aneurysm of the lesser saphenous vein have been reported. We present a case of double aneurysm of the lesser saphenous vein which according to our knowledge is the first case reported in the literature.

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Case Report

A 47 year old female without significant medical history was referred to our department for a slightly painful intermittent swelling in the right popliteal fossa. Physical examination of the lower extremities revealed a non-tender, nonpulsatile 1.5x2 cm soft tissue mass in the center of the right popliteal area that was easily compressible. Laboratory examinations were unremarkable. Duplex imaging revealed a 18x23 mm saccular aneurysm and a second fusiform aneurysm of the lesser saphenous vein measuring 9x16 mm. The venography confirmed the diagnosis and demonstrated the two aneurysms of the lesser saphenous vein, a saccular one in the level of the right popliteal fossa and a fusiform one in the junction of the lesser saphenous vein with the popliteal vein (Fig. 1).



Fig. 1: Venography of the right lower extremity demonstrating two aneurysms of the lesser saphenous vein a large distal saccular one and a smaller fusiform one adjacent to the junction with the popliteal vein.

Surgical intervention was decided in order to reduce the risk of thromboembolism. With the patient in the prone position, the aneurysms were approached through a posterior popliteal incision. The saccular aneurysm was superficial in location while the fusiform was deep in the area of the saphenopopliteal junction (Fig. 2). The lesser saphenous vein and the aneurysms were carefully dissected. For technical reasons and in order to carefully dissect the second aneurysm which was adjacent to the saphenopopliteal junction the lesser saphenous vein was at first ligated proximal to the saccular aneurysm and after dissection of the fusiform aneurysm the saphenopopliteal junction ligated. The lesser saphenous vein was removed by stripping. Stab phlebectomy of the remaining varicosities was also performed.

Histopathological examination confirmed the diagnosis of a true aneurysm.

The patient's postoperative course was uneventful and she was discharged the next day.

Discussion

Despite the fact that venous aneurysms have been first described in the beginning of the last century and were recognized as a clinical entity from the middle of the last century they are usually not mentioned in pathology and surgery textbooks, and their definition and etiology still remain unclear and debated ^{2,6}. Weakness of the venous wall, acquired or congenital may play a significant role ^{2,3}. In addition, endophlebothrombosis and endophleboscrosis which cause venous remodeling seem to be an important factor in the development of venous aneurysms ^{2,7,8}. Histology of venous aneurysms reveals a significant decrease in the number and size of muscle and elastic fibers resulting in thinning of the elastic and muscular layers, while increased expression of matrix metalloproteinases in the venous aneurysm wall seem to be a significant causal factor in the molecular level ^{1,2,8}.

Venous aneurysms, while observed in all age groups, are usually seen in adults and seem to have no sex predilection or a slight female one ^{1,2,6}. Regarding topography,

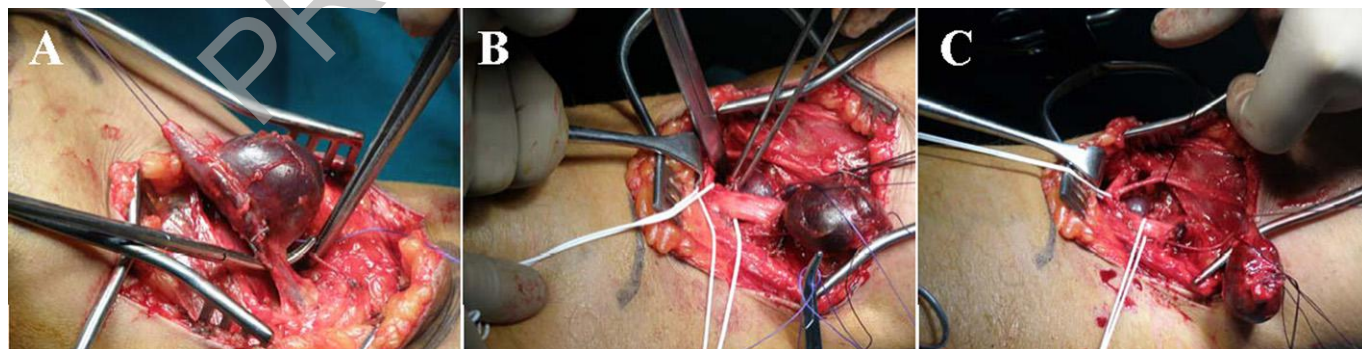


Fig. 2: Intraoperative image showing the superficial large saccular aneurysm (A, B, C), and the deeply based fusiform aneurysm adjacent to the saphenopopliteal junction prior (B) and post (C) dissection of the lesser saphenous vein.

vein aneurysms have been virtually reported in all major veins including in the head and neck the intracranial, extracranial, facial and jugular (anterior, external and internal), in the torso in subclavian, innominate, azygous, superior vena cava, splenic, portal, renal and iliac, in the upper extremities in brachial and ulnar and in the lower extremities in the femoral, popliteal, greater and lesser saphenous and veins of the feet^{1,6-8}. The lesser saphenous vein aneurysm is the least common in the lower extremities⁷.

Clinical presentation of venous aneurysms varies as they can be asymptomatic, cause local extremity symptoms and present as a palpable superficial mass or with pain and edema, usually for superficial venous aneurysms, or with thrombosis, and pulmonary embolism, usually for deep venous aneurysms¹⁻³. Rupture of vein aneurysms is rare^{3,8}.

The clinical diagnosis of a venous aneurysm is considered when a soft tissue mass changes in size with the position of the extremity, enlarges on standing and decreases on lying down, or with the Valsalva maneuver⁶, although in cases of thrombosis diagnosis is difficult as the aneurysm is hard and persistent^{6,7}. The diagnosis of venous aneurysms is aided by Doppler ultrasound which can determine the aneurysm size and identify thrombus and also differentiate between venous aneurysms and nonvascular pathology³. Computed tomography (CT) and magnetic resonance imaging (MRI) can also provide a diagnosis and are helpful in demonstrating the anatomy and verifying the relationship of the venous aneurysm with other vascular structures³. Also, venography is valuable in establishing a definitive diagnosis and provides similar information with CT and MRI regarding the anatomy and relationships^{3,6,7}. Differential diagnosis includes Baker's cyst, subcutaneous cystic and solid soft-tissue neoplasms, varicose veins, arteriovenous malformations, venous malformations, lymphatic malformations, hemangiomas of infancy and hernias^{3,5-7}.

Medical treatment doesn't seem effective as patients treated with only anticoagulation suffered recurrent pulmonary embolism². However, there is no consensus regarding surgical treatment and one opinion suggests that surgery should be used only in symptomatic, disfiguring or enlarging venous aneurysms and the other suggests surgery in all cases in order to prevent possible complications. Surgical treatment has high patency rates and low morbidity². Surgical treatment options for deep vein aneurysms, where venous continuity needs to be reestablished, include tangential aneurysmectomy with lateral venorrhaphy, aneurysmorrhaphy, resection with end-to-end anastomosis or with vein graft interposition, occlusion with foam sclerotherapy, while for superficial

vein aneurysms, where there is no need to reestablish venous continuity, surgical options include simple local excision with ligation of the tributaries, foam sclerotherapy, endoluminal laser and endovenous radiofrequency energy^{1,2,5,6}.

Riassunto

Gli aneurismi venosi sono rari e di scarso impatto nella pratica clinica quotidiana. Mentre in molti casi sono asintomatici possono però essere la causa di grave patologia in caso di trombosi e causa successivamente di embolia polmonare.

Gli aneurismi venosi sono classificati in profondi e superficiali a seconda della vena colpita. La diagnosi di basa essenzialmente sull'ecografia Doppler, mentre la tomografia computerizzata, l'imaging per risonanza magnetica e la flebografia forniscono maggiori dettagli. Il trattamento di questi aneurismi deve essere chirurgico.

Presentiamo qui un caso di duplice aneurisma della vena piccola safena, che per quanto ci risulta è il primo caso affidato alla letteratura.

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