SHORT REPORT

Laceration of the Femoral Vein Following Stripping of a Fibrotic Great Saphenous Vein

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KEYWORDS
Great saphenous vein; Mid-thigh perforator; Thrombophlebitis; Saphenous stripping; Stripping GSV

Abstract
Aim: To report a complication in the femoral vein (FV) following stripping of the great saphenous vein (GSV).
Case report: We report an FV laceration after invagination stripping, possibly related to post-thrombotic thickening of a GSV and its mid-thigh perforator (MTP).
Discussion: In patients with a history of ascending thrombophlebitis, duplex ultrasound imaging may identify thickening of GSV and MTP. If invasive therapy is deemed necessary, MTP should be marked preoperatively and ligated separately. However, percutaneous, minimally invasive techniques may be preferred in these patients.

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Minimally invasive techniques for managing varicose veins, including endovenous radiofrequency ablation (RFA) and endovenous laser ablation (EVLA), are quickly gaining popularity. However, saphenofemoral ligation and great saphenous vein (GSV) stripping remain standard methods of management in the northern European countries.1,2 Severe complications are rare, but may include deep vein thrombosis (DVT) or femoral vein (FV) damage.3 We report an iatrogenic FV laceration following an inverting stripping of the GSV.

Case Report
A 47-year-old male patient presented with itchy, but painless, C5 (skin changes and healed ulcers) venous disease of the left leg. His history was uneventful, except for unsuccessful compression treatment of his leg ulcer that had been on-going for a period of 6 months in our dermatology department. Duplex ultrasound imaging of the venous system revealed an incompetent GSV, but no other abnormality was detected. An inverting GSV stripping procedure was planned under spinal anaesthesia. After saphenofemoral dissection and GSV cannulation, the stripper perforated the saphenous vein at the mid-thigh level. An incision was made above the knee to allow retrieval of the stripper. Traction on the vein allowed the partially inverted GSV to be removed, but was followed by a substantial flow of venous blood. Laceration of the FV was
suspected based on the unusually large volume of blood loss. The thigh was manually compressed, while the remaining distal part of the GSV was removed using an additional incision below the knee. Close inspection of the removed GSV revealed a normal proximal portion and a fibrotic distal portion which included the mid-thigh perforator (MTP) (Fig. 1). Total blood loss was approximately 750 ml. The patient was treated with a firm compression bandage and 3 days of absolute bed rest. Haemoglobin levels decreased from 9.1 to 7.3 mmol l$^{-1}$. The patient was mobilised on the 4th day with an elastic stocking. Duplex scanning showed normal flow in the deep veins, and there was no thigh haematoma beyond that which would normally be expected in this type of surgery. A venous computed tomography (CT)-angiogram of the lower limb was also normal, and the patient was discharged on the 6th postoperative day. At outpatient review after 3 months, his leg ulcer remained healed and the skin changes at his ankle had begun to resolve. Following this incident, the patient was able to recall a 2-week period of pain and redness over the track of his GSV that was strongly suggestive of an episode of ascending GSV thrombophlebitis some months prior to his operation.

Discussion

Although less-invasive percutaneous techniques are increasingly used to treat varicose veins, stripping of a symptomatic incompetent GSV is still commonly performed. Frequent complications include haematoma and saphenous nerve damage. Subcutaneous blood accumulation is due to residual bleeding of interrupted tributaries, including the MTP. Perforator bleeding is always self-limiting as intact valves will prevent leakage from the FV. However, our patient suffered from the sequelae of GSV thrombophlebitis, and stripping resulted in pulling of the fibrotic MTP out of the deep femoral vein. It is probable that classic stripping using an acorn may also have resulted in a similar tear.

In patients in whom it is considered appropriate to treat the GSV by stripping and wherein a previous episode of thrombophlebitis is suspected based on clinical history, examination by duplex ultrasonography and additional care should be used. If stripping is deemed necessary, the MTP should be marked and ligated separately. However, less-invasive techniques including RFA and EVLA may be preferable in these circumstances.

Conflict of Interest

The authors have no conflict of interest.

References