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Images in vascular medicine

Popliteal venous entrapment syndrome

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Panel A



Panel B

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A 27-year-old previously healthy male presented with a 2-month history of persistent, unexplained pain and swelling within his right calf. His signs and symptoms worsened with exercise and only partially improved with elevation. An examination was remarkable for a swollen, mildly tender right calf measuring 3 cm larger in diameter than the left calf. An extensive evaluation prior to his assessment was unrevealing and included three venous duplex ultrasounds, a triple phase bone scan, plain film radiography, two MRIs (one with magnetic resonance venography), and lab work (including a

D-dimer). Consequently, a right lower extremity ascending venogram in neutral and stress positions was ordered. A venographically normal right popliteal vein was observed with the limb in a neutral position (Panel A). Venography performed during active plantar flexion of the foot provoked elongated popliteal vein occlusion (Panel B). The patient ultimately underwent popliteal vein entrapment release; subsequently, his pain resolved and his swelling markedly improved.

Although less recognized than popliteal artery compression, popliteal vein compression has been documented in up to 27% of healthy subjects.¹ In one study, popliteal vein constriction with active or passive ankle flexion was incidentally identified in 42% of patients who were subjected to ascending venography for various reasons.²

Popliteal venous compression is usually a benign and physiological finding; however, pathological popliteal

vein entrapment syndrome should be considered when typical causes of infrageniculate pain and swelling have been excluded. Limited data indicate that popliteal vein release surgery is often palliative or even curative.

References

- 1 Leon M, Volteas N, Labropoulos N et al. Popliteal vein entrapment in the normal population. *Eur J Vasc Surg* 1992; **6**: 623–27.
- 2 Raju S, Neglen P. Popliteal vein entrapment: a benign venographic feature or a pathologic entity. *J Vasc Surg* 2000; **31**: 631–41.

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