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SHORT REPORT

Regional Femoral Nerve Block Combined with Local Anaesthesia in Day Surgery for Varicose Veins

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Abstract Three anaesthetic techniques are commonly used in surgery of varicose veins: general anaesthesia, central nerve block and tumescent anaesthesia. In this report we evaluate the efficacy and safety of another method – regional femoral nerve block with additional local anaesthesia. We report the early postoperative outcome in a group of 56 patients managed using this type of anaesthesia. In all cases removal of all incompetent saphenous trunks and varices was accomplished without any operative complication. Two cases of wound infection occurred postoperatively and in three patients skin abrasions were caused by bandages. 62% of patients are asymptomatic 2 months after surgery. We have found this anaesthetic method to be safe, efficient, easy and quick to perform. It offers an alternative to tumescent or general anaesthesia for day surgery in patients with varicose veins.

Introduction

Incompetence of superficial veins in the lower limb affects over 40% of the population[1] and the main risk factors are: age, lifestyle, bodyweight and number of pregnancies.[2] The disease is typically manifested by telangiectases, varicose veins, oedema, eczema and ulcers.[3]

Three anaesthetic techniques are commonly used in varicose vein surgery: general anaesthesia, central nerve block and tumescent anaesthesia. Our report describes another method – combining femoral nerve block and local anaesthesia. Femoral nerve block, widely used in orthopaedics, has few contraindications: presence of a prosthetic femoral artery graft and situations, where a dense sensory block could mask the onset of compartment syndrome.[4] The possible complications are hematoma, infection, lidocaine toxicity or nerve injury.

Report

We performed a retrospective review of 56 consecutive patients with great saphenous vein (GSV) reflux who were treated by phlebectomy and invagination stripping of the

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GSV. The patients were assessed preoperatively by duplex ultrasonography. 77% were women; the mean age was 50 years [range, 19—77]. 63 procedures were performed (7 patients underwent operations of both lower limbs, one at a time). The left limb ($n = 33$ [52%]) was operated on more frequently than the right one. All surgery and anaesthesia were performed by one surgeon at Private Surgical Clinic between February 2006 and February 2007.

Preoperatively basic laboratory tests (urinalysis, blood tests: ESR, blood count, INR, serum sodium and potassium, urea, and creatinine), ECG, chest X-ray and clinical examination were done. Intra- and postoperatively ECG, BP and heart rate were monitored.

Regional anaesthesia was achieved as follows: the patient lay supine with both legs extended on the operating table and was given 2—5 mg of diazepam intravenously (Relanium). Then a 40-mm needle (diameter 0.7 mm) was used to deliver 10—15 ml of 1% lidocaine. The solution was injected about 1.5 cm laterally and 1.5 cm distally to the intersection of the inguinal ligament and the femoral artery in order to achieve regional femoral nerve block. Additionally, 20—100 ml (average volume: 70 ml) of 0.25% lidocaine was used to anesthetise the incision line and when operating outside femoral nerve block.

This anaesthetic allowed ligation of the sapheno-femoral junction, tributary vessels and striping of the GSV to the upper 1/3 of the calf. If incomplete stripping occurred (in this study: $n = 36$ [57%]), the remaining vein was removed through small incisions. Varices were removed by hook phlebectomy.

A compression dressing was applied over the track of the GSV (rolled sterile gauze, an anti-embolism stocking and elastic bandage). Patients were asked to wear this for 1 week. Within 2 h, the patient was discharged with a prescription for analgesics. All patients received low-dose heparin prophylaxis 2 h before surgery and daily for the first postoperative week.

All patients were seen in the clinic or interviewed by phone 7 days postoperatively. The mean follow-up was 114 days (range, 6—630 days; SD: 166). The early postoperative complications (Table 1) included two cases of infection of the incision requiring antibiotics and two cases of large subcutaneous hematomas which did not require surgical evacuation. 3 cases of abrasion caused by dressing were observed, one case of syncope, a single case of hyperesthesia (disappeared after 4 months) and one case of cellulitis. No patient reported severe pain after surgery, in 23 cases (37%) the pain medications were not used at all in the first week after the procedure.

Discussion

General anaesthesia or central nerve block has many possible adverse effects (muscle rigidity and airway irritation at induction; hypotension and bradycardia intraoperatively; nausea, vomiting postoperatively) and if used in day surgery the time to discharge can exceed 4 h. The anaesthetic method described in this study, however, allows for ambulatory surgery on almost any type of incompetent lower extremity veins in one procedure and the patient can be discharged 2 h following surgery.

Table 1 Early postoperative complications

Infection of the incision requiring antibiotics	2	3.2%
Large subcutaneous hematoma	2	3.2%
Cellulitis	1	1.6%
Syncope	1	1.6%
Hyperesthesia	1	1.6%
Abrasion caused by dressing	3	4.8%

Tumescent anaesthesia (large-volume, low-concentration lidocaine) is useful for this purpose: improved haemostasis, reduced hematoma and hyperpigmentation, predissection of the vein from surrounding tissue by the solution pumped into the subcutaneous space, cooling effect during endovenous ablation of varicose veins.[5—7] The technique we have described above provides much of what can be achieved by tumescent anaesthesia and avoids injection of large volumes of solution. Tumescent technique is preferred by many authors because compared with conventional local anaesthetic, it provides delayed and lower peak serum lidocaine level.[5] In our study the lidocaine plasma levels were not measured but no case of lidocaine toxicity was encountered; we used 1% lidocaine (instead of 2% concentration recommended by most authors), which increases safety and is effective. Incomplete nerve blocks can be supplemented by local infiltration of 0.25% lidocaine. To facilitate administration of anaesthesia, ultrasound guidance and nerve stimulator can be recommended.

The only complications noted in our study that could have been caused by anaesthesia were one case of hyperesthesia, which resolved 4 months after the surgery and one case of syncope 3 h after the surgery, reported by the patient 7 days postoperatively which made further investigation impossible. We continue to monitor the outcome of this treatment strategy. Our preliminary data show that 62% of patients are asymptomatic 2 months after surgery.

We consider this method safe, effective, easy to administer and convenient for the patient. We suggest this as an alternative to tumescent or general anaesthesia for day surgery of varicose veins.

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