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Endovenous Laser Treatment of Varicose Veins: A Three Years Personal Experience

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Introduction

Endovenous Laser Treatment (ELVeS[™]) for varicose veins is a new promising procedure. We report our findings based on three years of experience with patients in order to demonstrate the efficacy and safety of this technique.

Methods

From April 2001 to December 2004 256 varicose veins (236 great saphenous veins and 20 lesser saphenous veins), (184F/72M), were treated by the authors. The mean age of the patients was 60.42 years (29-83). The mean diameter of the treated veins was 7.2mm (4-14mm). We thoroughly informed patients about the procedure, operation risks, possibility of disease recurrence in case of recanalization of the vein, and the limited amount of available data on the long term efficacy of this technique, and the patients signed the written informed consent form. Before starting the operation an echocolor Doppler study was performed in order to exclude anatomical variants of the GSV, superficial thrombophlebitis and deep vein thrombosis. Under local anaesthesia (2 ml 1% Lidocaine) and ultrasonographic guidance, the GSV was punctured in 182 cases at about 5 cm below the median condilus of the knee, and in 54 case at about 5-10 cm above the Knee ; The LSV was punctured in 7 cases at the external malleolus and in 13 case at 10-15 cm above this. A J-guide wire was inserted into the GSV or LSV and positioned 1cm beyond the sapheno-femoral junction (SFJ) into the common femoral vein or in the sapheno-popliteal junction (SPJ) into the popliteal vein. A 5-F introducer sheath was positioned to cover the J-guide wire. The guide wire and the sheath were flushed and a 600 µm laser fiber (Biolitec^o) was inserted at the end of the 5-F intoducer sheath. The sheath was then withdrawn up to a site mark indicating the last 2 cm of the laser fibre. The correct position of the fibre tip was confirmed by direct visualization of the red transluminant light beam of the laser fibre through the skin. Tumescant local anesthesia (45 ml of 0.25% Mepivacaine hydrochloride, neutralized with sodium bicarbonate) was delivered along the perivenous space under sonographic guidance in order to avoid accidental puncture of the vein. In order to obtain a non-thrombotic occlusion of the vein, laser energy was delivered at 810 nm wavelength in 210 patients and at 980nm in 46 patients, using a 600 µm laser fibre. Instrument settings were: power 12W, pulse duration 1 sec, interval between pulses 1 sec.

Results

Immediate collapse of the GSV or LSV and absence of flow was assisted after the procedure and confirmed by echocolor Doppler study. There was no damage of the femoral vein, no deep vein thrombosis, no skin burns, no paresthesias, no pain, no phlebitis and no other adverse reactions intraoperatively. Postoperative ecchymosis was minimal and observed in almost all patients. Two patients presented immediate recanalization after one week and one patient after 2 months (1,17%). Successful occlusion, defined as vein occlusion with absence of flow was noted in 233 GSV (98,8%), and 20 LSV (100%). Complete resolution of clinical symptoms became evident soon after the operation. The echocolor Doppler study demonstrated absence of flow in the treated veins. At 7 days, two month, six month, 12 month and 18 month intervals the treated portions of the GSV were not visible on duplex imaging.

Conclusions

Endovenous Laser Treatment of the GSV seems to offer a safer alternative to traditional surgery (ligation and stripping). Early and mid term results of Endovenous Laser Treatment of incompetent greater and lesser saphenous veins have been promising. This minimally invasive technique appears to be safe, easy to perform, well tolerated, with lower rates of complication and the avoidance of general or epidural anaesthesia. Continued evaluation with a larger numbers of patients and longer-term follow-up are needed to further define the role of endovenous techniques as treatment alternatives in patients with cronic vein insufficiency.