

# Study of the limits of local anaesthesia in one-day surgery in the case of 1500 strippings of the great saphenous vein

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An evaluative study over five years and 1500 great saphenous vein strippings under local anaesthesia in ambulatory surgery shows that today all these operations can be carried out under local anaesthesia (by femoral block and injection of lidocaine). Ninety per cent can be carried out in one-day surgery on condition that postoperative pain is reduced by using certain techniques (invagination stripping, phlebectomy with Muller hook), that operative risks (especially thromboembolic) are reduced, and that postoperative care at home is facilitated. Factors limiting ambulatory surgery are those of environment and the seriousness of the varicose veins.

Key words: One-day surgery, great saphenous vein, local anaesthesia, stripping

After five years' experience and 1500 operations on varicose veins involving strippings of the great saphenous vein in one-day surgery, we were interested to know the limits of local anaesthesia and ambulatory surgery for this operation.

## Materials and methods

The study covers a five-year period, from 1988 to 1992, divided into five equal parts. The operation was performed in the same clinic and in the same way and all the patients were seen at least 21 days after the operation. All patients had idiopathic varicose veins.

## Description of the technique

The operation consists of: a crossectomy with dissection of the femoral vein by a 4-cm incision in the pubic triangle above and inside the inguinal fold; access to the great saphenous vein below the lower side of the malleolus by an incision of 5 or 10 mm; stripping by downward invagination; where necessary, a short saphenous vein crossectomy and short saphenous vein stripping by invagination; superficial phlebectomies, using the Muller hook with complete ablation of the varicose network (saphenous branches and perforating veins), with incisions of 1 to 2 mm (average number of incisions per

operation is 30). Intradermic thread (Polyglactine) is used for the sutures, at the top and the bottom of the stripping; the knot is inside. A continuous aspiration drain is placed the length of the stripping during the operation. The operation lasts about 1 hour.

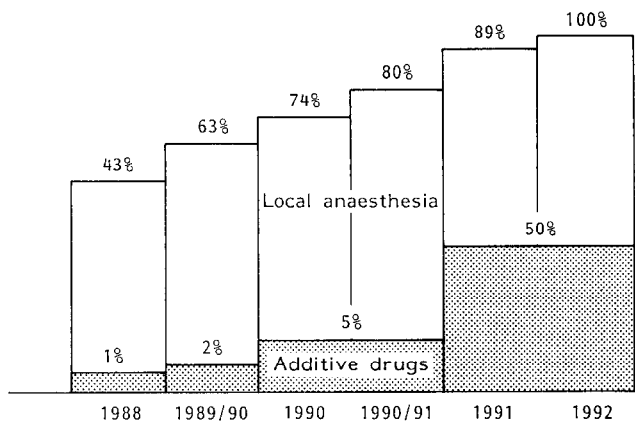
The bandage is in two parts: first a fixed elastic bandage is put on for 5 days, necessary for the decubitus position; secondly, a removable elastic bandage is put on over this, when standing or walking. The dressing and the steri strips are removed at home by a nurse.

The anaesthesia is prepared before the operation. Preoperative medication is given on request with 25-150 mg hydroxyzine. A femoral block with neurological research by electrostimulation is carried out by injection of lidocaine 1% with or without adrenaline. Electrostimulation not only locates the main branch of the common trunk but also the sensitive branches of the femoral nerve: internal and medial femorocutaneous nerve, by subcutaneous fasciculations and the areas of paraesthesia felt by the patient. This helps to increase the precision of the femoral block. The volume of the injection is 5-10 ml. Complementary injections necessary for cutaneous anaesthesia above the limits of the femoral block are carried out with lidocaine, diluted to 0.75 or 0.5 with bicarbonate. We do not carry out a sciatic block, because this induces vasoplegia which makes the operation less precise. Vasoplegia rarely occurs with a femoral block. An injection of 1-5 mg of midazolam and 0.5-1.5 mg of alfentanil is given during the operation, depending on the psychological state of the patient.

The anaesthesia is prepared 30 min to 1 h before the

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**Figure 1.** Percentage of long stripping of the great saphenous vein under local anaesthesia.

operation. The average volume of local anaesthesia per operation is 44 ml. The patient is treated for 8 days with low molecular weight heparine.

#### Limits of local anaesthesia

Since 1988 the percentage of operations carried out under local anaesthesia has increased steadily; from 43% in 1988, it is now 90% in the last two years (see Figure 1). This means that there is, at the moment, no contraindication to local anaesthesia.

We use only on average 44 ml of local anaesthesia for a complete operation, thus leaving a high margin for complementary injections which increase the anaesthetized surface, necessary, for instance, in patients with large numbers of varicose veins, requiring up to 130 incisions for a complete operation.

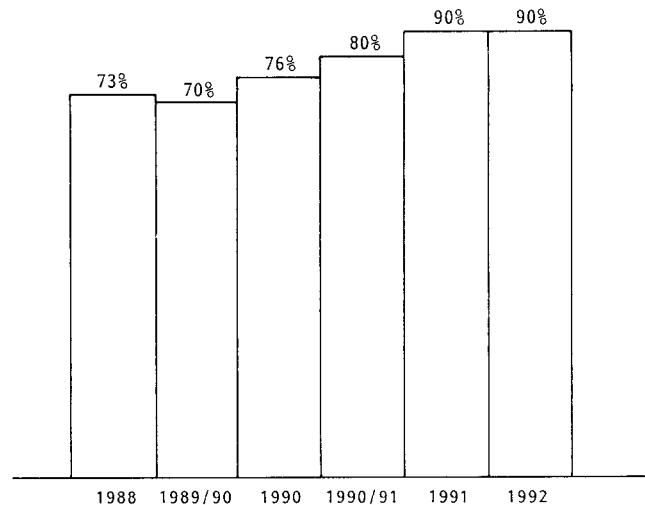
Obesity is not an obstacle to local anaesthesia. We have operated on patients weighing up to 160 kg. Minimal postoperative bleeding and the mobility of the patient facilitate the operation.

We have also carried out strippings of the great and short saphenous veins simultaneously in 6% of cases.

We strongly encourage patients to choose local anaesthesia as we are convinced that it ameliorates the surgical results. In 50% of cases we now inject additive anxiolytic drugs<sup>1</sup>. This 50% certainly represents the percentage of patients who would not have spontaneously chosen local anaesthesia.

#### Limits of ambulatory surgery

The percentage of operations under local anaesthesia in one-day surgery is increasing regularly. In 1988 it was 73% and for the last two years it has been 90% (see Figure 2). Of the remaining 10% of patients who did not undergo one-day surgery, it can be seen that 50% were patients who would not or could not be operated on in ambulatory conditions for medical reasons: diabetes, anti-coagulant treatment, patient currently hospitalized, intercurrent disease; or for non-medical reasons: comfort, psychological problems, no help at home, transport problems, bad weather, or liv-



**Figure 2.** Percentage of long stripping of the great saphenous vein under local anaesthesia in one-day surgery.

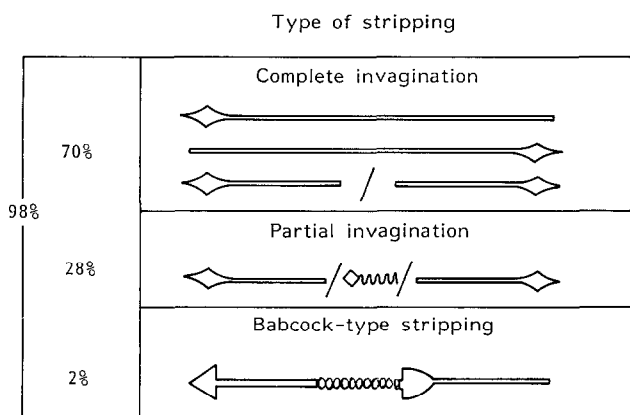
ing too far away. In fact, only 5% of patients were actually unable to have one-day surgery. These were often elderly patients with extensive varicose veins (more than 40 incisions), with subcutaneous lesions, varicose ulcer scars, and those where the operation was carried out too late in the day to enable them to return home.

The femoral block lasts 3–6 h. On three occasions, the block lasted more than 12 h. Only two patients have had operative incidents prohibiting their return home: one had a seizure during the femoral block and one had immediate postoperative bleeding from the crossotomy incision (external pudendal artery).

The rare consultations made during the first postoperative days have always been for problems related to the dressings or for haematomas of the upper part of the thigh between the groin and the elastic bandage. No re-hospitalization has been necessary after the patient has returned home.

One-day surgery is possible in 90% of cases for three reasons:

1. The dressings and postoperative care are extremely simple. The bandage is put on definitively on leaving the operating theatre and it does not affect physical activity at home. Out of 800 patients, 70% stated that they took up normal domestic activities the day after the operation, 20% in 4 days and 10% after 8 days. The bandage can be removed by the patient him/herself.
2. The operation causes little postoperative pain: Firstly due to Muller's phlebectomy – the tiny incisions are practically painless after the operation; The crossotomy incision made in the pubic triangle is in a fixed area, less painful when moving the leg; The lower incision allowing access to the initial part of the great saphenous vein is in an area that is not exposed to bruising by the shoe, situated above the terminal division of the saphenous nerve<sup>6</sup> and injury during the operation is less fre-



**Figure 3.** Type of stripping.

quent at this level. Postoperative pain is reduced when stripping is by invagination. We have been able to use this method in 98% of cases – either totally in 70% of cases (downwards, upwards or in both directions with a rupture in the middle) or on three-quarters of the leg in 28% of cases (with a vein telescoping at the level of the knee in the remaining quarter of the great saphenous vein) (see Figure 3). We have been obliged to carry out a classical Babcock-type<sup>1</sup> stripping in only 2% of the cases. Local anaesthesia and continuous aspiration over the whole length of stripping throughout the operation until the dressing has been done, diminishes haematomas and postoperative pain.

Finally, by using the invagination method of stripping we were able to avoid any neurological lesions to the saphenous nerve, which greatly reduces the risk of postoperative pain. In fact, it is known that Babcock stripping under general anaesthesia can cause damage to the saphenous nerve in 30–50% of cases, depending on the direction of the stripping<sup>2,4,5,7,8</sup>. We have already shown<sup>3</sup> that there is a 1.2% risk of injury to the great saphenous nerve during stripping by invagination under general anaesthesia and that when this same invagination stripping is carried out under local anaesthesia, these neurological lesions can be completely avoided when the patient starts to feel a specific ‘muscular cramp’ type pain when the saphenous nerve is stretched in the loop of the invagination.

3. We have been able to reduce postoperative risks considerably, especially thromboembolic risks. We have never had any thromboembolic complications in the 1500 operations carried out under local anaesthesia as 1-day surgery. This can be attributed to the absence of vasoplegia and a concomitant acceleration of deep circulation. The only problem we have had, in 400 patients, concerned a young patient hospitalized for 2 days. The pulmonary emboli which occurred on the eighth day cleared up without after-effects. This represents 2.5 per thousand among the hospitalized patients.

### Geographical limits of 1-day surgery

One-day surgery is widely regional:

- 21% of patients live in Nancy or in the close surroundings;
- 74% of patients are uniformly scattered up to 110 km;
- 4% live further away, up to a maximum of 230 km.

After leaving the centre, supervision at home by telephone through the nurse or general practitioner is useful, especially to reassure the patient on the normal evolution of the healing process.

### Conclusion

The certainty of being able to improve the results of varicose excision surgery by using local anaesthesia has made us progressively extend this option to all of our patients. Local anaesthesia diminishes preoperative bleeding and postoperative bruising which allows patients to put themselves in the best position for facilitating the operation, and makes it possible (in spite of the femoral block) to avoid any neurological trauma in the area of the popliteal space and to the saphenous nerve during stripping and, lastly, to diminish the risk of thromboembolic complications.

Local anaesthesia, by the persistence of the deep proprioceptive sensation, limits the aggression of the operation and imposes light gestures on the surgeon which can be beneficial for the results of the operation. The anatomical contraindications have been removed by the femoral block and by the precision of location by electrostimulation. Psychological contraindications have been removed by using a short-acting anxiolytic. The perception of local anaesthesia for many patients depends on their contact with the anaesthetist and the surgical team.

The augmentation of our performance of ambulatory surgery, now up to 90%, has been accomplished spontaneously by a regular improvement in the manner of performing the operation. The suppression of major postoperative risks has permitted us to reassure patients and convince them that postoperative surveillance in the hospital is not necessary. The diminution of postoperative pain is the essential element which has permitted us to give our patients satisfactory immediate postoperative autonomy, and to decrease their ‘pain anxiety’ (pain is the element which causes the most postoperative anxiety). Simplifying postoperative care in the home is the last reassuring element of the intervention. The bandage is the surgeon’s signature which the patient takes home with him/her; it must be comfortable and secure.

If local anaesthesia can be imposed on the patient in order to improve the surgical results, ambulatory surgery should be left to the patient’s choice. With improvement in the operating techniques and surgical

environment, ambulatory surgery can be performed 90% of the time.

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