The limb was revascularized 3 h after the injury. The postoperative course was normal. Post-surgical CK value was normal (145 U/l). The patient was discharged on the 12th postoperative day and an anticoagulant therapy with warfarin sodium and compression stocking was started. At one-year follow-up, by means of duplex scan examination the artery and the vein were patent. No muscle or nerve impairment or leg edema was detected.

4. Discussion

Arterial and venous complications following varicose veins surgery are rare but devastating either for morbidity and mortality or for medico-legal implications [1]. The largest observational studies reported an incidence of major arterial and venous vascular complication ranging between 0.01–0.06% [2, 3].

These complications seem to be very anecdotal, but the review performed by Rudstrom et al. showing a total of 44 cases of arterial injuries with a high amputation and morbidity rate and another of 43 cases of venous injuries containing a severe morbidity with five fatal injuries [4].

Prompt diagnosis is mandatory to achieve a good outcome, but more than 30–60% of arterial injuries present as a late diagnosis due to postsurgical pain and bandaging causing a mistake and delay in diagnosis [5].

In our opinion, despite the extensive use of duplex scan examination in vascular practice, preoperative angiography should be the preference in all cases of postoperative late ischemia to achieve information about lesion extensions, profound femoral artery and run-off status.

The mechanism of injury is either direct trauma or inadvertent stripping of the artery and vein [6].

In the first case, a blind hemostasis seems to be advocated. Some anatomical conditions can predispose to vascular injuries. Young and slim women, with little subcutaneous tissue present with a small and blunt artery mimicking the saphenous vein. Some anatomical anomalies, like separate femoral entrance of the great saphenous vein below its tributaries, femoral artery and vein transposition or superficial femoral artery running in front of the saphenous junction seem to predispose to arterial injuries [7].

After an adequate dissection of the vascular structure, a debridement of the injured segment is performed to remove any area of contusion, sub-intimal hematoma and intima fracture can predispose to postoperative thrombosis. Primary repair with end-to-end anastomosis or short interposition graft is usually performed.

The contralateral great saphenous vein is the conduit of choice but in cases of the saphenous vein not being suitable for an extensive involvement in varicose disease, the use of arm veins or especially PTFE graft seem to be good alternatives with optimal long-term results due to good run-off and short length of reconstruction, generally in above the knee position.

In this case of venous repair, an end-to-end anastomosis was carried out. In our opinion the repair without interposition graft is the best solution, avoiding postoperative risk of early thrombosis due to synthetic material and problems due to inadequate mismatch size between the saphenous vein and the common femoral vein.

Although the stripping of the arterial system seems to be difficult to understand, in contrast with the deep venous system, some experiences in the literature report this complication with an amputation rate of 42% and morbidity rate of 85% [4, 8–10].

Generally a femoral-to-anterior tibial artery bypass graft is carried out because this vessel is never damaged by the stripper. A single artery revascularization is sufficient for good long-term results.

5. Conclusions

A complete knowledge of the anatomy with their anomalies and adequate anatomical surgical technique are mandatory, especially for young surgeons who start their surgical experience. A high level of suspicion and a scrupulous attitude may further reduce such risk.

A prompt diagnosis appears essential to achieve a high patency rate and viability of the limb, avoiding muscle contriction and nerve palsy in young patients.

In our opinion, this surgery should be considered as a real part of vascular surgery and it should be performed by a trained vascular surgeon.

References


eComment: iatrogenic venous injuries (IVIs)

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The article by Marcucci et al. [1] reports two rare cases of major iatrogenic venous injuries (IVIs) following varicose vein vascular surgery. My search of our database (last eight years), shows that the incidence of IVIs especially after varicose vein surgery is increasing. This increase seems to be associated with the introduction of fairly sophisticated techniques such as radiofrequency and lasers combined with simple crossection with/without phlebectomy, and performed in one-day-surgery clinics by teams consisting of young general surgeons and radiologists. The average number of civil venous
vascular injuries was 12 per year from 2000–2007, but increased from 7 in 2000 to 18 in 2007. All injuries occurred out of our clinic. The proportion caused by IVIs increased, from 33% during the 4-year-period 2000–2003 to 50% 2004–2007. While the number of registered procedures per year in the database was stable during this eight-year period, the proportion of procedures for IVIs also increased. Emergency repair was performed in 100% of the IVIs. The most common surgical procedure was direct suture repair of the vessel (49%), followed by bypass or interposition graft (29%), and end-to-end anastomosis (22%). For IVIs, injuries in the groin predominated. We assume this is likely due to the great number of therapeutic procedures performed by inexperienced teams consisting of young general surgeons and interventional radiologists who performed surgical procedures in one-day private clinics. Numerous ethical considerations emerging from recent tendencies in managing for varicose vein disease must be taken into account, such as the ethical aspects of sending a patient of one’s own to another specialist for specific problems such as varicose vein diseases, for instance to a dermatologist, radiologist, or for surgery, for instance to a colleague with more experience in that particular kind of case [2].

I would like to congratulate the authors for a fantastic description of two cases which absolutely support the conclusion that adequate surgical technique is mandatory for ablative surgery or/and endovascular obliteration for varicose vein disease and it should be performed by a trained vascular surgeon, in order to minimize unpredictable postoperative complications.

References
