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RFA (RADIOFREQUENCY ABLATION, VNUS CLOSURE OR VENEFIT PROCEDURE) PATIENT INFORMATION

What is RFA?

Radiofrequency ablation is a treatment now available for bulging varicose veins, particularly those originating in the inner thigh and inner calf.

Who can benefit from it?

Evaluation of leg varicose veins at VVCNJ includes a color-flow ultrasound to trace varicose veins deep beneath the skin, identifying the unseen feeder veins that may be responsible. If this examination determines that the greater or lesser saphenous vein (the large feeding veins located in the inner portion of the upper leg or on the backside of the lower leg just below the knee) is responsible for the varicose veins, then RFA is a possible treatment option. RFA is also used for some other isolated feeder veins.

How does it work?

A specially designed three-inch-long heating coil wrapped around a thin plastic sophisticated electronic catheter is positioned inside the vein to be treated using ultrasound guidance to determine the exact location. Controlled heat is then applied to the heating coil through radiofrequency energy for 20-40 seconds. Depending on the length and size of the vein to be treated, two to eight, or more treatment cycles may be necessary. The vein stays in place, but once the inner lining is destroyed by the heat, the vein clots off and then permanently seals in a closed position.

How is it done?

RFA is an office procedure performed under local anesthesia, requiring 15-20 minutes. After the targeted saphenous vein is mapped out with the skin marker and ultrasound, a small needle is inserted into the vein in the lower thigh after administration of a local anesthetic. Using the needle as a guide, a short straw-like catheter is threaded into the vein below the section to be treated. The RFA catheter containing the three-inch-long heating coil is then threaded up the vein to the groin or the knee. This is all performed under ultrasound guidance which creates the equivalence of "x-ray vision". The saphenous vein is then surrounded by a local anesthetic solution, and the vein is then heated in three-inch segments for 20-40 seconds each until the entire vein is treated. The actual heating portion of the procedure takes only a few minutes and is usually pain-free. The catheter is then removed, and a Steri-Strip followed by gauze dressing and support hose is applied to the leg.

What can I expect?

Following the procedure, mild discomfort in the area of the treated vein is common. Patients often report a pulling-like sensation. Ibuprofen (generic or Motrin, 400 mg three times per day) is usually all that is necessary. If needed, stronger analgesics can be prescribed. Results are checked with ultrasound in a few days and then again in a few weeks.



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If this is the only procedure performed, most patients return to work in one to two days but should refrain from running or vigorous activities for three weeks. Daily walking for at least 20-30 minutes is recommended during the several-week recovery following the procedure, and a support hose is worn during the day for two weeks after the procedure. The hose is worn continuously for the first two days if no other procedure is performed.

What does RFA replace?

In the past, an abnormal saphenous vein causing varicosities was removed through ligation and stripping. This procedure was then done through a large diagonal groin incision and a small incision at the ankle or the knee region. The procedure left the leg scarred and recovery was prolonged. The incisions in the area of the dissection were larger because preoperative ultrasound mapping was not available. Many patients who underwent the old version of ligation and stripping developed recurrences of varicosities and still had leg pain because the operation may have been incomplete without the preoperative ultrasound exam. With modern ultrasound and evaluation by Dr. Nasir Khan, all sources of varicose veins can be identified and treated, significantly reducing the risk of recurrences. Ligation and stripping then and now does require a spinal or general anesthetic and is not performed in the office. The newer technique of ligation and stripping, performed by Dr. Nasir Khan, uses ultrasound imaging and allows for much smaller incisions and quicker recovery time. This is still an excellent option for patients who are not suitable candidates for RFA.

What are the advantages of RFA?

RFA is usually performed in a physician's office in less than one hour, requiring needle punctures only or a very short incision with a local anesthetic. There is minimal or no pain during the procedure and recovery is rapid with only a few restrictions on activity. Once the feeder's vein is sealed, visible varicosities will shrink and may even disappear along with their accompanying symptoms.

What are the disadvantages and risks of RFA?

RFA is not for everyone. Patients with normal feeder veins are best treated with either phlebectomy (surgical removal through miniature incisions) or sclerotherapy. If other sources of feeder's veins are identified beside the saphenous veins, these sources may be dealt with through either a special type of RFA or short incisions where the feeder's veins are either clipped off or tied off and then severed. Unusual size, location, and branching variations of the saphenous vein render the RFA procedure not suitable in some patients.

Once the vein is sealed by heat destruction of its inner lining, a blood clot always forms within the treated vein. In rare patients, this blood clot can grow and protrude into an otherwise normal deep leg vein. All patients are checked for this potential problem several days after the RFA. If seen, treatment with blood thinners will help resolve the clot.

Branches extending off the treated vein may clot off and cause discomfort that can last up to a few weeks. These blood clots cannot travel to the heart because the feeder's vein has been sealed. Wearing a properly-fitted support hose during the recovery period following the procedure usually prevents this problem as veins that are not distended will not clot off.

Following a successful RFA, an additional office procedure may be necessary to remove varicose veins that do not satisfactorily shrink down and remain symptomatic. Depending on the anatomy, these veins may be removed at the same time as the RFA procedure is done.



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RFA is an invasive procedure, and with all invasive procedures, there are small risks of bleeding, infection, allergic reaction to the local anesthetic, and injury to other tissues. Although these risks are all theoretically possible and have been reported, in Dr. Nasir Khan's personal experience, they are all quite rare or have never been seen. Despite disadvantages and risks, almost all of Dr. Nasir Khan's patients have had no problems and are delighted with the results of RFA.

But do I not need these leg veins?

Evaluation for all patients with large ropey veins includes a thorough ultrasound examination of not only the varicose veins and feeder veins but also the deep veins in the leg. Deep veins are next to the arteries near the bone and are usually surrounded by muscle and therefore unseen. The deep veins are the most important in the leg as they carry over 90% of the blood from the leg back towards the heart. They can easily take over the function of the sealed or removed superficial veins. Patients who have abnormal deep veins may need modifications of standard treatment techniques.

Furthermore, varicose veins do not function properly and are poor conduits for blood return. The pressure that caused them to balloon out in the first place can also eventually damage normal surrounding tissue and overlying skin causing brown discoloration that can lead to pain and ulcers in some patients.

Suppose I need these leg veins for open-heart surgery in the future? Varicose veins are not suitable to be used for bypass procedures of the heart or the leg. Ultrasound imaging ensures that only abnormal veins are treated, and in most patients, the treatment preserves the lower half of the greater saphenous vein as a potential bypass graft. Current heart surgery bypass techniques can also use arteries from the arm or inner chest wall for bypass grafting.

After treatment, can my varicose veins come back?

With rare exceptions, veins healed by RFA will remain closed forever. However, other veins that are normal at the time of your initial evaluation with ultrasound can deteriorate and become a source of future problems.

Where can I obtain additional information?

Additional information can be found at www.vvcnj.com and www.venefitprocedure.com.