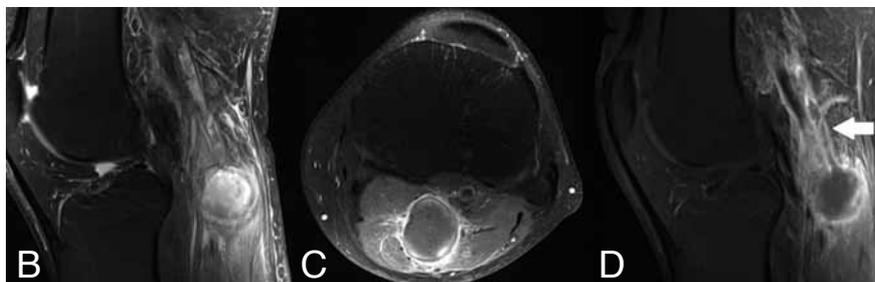


IMAGES IN CLINICAL RADIOLOGY

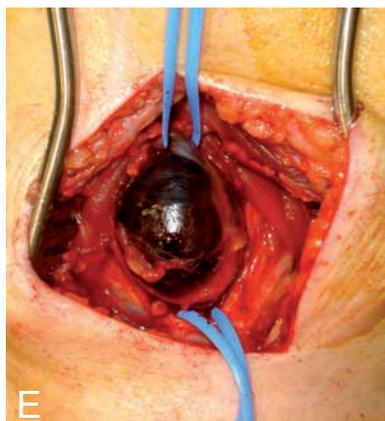


Popliteal venous aneurysm

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A 55-year-old man presented to his general practitioner with sudden local discomfort in the left calf. His symptoms were atypical and vague. Subsequently, he was referred for diagnostic imaging. Ultrasound identified a well circumscribed nodular mass in the popliteal fossa with a diameter of approximately 25 mm and a heterogeneous, hypoechoic appearance (Fig. A). The origin of the mass was not entirely clear on US and subsequently a MRI study was performed.



A hyperintense mass on T2-weighted imaging (WI) was surrounded with a hypo-intense peripheral rim. The lesion was in the popliteal fossa (Fig. B). Surrounded muscular edema was noted. On T1 WI this lesion showed low central signal intensity with a hyperintense peripheral rim. This rim further intensified following intravenous contrast administration (Fig. C). Sagittal images showed clear continuity of the mass with a thrombosed gastrocnemius vein (Fig. D). The diagnosis of thrombosed popliteal aneurysm of a gastrocnemius vein was made. Further imaging with CT following intravenous contrast administration showed extension of the thrombus in the popliteal vein and into the superficial femoral vein. The patient was treated by intravenous heparin and subsequently underwent surgery, which confirmed the diagnosis. During surgery, the aneurysm was resected and the proximal and distal vein were ligated (Fig. E). A follow-up duplex US the next day showed normal flow in the popliteal vein. The patient was dismissed from the hospital, and placed on warfarin therapy for 3 months.

Comment

Venous aneurysms are rare. These lesions are of little clinical significance unless they thrombose. Our case describes a rather atypical popliteal venous aneurysm, arising from a gastrocnemius muscle vein. Normally these aneurysms originate from the popliteal vein itself.

The first report of a popliteal venous aneurysm dates back 1968 and since then more than 150 cases have been reported. The last ten years an increase of the number of reported cases has been noted, probably due to better and easier access to imaging. Most venous aneurysms present as incidental findings. Occasionally, the lesion presents as a small mass or as in our case, presents with local symptoms. Only rarely, complications present as pulmonary embolism.

The pathogenesis of a venous aneurysm is uncertain. Venous aneurysms probably result from weakness of the venous wall due to inflammation, trauma, degenerative changes, infection, hemodynamic changes or as a consequence of a congenital anomaly.

According to the article by Gabrielli et al, surgical repair is mandatory in symptomatic patients and recommended in asymptomatic patients, because anticoagulation can be ineffective in preventing pulmonary embolism (1). Possible complications are local tibial nerve compression, (recurrent) pulmonary embolism, deep venous thrombosis and even death.

From an imaging perspective, the mass should be distinguished from popliteal artery aneurysm or pseudoaneurysm, tibiofibular cyst, Baker's cyst, traumatic popliteal arteriovenous fistula, soft-tissue tumor, peripheral nerve tumor or venous varicosity. The diagnostic method of choice is venous duplex scan and standard ultrasonography. MRI or contrast enhanced CT can be useful before surgery to rule out other pathology and to assess venous anatomy and extent of thrombosis.

Reference

- Gabrielli R., Vitale S., Costanzo A., Carra A.: Our experience of popliteal vein aneurysm. *Interact Cardiovasc Thorac Surg*, 2010, 11: 835-837.

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