Intravascular lipoma of the left common femoral vein

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Lipomatous tumors of the heart and major central veins are unusual pathologic findings. We report an intravascular lipoma arising directly from the wall of the left common femoral vein (LCFV) in a patient who had progressive left leg swelling and in whom a deep venous thrombosis in the LCFV was initially diagnosed. This is the first case report of such a tumor in the literature. The computed tomography, magnetic resonance imaging, and intraoperative features are presented. The procedure of tumor excision and venous reconstruction with a cadaveric allograft is described. (J Vasc Surg 2001;33:1104-7.)

A lipoma is a benign circumscribed tumor composed of well-differentiated adipocytes and is the most common soft tissue mass. The tumor can originate at any site in the body that contains adipose tissue, but typically it arises in subcutaneous tissues of the upper half of the body and proximal extremities.1

Primary venous tumors are unusual in any location, and the walls of veins are only rarely the site of origin of a neoplasm.2 Furthermore, lower-extremity primary venous tumors are rare and usually malignant lesions. Benign venous tumors are mainly represented by leiomyomas.3,4 Although lipomas have been described as arising from the heart, inferior vena cava, and superior vena cava, they have not been reported to arise from a major vein of the lower extremities.2,5-8 We present a case of left common femoral vein (LCFV) intramural lipoma.

CASE REPORT

A 76-year-old man went to his family physician with a 14-month history of progressively increasing swelling of his left leg. His medical history was unremarkable. Duplex ultrasonography was performed, and no evidence of deep vein thrombosis in the left leg was found. The swelling progressively increased, and the patient was eventually referred to the thromboembolism service at Sunnybrook Health Science Centre. A 3 × 2-cm mass lesion in the lumen of the LCFV was demonstrated by means of a second duplex study performed 4 months later. This was diagnosed as a small isolated thrombus in the deep venous system, and the patient was treated with subcutaneous low molecular heparin for 3 days and oral warfarin for 3 months. The patient’s symptoms did not decrease, and the swelling continued to increase, so the patient eventually underwent a computed tomography (CT) scan of the abdomen and pelvis, by means of which an intravascular filling defect in the LCFV that had fatty tissue attenuation was demonstrated (Fig 1). The diagnosis of an intravascular lipoma was considered, and the patient was referred to the vascular surgery service for further assessment and treatment. On examination, the left leg was twice the diameter of the right leg, and the patient gave a history suggestive of venous claudication. A venogram of the left leg was performed, by means of which an abnormality in the posterior medial wall with a filling defect extending over 2 to 3 cm of the vessel length just cephalad to the saphenofemoral junction was demonstrated. A magnetic resonance imaging (MRI) scan was performed as part of the examination, and the presence of an adipose tumor was confirmed (Fig 2). Because the patient had significant symptoms associated with this mass, elective surgical excision of the tumor was planned. Preoperatively, the oral warfarin was discontinued, and the patient was given subcutaneous low molecular heparin.

At the time of surgery, an en-block resection of the LCFV and tumor extension into the surrounding soft tissues was performed (Fig 3). No thrombus was found in the resected segment of the vein. An interposition tube graft of banked human cryopreserved iliac vein was obtained and used as a means of reconstructing the LCFV. Macroscopically, the tumor was arising from the posterior aspect of the LCFV wall, with an area of extension outside the wall. A protruding encapsulated piece of adipose tissue occluded the venous lumen and measured 1.6 cm in length and 1.7 cm in diameter. Histologically, the tumor was composed of uniform adipose tissue, consistent with lipoma.

Postoperatively, the patient was given subcutaneous low molecular heparin for 3 days and oral warfarin. The postoperative course was uneventful, and the swelling and symptoms subsided. On the fifth postoperative day, the patient was still being given oral warfarin and was discharged home.

The patient was seen in the clinic after 6 months. There was no swelling in the left leg, and a patent graft was shown by means of a duplex study. The oral warfarin was discontinued.

At 9 months, the duplex study was repeated, and a patent graft was shown.

DISCUSSION

This case of a primary intramural lipoma arising directly from the wall of a major lower-extremity vein is extremely rare. We are not aware of any reported cases in the literature. A computerized literature search was conducted in MEDLINE (1966 to April 2000) and EMBASE (1980 to April 2000). The search used the keywords intravascular neoplasm, veins, femoral vein, and lipoma.

Primary cardiac lipomas are well recognized, forming 8% of all cardiac tumors and 14% of all benign cardiac...
Fig 1. Computed tomography scan of the pelvis with intravenous contrast medium demonstrating an intravascular filling defect in left common femoral vein that has fatty tissue attenuation (arrow).

Fig 2. Coronal section of magnetic resonance image shows extension of fatty tumor within left common femoral vein (arrows).
tumors. These tumors are usually asymptomatic, often being recognized by means of routine chest radiography. Lipomas of the inferior vena cava have been described to be a normal variant and are generally present as incidental findings, with a frequency of approximately 0.5% in routine CT scans of the abdomen.

Three cases of superior vena cava (SVC) primary intramural lipoma have been reported in the literature. In one report, a large tumor of fat density involving the right brachiocephalic vein and the SVC was shown by means of a CT scan. The patient was found to have clinical evidence of a mild SVC obstruction, which was relieved by means of surgical removal. In the second case, a lipoma of the SVC was discovered by means of a CT scan performed after a thoracic trauma, and it was surgically removed. The third case of lipoma was not symptomatic, and the fatty nature of the tumor was confirmed by means of an MRI; therefore the lipoma was not surgically removed.

CT scanning and MRI are presently the best radiologic imaging methods for diagnosing soft tissue tumors and especially venous tumors, because they are means of demonstrating the site of origin and the venous anatomy, defining the relationship to the surrounding structure, and identifying tissue characteristics that may lead to optimization of the surgical intervention.

Prosthetic grafts, autologous venous tube grafts, allograft vein conduit, and spiral or panel saphenous vein grafts have been used for venous reconstruction for different indications. All have the potential risk of thrombosis and occlusion. In this situation, it was thought that the two reasonable treatment options were the use of an autologous spiral or panel vein graft or the use of a simple tube graft with a cadaveric allograft. There is not a large experience in the literature of venous allografts in the treatment of venous occlusive disease. Certainly, when this graft material has been used as a conduit for femoral distal arterial reconstruction, the results have not been encouraging, but when it is used as a localized venous reconstruction of short length and large diameter, in our local experience, it has been satisfactory. The use of a cadaveric allograft allows simplification of the intricacy of the procedure and minimization of the procedural time. The long-term patency of human allografts in venous reconstruction requires further study.

REFERENCES

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21ST ANNUAL WILLIAM J. VON LIEBIG FOUNDATION AWARD FOR EXCELLENCE IN VASCULAR SURGICAL RESEARCH FOR RESIDENTS, FELLOWS, AND MENTORS—FIRST PLACE $5,000 (AUTHOR) AND $10,000 (SUPPORTING MENTOR)

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• Manuscripts must be postmarked no later than September 4, 2001. Selection results will be conveyed to all applicants by October 30, 2001.

RESEARCH REQUIREMENTS

• The research may be experimental or clinical in nature dealing with some fundamental or clinical aspect of vascular surgery. Both basic and clinical research papers are especially encouraged.
• The manuscript must be an original, unpublished work [not submitted elsewhere for publication, except to the ACS Surgical Forum.
• The submission must be in English, 10 copies of the typed manuscript and 10 original copies of illustrations (photographic prints or original computer-generated images). The manuscript may also be submitted electronically in PDF format on a PC computer disc or e-mailed to liebigfoundation@draxgroup.com. All submissions must comply with “Instructions to Authors” of the Journal of Vascular Surgery and include an abstract of 250 words or less.
• Accompanying each submission should be: —A cover letter from the Resident or Fellow indicating the manuscript is to be considered for “The 21st Annual William J. von Liebig Foundation Award for Excellence in Vascular Surgical Research for Residents, Fellows and Mentors” —The author’s full curriculum vitae—A signed letter from the author’s mentor attesting that the author performed all the essential parts of the experimental work reported

SELECTION PROCESS

A select committee of vascular surgeons appointed by the Foundation will review the manuscripts submitted. The 2001-2002 Committee Members include Chairman, Bauer E. Sumpio, MD, PhD; Colleen Brophy, MD; Elliot L. Chaikof, MD, PhD; William H. Pearce, MD; Michael Sobel, MD; Jean A. Goggins, PhD, Secretary; Thomas C. Naslund, MD; SAVS Ex-Officio and D. Emerick Szilagyi, MD, Consultant.
The first-prize winner will be a guest of The von Liebig Foundation, and the award will be presented at the annual meeting of the Southern Association for Vascular Surgery on January 16-19, 2002 in Miami Beach, Florida. Expenses incurred by the winning author at the meeting will be reimbursed according to the travel policy of the Foundation. The winning manuscript will be submitted to the Journal of Vascular Surgery for consideration of publication. The William J. von Liebig Foundation reserves the right to withhold the granting of the award at the sole discretion of the Award Committee whose judgment with respect thereto shall be final and conclusive.

HISTORY

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CONCLUSION

It is the desire of the Foundation to encourage the movement of technical innovation and relevant clinical findings from the laboratory to the vascular surgical community. It was Mr. von Liebig’s hope that those who pursue this award and those who win it will contribute to the advancement of medical care.

Further inquiries may be directed to the Foundation as follows:

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