

Tourniquet Use Improves Varicose Vein Stripping

BY PATRICE WENDLING
Chicago Bureau

CHICAGO — The minimally invasive venous ablation procedure may breathe new life into surgical ligation and stripping for patients with varicose veins.

The MIVA procedure—as it's been dubbed by vascular surgeons at VeinSolutions, a nationwide practice that specializes in cosmetic and therapeutic vein care—borrows several characteristics from a conventional surgical stripping procedure, but the recovery time, return-to-work time, and cosmetic results are far superior, Dr. William Finkelmeier said at a symposium on vascular surgery sponsored by Northwestern University.

The use of a tourniquet during the outpatient procedure allows the surgeon to strip the vein and perform the phlebectomies in a bloodless field, which greatly reduces the postoperative bleeding, bruising, and pain that typically develop following conventional surgical stripping. The majority of MIVA patients return to work in 2-7 days.

"If you mention ligation and stripping to your patients, they think it's their grandmother or mother's operation," he said. "This is not your mother's operation."

Dr. Finkelmeier reported that excellent cosmetic and therapeutic results have been achieved with minimal morbidity in 1,234 MIVA procedures performed at the practice's Indianapolis office, where he is a vascular surgeon and the director. No deaths have been reported. The patients were aged 20-80 years. There have been no early failures, as compared with an 8%-15%

early failure rate for endovenous procedures, Dr. Finkelmeier said.

Patients with significant saphenofemoral junction reflux are optimal candidates for MIVA, but its advantage may lie in the treatment of large duplicated saphenous systems, which occur in 30%-40% of patients. These systems often contain large, tortuous branches that are difficult to cannulate with an endovenous catheter and treat with laser ablation. The branches are often injected after the primary laser procedure with sclerotherapy, but this typically results in substandard results including pain, tenderness, chemical phlebitis, and hemosiderin staining, Dr. Finkelmeier said.

"The beauty of the MIVA procedure is that all branch varicosities are removed during the primary procedure," he said.

Branch varicosities are outlined or circled preoperatively with permanent marker as the patient is in the standing position, with an area for the phlebectomy puncture left unmarked. (Puncturing the skin over the ink can tattoo the skin.)

Once the patient is under general anesthesia, a 1.5- to 2-cm incision is made at the groin in the inguinal skin crease or pubic mons. The saphenous vein is encircled with a 2-0 silk tie, and followed up to the saphenofemoral junction. After the common femoral vein is carefully identified traversing both proximally and distally, the saphenofemoral junction is ligated and the branches divided.

A common Codman's stripper is then passed retrograde down the vein to the knee, where a 2-mm incision is made over the stripper. A No. 3 phlebectomy hook is



Photo shows extent of patient's varicose veins before undergoing MIVA procedure.



Significant improvement can be seen 5 weeks after the ablation surgery.

PHOTOS COURTESY DR. WILLIAM FINKELMEIER

used to deliver the stripper through the incision to the groin, where a gauze pad soaked in bupivacaine (Marcaine) and epinephrine is tied to the proximal head of the stripper. The leg is exsanguinated with an Esmarch bandage and a sterile tourniquet is placed on the proximal thigh.

The stripper wire is then pulled down into the saphenous tract and the entire vein is teased out intact over the stripper, which is pulled out through the groin to avoid stretching the distal incision. Distal and phlebectomy wounds should not be spread with a hemostat, Dr. Finkelmeier said.

The phlebectomies are then performed using an 18-gauge needle to puncture the skin over the previously marked varicosi-

ties, and a No. 1 phlebectomy hook to capture the veins, Dr. Finkelmeier said.

Because all branch varicosities have been decompressed, very large veins can be removed through the 18-gauge needle holes. And because there are no incisions in the leg, "in 3 months you can't tell we were there," he said.

The needle holes are covered with a very snug compressive dressing up to the level of the tourniquet before it is released. The groin is anesthetized with Marcaine and epinephrine and the groin incision closed in two layers.

The patient is able to walk out of the surgery center and shower that night, with only 4 of 10 patients requiring oral narcotics for pain, Dr. Finkelmeier said. ■

DVT Prophylaxis Found to Be Underused in Surgery Patients

BY JEFF EVANS
Senior Writer

BALTIMORE — Methods for determining how and when to use pharmacologic and mechanical interventions to prevent venous thromboembolism in surgical patients may remain open to debate, but the need for prophylaxis should not, Dr. Morey A. Blinder said at the annual meeting of the American Society of Plastic Surgeons.

Prophylaxis is underused because many physicians believe that the incidence of deep venous thrombosis (DVT) in hospitalized patients is "too low" to warrant its consideration, said Dr. Blinder of the division of hematology and the department of pathology and immunology at Washington University, St. Louis.

Other physicians voice concerns about bleeding complications—particularly in surgical patients—and about heparin-induced thrombocytopenia, which occurs in 1%-2% of patients on heparin.

"Many clinicians have the sense that venous thrombosis is not a particular problem in their practice," because they have not seen a DVT in one of their patients for several years or may have not known that a patient had a DVT diagnosed a week after surgery by an internist or at the emergency department, Dr. Blinder said.

In the absence of prophylaxis, studies have found a DVT prevalence of 10%-20% in medical patients, 15%-40% in general surgery patients, and about 20%-50% of

stroke and orthopedic surgery patients. Even though most patients did not have symptomatic thrombosis in those studies, each patient underwent venography or a fibrinogen uptake procedure. Most series of major procedures in plastic surgery have found a risk of 1%-2% for DVT and/or pulmonary embolism, generally without prophylaxis, he said.

Deficiencies in any of the body's natural anticoagulants, such as antithrombin, protein C, and protein S, lead to a substantial risk of thrombosis. About 5% of people with European heritage carry a mutation in the blood-clotting factor V Leiden, which increases the risk of thrombosis. In fact, 20%-30% of people who have DVT without an identified cause turn out to be positive for the factor V Leiden mutation.

"We've seen many, many patients who have [a factor V Leiden mutation] as an inherited risk factor, and then you add on a second risk factor like surgery or like an estrogen-containing hormone, and that is enough to trigger a blood clot," Dr. Blinder said.

The American College of Chest Physicians' evidence-based guidelines for preventing venous thromboembolism stratify patients undergoing general surgery as low, moderate, high, or highest risk, according to their age, the type of operation, and underlying risk factors (Chest 2004;126:338S-400S).

The guidelines advise early and frequent mobilization for low-risk patients and low-dose unfractionated heparin

(LDUH) or low-molecular weight heparin (LMWH) for moderate-risk patients. High-risk patients generally should receive LDUH every 8 hours, or a LMWH such as enoxaparin (Lovenox).

Patients at highest risk for DVT need a full dose of a LMWH such as enoxaparin or the factor Xa inhibitor fondaparinux (Arixtra) in combination with intermittent pneumatic compression (IPC) or graduated compression stockings, said Dr. Blinder, who is on the speakers bureau for GlaxoSmithKline Inc., which manufactures fondaparinux.

Other guidelines that have been issued by the American Society of Plastic Surgeons largely follow these recommendations but instead divide surgical patients into low-, moderate-, and high-risk groups (Plast. Reconstr. Surg. 2002;110:1337-42).

Dr. Blinder suggested that IPC devices may see rising use because newer, fanny pack-size devices are much smaller than previous ones that had to sit at the side of a bed. Graduated compression stockings are thought to increase blood circulation by restricting the venous diameter. IPC devices also restrict venous diameter and are known to more than double the velocity of blood and increase fibrinolytic activity.

A meta-analysis of 15 randomized, controlled trials using IPC to prevent DVT in surgical patients found that the devices could drop the risk of DVT by 60%, compared with no prophylaxis (Thromb. Haemost. 2005;94:1181-5).

Investigators have not resolved the appropriate time to start or stop prophylaxis, but some type of pharmacologic prophylaxis should be included along with mechanical methods, he advised. ■

Most series of major plastic surgery procedures have found a risk of 1%-2% for DVT and/or pulmonary embolism, generally without prophylaxis.