

Dual culprit for a swollen leg: Femoral vein compression caused by lymphadenopathy and a synovial cyst

Yota Suzuki, MD,^a Sergio Mazzola Poli de Figueiredo, MD,^a Arash Keyhani, DO,^b Akiko Tanaka, MD, PhD,^b Elaine Neely, MD,^b and Kourosh Keyhani, DO,^b Galveston and Houston, Tex

ABSTRACT

A young man had presented to the clinic with unilateral leg swelling with concerns for deep vein thrombosis. Imaging studies revealed external compression of the left common femoral vein due to enlarged lymph nodes and a cystic structure in the left groin. He underwent surgical exploration with resection of multiple compressive lymph nodes but continued to remain symptomatic. He underwent reexploration of his groin to remove a cystic structure posterior to the vein, with complete resolution of his symptoms. The enlarged lymph nodes were reactive, and the cyst was consistent with a synovial cyst on pathologic examination. Complete resection is warranted when exploring the causes of external venous compression. (J Vasc Surg Cases Innov Tech 2021;7:734-6.)

Keywords: Deep vein thrombosis; DVT; Groin; Unilateral limb swelling

Acute deep vein thrombosis (DVT) is a common cause of unilateral leg swelling for which patients present for evaluation. However, ultrasound (US) evaluations for possible DVT are often negative for patients with a swollen leg (56%-77%), and patients are often discharged with an uncertain diagnosis.¹ Although most of the non-DVT causes of unilateral limb swelling will be chronic venous insufficiency, external compression of the vein has also been reported as a cause of a swollen leg.¹ In the present report, we have described the case of a young patient who had presented with unilateral limb swelling due to dual compressive pathology in the groin. The patient provided written informed consent for the report of his case details and imaging studies.

CASE REPORT

The patient was a 36-year-old man with no significant medical history except for morbid obesity (body mass index, 44 kg/m²). He had originally presented to the emergency department with a 1-day history of pain and swelling of his left leg. Although duplex US did not show signs of DVT, he was sent home with

apixaban, given the clinical suspicion for DVT. Subsequently, he was referred to our vascular surgery clinic because of persistent symptoms. He reported not taking the apixaban because of its cost. On physical examination, his left lower leg swelling was appreciated, and the left calf was tender to palpation. No lymph node was palpated in the groin, and very thick subcutaneous fat was noted owing to his morbid obesity. A repeat US scan again failed to demonstrate DVT, and he was sent for a contrast-enhanced computed tomography (CT) scan to identify the pathology. The CT scan showed no DVT but multiple enlarged lymph nodes in the left groin and retroperitoneal adenopathy (Fig 1). Of these lymph nodes, the largest had a diameter of 3.5 cm and appeared to be compressing the left common femoral vein anteriorly. The lymph node was suspected as the cause of his unilateral leg swelling. The CT scan also revealed a cystic structure behind the left common femoral vein (Fig 2). Given the proximity to the left hip joint, the radiologist read these findings as a possible synovial cyst, although its contributions to his symptoms were not recognized at the time.

The patient was then taken to the operating room for a venogram, and a filling defect was noted in the left common femoral vein (Fig 3). An intravascular US via popliteal venous access also confirmed extrinsic compression of the vessel in the same location. Left groin exploration was performed for diagnostic and therapeutic purposes. During the exploration, multiple enlarged lymph nodes were found in the region and resected, including one large anteriorly located node that measured 4.5 cm and was compressing the left femoral vein. The compression was visually relieved after the resection. Given the high suspicion of systemic pathology for lymphadenopathy, it was decided to complete the operation at this point, rather than excising additional lymph nodes and the deep posterior cystic structure. The patient was discharged the same day.

Two weeks later, the patient had again presented to clinic, having recovered well from the surgery. However, he still complained of persistent left leg swelling. The pathologic

From the Department of Surgery, University of Texas Medical Branch, Galveston^a; and the McGovern Medical School, The University of Texas Health Science Center at Houston (UTHealth), Houston.^b

Author conflict of interest: none.

Correspondence: Kourosh Keyhani, DO, Department of Cardiothoracic and Vascular Surgery, John P. and Kathrine G. McGovern Medical School, University of Texas Health Science Center at Houston, 1631 North Loop W, Ste 610, Houston, TX 77008 (e-mail: kourosh.keyhani@uth.tmc.edu).

The editors and reviewers of this article have no relevant financial relationships to disclose per the Journal policy that requires reviewers to decline review of any manuscript for which they may have a conflict of interest.

2468-4287

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<https://doi.org/10.1016/j.jvscit.2021.09.002>



Fig 1. Computed tomography angiogram of the leg showing an enlarged lymph node in the left groin lying on the left common femoral vein (arrow).

examination revealed reactive lymphadenopathy, even with detailed inspection, including flow cytometry. A repeat CT scan showed improved, but persistent, compression of the left femoral vein, mainly from the posterior cystic structure. It was decided to reexplore the left groin to better evaluate the cystic structure and to further relieve the compression. During the reexploration, two additional enlarged lymph nodes were resected, and the cyst was exposed behind the femoral vein. The cyst was completely isolated and opened. Thick, clear fluid was collected and sent for cytology examination. After drainage of the fluid, the cyst wall was excised and sent for permanent pathologic examination. With confirmation of relief of the circumferential compression, the operation was completed. The patient was discharged the same day, and he presented to the clinic 3 weeks later with complete resolution of his symptoms. The cytology result was benign, and the pathologic findings of the cyst wall showed benign fibrous tissue, consistent with a synovial cyst. At his 3-month follow-up, the patient was doing well without recurrence of his symptoms.

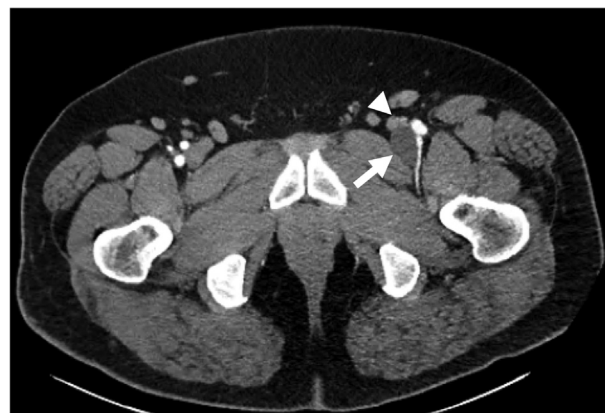


Fig 2. Computed tomography angiogram of the leg showing a cystic structure (arrow) lying behind the common femoral vein (arrowhead) without obvious compression.



Fig 3. Venogram (anteroposterior view owing to popliteal venous cannulation) showing a filling defect of the left common femoral vein (arrow).

DISCUSSION

External compression of the femoral vein is a relatively rare cause of DVT-like symptoms of the lower extremity. This is in contrast to external compression of the iliac vein, a common cause of chronic venous obstruction that can mimic DVT. This is most often caused by the left iliac vein compressing the right iliac artery, also known as May-Thurner syndrome.² The common femoral

vein does not have such anatomic relationships with other structures, although external compression has been reported in association with tumor, pseudoaneurysm, hematoma, heterotopic ossification, and cysts.^{1,3-5}

Hip joint synovial cysts are a rare, but relatively well-reported, cause of femoral vein compression, although they have largely been discussed in case reports. Colasanti et al⁶ reported their own experience with 1 patient and 27 other cases. In their review, surgical excision was performed in 19 patients and 8 were treated with needle aspiration. However, three of the eight patients (37%) who had undergone needle aspiration experienced recurrence. In contrast, only 1 of the 19 patients (5%) who had undergone surgical resection had developed recurrent symptoms. In the largest single-institutional cohort by Ye et al⁷ of 15 patients, none of the 14 patients who had undergone surgical resection had developed a recurrence. In contrast, the patient who had undergone needle aspiration had experienced recurrence after 1 month.⁷ Therefore, surgical excision should be considered the first choice of treatment when a synovial cyst results in symptoms attributed to venous compression.

Lymphadenopathy can be underappreciated as a source of venous compression because inguinal lymphadenopathy is a common concurrent finding when US examination of lower extremity swelling does not reveal evidence of venous thrombosis.^{4,5,8} This might be related to the relatively superficial location of the inguinal lymph nodes, which leads patients to seek medical attention before compressive symptoms develop. Thus, the presence of lymphadenopathy could be an incidental finding in many cases and might not be enough to rule out other pathologic findings in patients with venous compression. Although lymph node swelling often warrants surgical excision to establish the diagnosis, thorough preoperative and intraoperative evaluations for other pathologic findings are essential when addressing lymphadenopathy with a swollen limb.

CONCLUSIONS

We have reported the case of unilateral leg swelling due to femoral vein compression resulting from both enlarged lymph nodes and a synovial cyst. Given the pathologic size of multiple lymph nodes and obvious compression on imaging studies, we believe the lymphadenopathy contributed to the venous compression and required excision for diagnostic and therapeutic purposes. However, considering the well-reported contribution of synovial cysts to compressive venous symptoms and the effectiveness of surgical intervention, in retrospect, we should have addressed the synovial cyst during the first exploration. Thus, we have concluded that complete evaluation and relief of venous compression is important, especially in the presence of synovial cyst, regardless of the imaging findings.

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Submitted Jul 27, 2021; accepted Sep 3, 2021.