CASE REPORT

In Situ Femoro-distal Bypass with a Totally Videoscopic Approach to the Femoral Bifurcation

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Introduction

Although the femoral artery bifurcation can usually be dissected out for the purposes of constructing a femorodistal bypass without technical difficulty, wound complications that may lead to graft complications are relatively common.1-3 Here, we report what is believed to be the first case of in situ lower extremity bypass performed in association with a videoscopic approach to the femoral bifurcation.

Case Report

A 77-year-old woman presented herself with gangrene of the right foot. Past medical history included heavy smoking habit and a long-term steroid therapy. Duplex ultrasonography and angiography revealed a multiply stenosed right superficial femoral artery and occlusion of the right popliteal artery. The ankle-brachial pressure index was 0.3. The posterior tibial artery was the only patent run-off vessel. The patient was offered a femorotibial bypass. Informed written consent for a videoscopic approach to the femoral bifurcation was obtained. Under general anesthesia, the patient was placed in a decubitus position. Two short incisions 4 cm apart were made below the anterior superior iliac spine to allow insertion of the instruments (Fig. 1). The proximal 10-mm incision was initially used to perform a finger detachment of the inguinal lymphatics. The working space was then prepared and the operator incisions were suspended with two retractors. A 30° endoscope was positioned medially and between the two operator incisions through a 10-mm trocar. The femoral vessels and the great saphenous vein (GSV) were dissected under videoscopic control, but with the use of conventional instruments. Cutaneous distal 15 mm-incision was initially used to perform a finger detachment of the inguinal lymphatics. The working space was then prepared and the operator incisions were suspended with two retractors. A 30° endoscope was positioned medially and between the two operator incisions through a 10-mm trocar. The femoral vessels and the great saphenous vein (GSV) were dissected under videoscopic control, but with the use of conventional instruments. Cutaneous

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Fig. 1. Postoperative picture showing skin incisions. A, proximal 10 mm-operator incision. B, distal 15 mm-operator incision. C, endoscope incision. D and E, proximal and distal clamp incisions.
suspension allowed an optimal exposure of the operative field. The posterior tibial artery was approached via a calf incision with a GSV mobilization. After systemic anticoagulation, atraumatic angled vascular clamps were inserted via 5 mm-incisions in order to control the common and superficial femoral arteries. The deep femoral artery was controlled with a Silastic-loop. The GSV was used as in situ bypass between the superficial femoral and the posterior tibial arteries. The sapheno-femoral anastomosis was performed end-to-side under videoscopic control with two hemi-circumferential running sutures, which were previously blocked on prosthetic pledgets. This technique of anastomosis avoided intracorporeal knots when beginning the running sutures and then avoided a direct trauma to the suture material. The use of two short sutures allowed to avoid the obstruction of the operative field. No morphologic anomalies were observed on peroperative angiography (Fig. 2). On closure, a suction drain was inserted and the subcutaneous planes of the three larger incisions were closed with absorbable sutures. The clamp-incisions were only closed on the cutaneous plane. The operative time was about 270 min and the postoperative course was uneventful.

Discussion

Videoscopic assistance has been previously proposed\textsuperscript{4,5} to harvest the GSV during in situ lower extremity bypass. Our case demonstrates the feasibility of in situ femorodistal bypass with the use of a totally videoscopic femoral approach, including the sapheno-femoral anastomosis. The main advantages of our videoscopic approach to femoral bifurcation is that it allows us to perform small incisions of the cutaneous and subcutaneous tissues distant to the inguinal fold and abdominal fat pad, thus avoiding traction and necrosis. Moreover, it theoretically prevents lymphatic complications, notably by avoiding cutting through the lymphatic channels. In accord with the good results obtained with our initial case, we think that the indications for a videoscopic approach to femoral bifurcation are in compliance with the principles of preventing wound complications, especially when patient’s history includes obesity, diabetes, malnutrition, cutaneous atrophy or long-term steroid therapy. However, the real benefit of this videoscopic technique requires further evaluation.

References


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