Endovenous Great Saphenous Vein Ablation for the Treatment of Superficial Thrombophlebitis Complicated by Pulmonary Embolism

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INTRODUCTION
Pulmonary embolism is a potential complication of superficial thrombophlebitis. A novel use of thermal ablation to obliterate the source of emboli is described.

CASE REPORT
A 52-year-old woman presented with shortness of breath 2 days after she developed a tender cord-like swelling in the left leg. She gave a history of varicose veins in the left leg. There was no other relevant history, and she was not on any medication. On examination, the patient was noted to be tachypnoeic, with sinus tachycardia and slight cyanosis. A color-flow duplex scan revealed occlusion of the distal great saphenous vein (GSV) with fresh thrombus from the level of the knee down to the lower calf (Fig. 1). The proximal segment of the GSV extending from the knee to the sapheno-femoral junction was patent (Fig. 2), but showed prolonged reflux (>2 seconds) and a diameter of 5.6 mm. Duplex scanning of the deep venous system of both lower extremities did not reveal any other thrombosis. Computed tomography (CT) scan of the abdomen and pelvis did not reveal evidence of pelvic vein thrombosis or occult malignancy. CT pulmonary angiography revealed multiple pulmonary emboli. Laboratory investigations showed a normal blood picture and chemistry profile.

A conventional treatment regimen for superficial thrombophlebitis (ST) was initiated with a therapeutic dose of low molecular weight heparin (Enoxaparin 80 mg twice daily), and vitamin-K antagonist oral anticoagulation therapy. After 1 week, despite adequate anticoagulation, the patient showed continued worsening of shortness of breath and deteriorating hypoxia, suggestive of continued showers of pulmonary emboli. The decision was made to eliminate the source of embolization by ablation of the patent incompetent proximal segment of the GSV. Radiofrequency thermal ablation (RFA) of the patent segment of the GSV was performed using a radiofrequency catheter (ClosureFast; VNUS, Dublin, Ireland) under tumescent anesthesia. The RFA procedure was uneventful.

The patient’s chest symptoms improved gradually and ST-related pain improved dramatically after the procedure. Oral anticoagulation was continued for 6 months, during which there was no clinical evidence of recurrent pulmonary embolization. Duplex scan performed 6 months and 3 years after the procedure showed total obliteration of the GSV. The patient remains asymptomatic, with no recurrent varicosities, no evidence of recurrent pulmonary emboli, and an obliterated retracted GSV.

DISCUSSION
ST affecting the GSV or its tributaries is a known complication of varicose veins. Our patient who suffered ST complicated by pulmonary embolism was initially treated with anticoagulation. Failure to respond to anticoagulation was treated with thermal ablation of the incompetent GSV, which obliterated the route for further embolization. Thrombophlebitis is considered a contraindication to thermal ablation in recent guidelines. However, Enzler et al. reported the use of thermal ablation for the treatment of ST. In our case, RFA was used to achieve two objectives simultaneously: prevention of further pulmonary emboli, and to offer definitive therapy for the refluxing GSV.
This use of thermal ablation has not been previously reported.

Other methods potentially applicable for the prevention of pulmonary emboli in this case would have been the deployment of an inferior vena cava filter. However further treatment of the refluxing GSV would still have been required in addition to the higher cost of filter deployment. Alternatively, this patient could have been treated surgically by high ligation only, or high ligation and stripping. However, minimally invasive endovenous thermal ablation techniques such as RFA are now recommended over conventional surgery for patients with varicose veins as they result in a better quality of life, less postoperative pain, less morbidity, and lower recurrence rates.3

**CONCLUSION**

RFA could be considered as an alternative therapy for the treatment of patients presenting with ST complicated with pulmonary embolism, provided that the proximal GSV is free from thrombosis.

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None.

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**Figure 1.** Occluded distal great saphenous vein (GSV) in the leg. The white arrow points to the thrombosed incompressible GSV; the yellow arrow points to the shadow of the tibia. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

**Figure 2.** Patent great saphenous vein in the thigh showing reflux.
CONFLICT OF INTEREST
None.

REFERENCES