CASE REPORT

Thrombus Formation Distal to Retained Valve Cusp in Varicose Segment of in situ Vein Graft: an Indication for Vein Reversal

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Introduction

The long saphenous vein is the conduit of choice for infra-inguinal bypass grafts. As many as 20% of veins used contain abnormal segments. However, only 1–8.5% of long saphenous veins are deemed unsuitable for bypass grafting. We present a case where thrombus developed distal to a retained valve cusp in a varicose segment of an in situ vein graft.

Case Report

A 61-year-old man presented with rest pain and a blue left hallux. On examination there were no pulses below the femoral on either side. Intravenous digital subtraction angiography showed that both superficial femoral arteries were occluded at their origin. The vessels reformed just distal to the adductor hiatus. Femoropopliteal bypass to the above knee popliteal artery was performed. The long saphenous vein was used in situ as conduit. The vein had two slightly varicose segments but appeared to be suitable for bypass grafting. Valves were disrupted by a valvulotome. Following the operation the posterior tibial artery became palpable.

Six months later surveillance duplex scanning showed a dilated graft segment at the junction of its middle and upper thirds. A thickened valve cusp was noted with some thrombus distal to it (Fig. 1). Peak flow velocity ratio indicated greater than 50% stenosis. At this point the patient declined the recommended revision. However, 4 weeks later he presented with rest pain and a blue hallux. The graft was patent but Doppler signals were significantly dampened and embolism may have contributed to the symptoms. Subsequently the graft was explored (Fig. 2). Thrombectomy and excision of the abnormal vein segment containing the retained valve were performed. Continuity of the graft was re-established using a short length of long saphenous vein. Four months later the patient is well, with no abnormality on colour duplex ultrasound.

Discussion

Panetta et al. found that following implantation of veins containing diseased segments, graft patency was

![Fig. 1. B mode ultrasound image of abnormal segment of graft. (a) Thickened valve cusp; (b) thrombus.](image-url)
a reversed vein; in the above-knee position in situ bypass grafting can be a technically easy procedure with low morbidity and at least comparable patency rates. Retained valves are common in in situ grafts and only rarely cause haemodynamic disturbance or graft occlusion. In our case the thickened but insufficient valve cusp in the varicose segment did not offer any resistance for the valvulotome and therefore it was not ablated. Its presence in the dilated segment caused disturbed flow with consequent low shear stresses and thrombosis. We believe that reversing the vein could have prevented this.

References


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