



## Popliteal Vein Aneurysm Treated by Aneurysmorrhaphy with External Prosthetic Support

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### INTRODUCTION

Several surgical techniques exist for treating popliteal vein aneurysms. Resection with venous interposition can be performed when a sufficient conduit is available and resection with end to end anastomosis can be performed provided that the anastomosis is tension free. However, both are associated with more frequent complications than aneurysmorrhaphy, which remains the preferred treatment. In this report a new technique for popliteal vein aneurysm repair is described: aneurysmorrhaphy with external prosthetic support.

### TECHNIQUE

A 28 mm wide saccular aneurysm of the right popliteal vein was identified in a 63-year-old woman with a recent history of pulmonary embolism. An S-shaped incision was made in the popliteal fossa and the aneurysm was identified and dissected from the surrounding tissues (Fig. 1). After heparinisation, the distal neck was transected and using a

BalRok clamp (Office for Harmonisation in the Internal Market registration number 002024539-0001) the lumen was adjusted to 6 mm and the aneurysm was resected. The remaining healthy vein wall was closed with continuous 6-0 polypropylene suture. A suitably sized external prosthesis (ProVena; Melsungen, BBraun, Germany) was implanted around the repaired vein (Fig. 2). The technique has been used for aneurysmal arteriovenous fistula repair (available at [https://www.youtube.com/watch?time\\_continue=2&v=59V1y9a6Z4c](https://www.youtube.com/watch?time_continue=2&v=59V1y9a6Z4c)). The transected end of the vein was sutured back onto the popliteal vein. No complications occurred. On follow up with Doppler sonography at one, three, six, and nine months the vein was patent without signs of recurrent aneurysm.

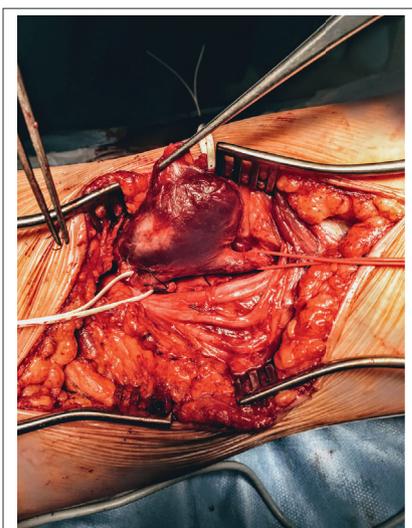


Figure 1. Dissection of the popliteal vein aneurysm.

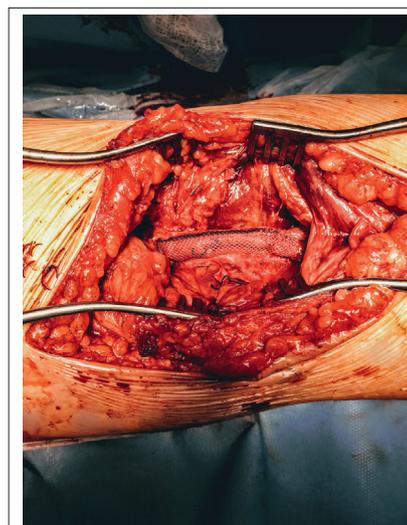


Figure 2. Reconstructed popliteal vein reinforced with an external prosthesis.

### CONCLUSION

External prostheses have been used in aneurysmal arteriovenous fistula repair and venous bypass surgery. They have been hypothesised to improve patency and reduce the recurrence rate by decreasing shear stress and strengthening the venous wall. Further studies, including computational fluid modelling, should be performed to investigate this.

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