

CHAPTER 15 SCLEROTHERAPY FOR VENOUS DISEASE

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Introduction

New technology has changed the management of **venous disease**. Treatments using a catheter placed inside the **vein (endovenous therapy)** to deliver radiowaves (**radiofrequency**) or light energy (**laser**) therapy to the inside walls of the **vein** are now used in addition to traditional surgical **vein stripping** for **varicose veins**. **Sclerotherapy** using liquid or foam agents is one treatment not only for some **varicose veins** but other types of **venous disorders**. **Sclerotherapy** involves the injection of a drug into the **vein** to cause irritation to the inside of the **vein**. This irritation along with **compression** of the **vein** causes the **vein** to scar closed. **Sclerotherapy** may be used alone or along with surgical treatment to remove the **varicose veins**. Most physicians are familiar with all of the available ways for treating **varicose veins** and should be able to decide on which is best for your **veins**. In many cases, more than one technique is used.

Treatment of **venous disease** begins with knowledge of the best tests to determine which **veins** would benefit from therapy, the indications for the procedures, and an understanding of which patients will not benefit from therapy. In addition, your physician should be familiar with the complications or problems related to the treatment that may occur and know how to manage these complications. Prior to the treatment, the patient should be told what therapy that is recommended and why, what results to expect both immediately following the procedure as well as what to expect in the weeks to months after the treatment, and any complications that may happen. Photographs are usually taken before the procedure. A consent form is used to make sure you have had the opportunity to ask questions about the procedure.

The first visit with the patient begins with a good history of what has been happening with the patient to help decide on how bad the problem is, what may have caused the problem: for example a history of **blood clots** or **vein** injury, and any other medical problems or medications that may affect the choice of treatment. The physical examination should be performed in a standing position. Most doctors will note and some will take pictures of the venous problems. This includes **varicose veins** but also smaller **reticular veins** and “**spider veins**” or **telangectasias**. Other skin changes or findings may also be important such as patients with skin injury (color changes or skin thickening) or swelling related to the **veins**. Some patients will need blood work before the procedure to make sure they are not at risk for other complications. If the **varicose veins** were caused by a **blood clot**, a hematologist or someone who specializes in **blood clotting** problems may help in the care of the patient. Most physicians will use **ultrasound** to help them determine which veins are not working well and therefore need to be treated. If the

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varicose veins are not typical such as **venous malformations** or are going into the abdomen and not confined to the legs then more extensive testing may be needed.

All patients with **venous disease** will have their symptoms helped by elevation of the leg, external compression using special stockings, and good skin care. If possible, you should elevate the foot of the bed 3-4 inches by placing a wooden block or brick under the bed post. This improves blood getting out of the leg by using gravity to help drain the blood from the legs while sleeping. Clean and moisturize the skin every day to keep it soft and less likely to crack or be injured. These simple steps should be used no matter what other treatment is planned.

Indications (reasons) for using sclerotherapy include:

- Treatment of **spider veins** or other skin blemishes
- Treatment of **reticular veins** or small **varicose veins** (1-3mm) when there is no major **reflux**
- Treatment of **veins** < 3 mm that remain after surgery or larger **veins** 3-4 mm that are not due to underlying **perforating vein** problems.
- Treatment of **perforator veins** with incompetence or back-flow in some cases
- Treatment of bleeding **varicose veins**
- Treatment of large **varicose veins** hidden below a **venous ulcers**

Contraindications (reasons not to use) to sclerotherapy:

- Pregnancy (unless associated with bleeding from a varicose vein)
- Age over 75 years in some cases
- Sedentary (very inactive) patients who may be at increased risk for **deep vein thrombosis**
- Patients with underlying medical problems including diabetes, kidney problems, liver disease, cancer, heart disease, lung disease or bleeding problems
- Patients with arthritis that keeps them from walking and enjoying normal activities
- Peripheral arterial disease (PAD) or decreased blood flow to the legs
- Severe allergic reactions or a history of asthma in some cases
- Fever or an acute illness
- Recent or acute **phlebitis (vein infection)**, **superficial vein thrombosis (blood clot)** or **deep vein thrombosis**
- **Veins** that are connected to major veins (**saphenous veins** that go up and down the leg and carry most of the venous blood out of the leg) that have **reflux** (incompetence) are likely to recur

Patients taking aspirin or anti-inflammatory drugs like Motrin ® or Advil ® need to stop taking these drugs for 1 week before treatment. Patients on **anticoagulants (blood**

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thinners) like **warfarin** are usually not offered **sclerotherapy** until they can be off these drugs.

How is sclerotherapy performed?

Sclerotherapy is performed using different chemicals and are placed directly into your abnormal **vein** through a very small needle. All of these chemicals cause injury to the cells lining the inside of the **vein** and create inflammation and irritation within the **vein**. This allows the **vein** to scar closed. Your doctor will decided on which chemical is best for your condition. In some cases, lidocaine (similar to Novocain®) may be added to the chemicals to decrease the discomfort of the injection. Some physicians will create a foam form (drug mixed with air) of the chemical by shaking it up. This may be especially helpful for larger **veins**.

Sclerotherapy should be performed in a warm, well lit room. The skin is cleaned very well with an antiseptic to prevent infection. A small needle is stuck into the **vein** to be treated and the chemical is pushed into the **vein**. The biggest **veins** are treated before the smaller **veins**. Treatment usually begins in the thigh and moves toward the calf and ankle. When treating **spider veins** usually the most bothersome areas are treated first and the less worrisome areas can be treated later.

Immediately after the injection the **veins** may appear red and swollen or angry. This is due to the inflammation from the injected chemical. Each area is compressed after the injection by taping gauze or cotton over the area. Following the **sclerotherapy** session, **compression** will be applied over the entire leg. This may be done by either a thigh high **compression stocking** or by an elastic wrap. If an elastic wrap is applied you, will need to replace it regularly and should be taught how to do this during your visit. It is important to wear the stockings or elastic wrap as instructed. The **compression** keeps the walls of the **veins** together to allow the scarring to take place and prevent the **veins** from opening again. It also prevents the trapping of blood in the treated **veins** and decreases the risk for pigmentation (unwanted color change). **Compression** is required for a minimum of one week and up to 3 weeks may provide a better result. You should start normal activities and avoid prolonged periods of sitting for the week following treatment.

Complications (problems) of sclerotherapy:

Complications of **sclerotherapy** can occur immediately at the time of treatment or several days to weeks after therapy. There may be local problems confined to the area treated or be more wide-spread (systemic). If the chemical is accidentally injected into an artery instead of a **vein**, this may cause significant tissue injury including **ulceration** or skin breakdown. Your physician should take care to make sure this does not happen. In some cases, **ultrasound** can be used to direct the needle into the **vein** to help avoid this complication.

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Local effects which are to be expected include pain, swelling, and redness. This is due to chemical irritation. Allergic response may be experienced which would increase these symptoms and may be associated with itching or development of a rash. In many cases, these symptoms respond to the use of **compression**.

Even when good **compression** is applied after therapy up to 20% of patients will have blood remain in the **veins**. If this happens, the **vein** may develop a brown color as the blood begins to breakdown. In most patients, this brown stain will fade over a period of a few years. Some patients will have small amounts of trapped blood or coagulant in the treated **veins**. This is usually treated with **microthrombectomy** - using a small blade or needle to create tiny holes along the **vein** and remove the blood and lessen the chance for brown staining. This is usually done 2-3 weeks after the **sclerotherapy** injections. After **microthrombectomy**, **compression** is applied to the treated area using gauze pads and a bandage followed by the use of the **compression stocking** or elastic wraps as before.

Bruising (ecchymosis) is common (up to 20%) following **sclerotherapy**. It usually fades over 2-3 weeks after treatment. Older patients and people with frail skin seem to be at increased risk for bruising. **Matting** is the development of very fine red colored blood vessels that appear around a treated area. Between 10 and 30% of patients treated for **spider veins** and up to 15% of patients treated for **reticular veins** may experience **matting**. Obesity and hormone therapy seems to make people more prone to **matting**. Many times this will resolve within a year. Occasionally this can be treated with **laser** light therapy to improve the appearance. Skin **ulceration** or a sore may form at the injection sites. This is usually do to a high concentration of the chemical, injection outside of the **vein**, or injection into a small arteriole. Fortunately these are usually small and respond well to good wound care.

Superficial vein thrombosis or “**phlebitis**” is due to the inflammation created by the injected chemicals. This may occur even a few inches away from the injection site. In many cases, this can be treated conservatively with **microthrombectomy**. In some cases use of warm, moist compresses may be necessary. **Deep vein thrombosis (DVT)** is unusual but has been reported. This is most commonly seen with injection of a large amount of the chemicals or in the patient at risk for prolonged bed rest, with prolonged sitting or if the patient is unable to resume normal activities after the procedure.

In rare cases, patients may experience wide-spread effects such as changes in their vision including bright lights or flashing lights, migraine headaches, dizziness or elevated blood pressure. These usually occur with more extensive procedures which require the injection of large volumes of the chemical agents. In even more unusual circumstances, patients may have a severe allergic response to the chemical agents which can result in difficulty breathing, low blood pressure and may affect the heart beat. Most offices are well prepared to deal with such emergencies.

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Foam Sclerotherapy

The technique of creating foam (some type of gas (air or other) mixed with the drug) from the chemicals used for **sclerotherapy** deserves special mention. This technique is gaining popularity and your physician may recommend this as the primary therapy or to help with clearing larger **veins** after a surgical therapy. Because the foam maintains better contact with the **vein walls** it allows the physician to treat larger **veins** more successfully. Typically a smaller amount of the chemical is required which may also decrease the risk for complications. Preparation for **foam sclerotherapy** is the same as for all other forms of therapy. The **vein** is usually entered while looking at it with an **ultrasound**. After the injection the leg is elevated to allow the foam to move into the **veins** down the leg and into any **perforating veins** that are incompetent or refluxing. **Compression** is required after **foam sclerotherapy** similar to all other vein treatments (see above). Contraindications to **foam sclerotherapy** are similar to traditional **sclerotherapy** except that patients with a history of migraine headaches may experience temporary migraine aura symptoms. In addition, patients with a patent foramen ovale (PFO) which is a connection between the right and left chambers of the heart may have a risk of the foam going across that opening and going to the brain. Foam therapy should probably be avoided in these patients.

Complications are similar to that of traditional **sclerotherapy**. **Foam sclerotherapy** may be a bit more painful than traditional **sclerotherapy**. It appears that temporary visual changes are more common with **foam sclerotherapy** than with **liquid sclerotherapy**. This is especially true in patients with a history of migraine headache. One concern arises regarding the entry of foam into the deep vessels at the level of the groin. Since, in most cases, **ultrasound** imaging is being used during the injection the physician is frequently aware of this happening. Foot and ankle exercises will help move the foam from this location and help break up the foam bubbles in an effort to minimize complications. Because of this, the risk for **deep vein thrombosis (DVT)** may be higher with this technique; however, limited clinical studies have not reported this complication to any higher degree. Some of these complications may be decreased by keeping the leg elevated for a minimum of 10 minutes following injection. Despite these recommendations, any visual disturbances, neurologic symptoms, or any unusual symptoms of pain or swelling of the leg after the procedure should be reported to your physician immediately.

Commonly asked questions

Do I need surgery for my veins?

Physicians skilled in the evaluation and treatment of **vein** problems will be able to provide you with all of the information you will need regarding the best treatment options for your condition. Therapy is very individualized to a single patient. The information provided here is to serve as a guideline regarding one possible treatment (**sclerotherapy**) and what to expect. Feel free to discuss details and expected outcomes with your **vein** specialist.

Will I need only one treatment or more?

Most patients will require several **sclerotherapy** treatments to fully treat their **venous disease**. In general, the larger **veins** are treated first and allowed to heal to determine which of the small **vein** need to be treated. You should plan on a minimum of 3-4 treatments to complete the therapy. In addition, many patients will have **veins** return over a period of time and these may require further therapy.

Will my insurance pay for this therapy?

Each insurance company is different but a lot of venous work is considered cosmetic and may not be covered. For symptomatic patients, insurance companies typically require a period of conservative medical therapy prior to authorizing this work to be done and may or may not pay for **sclerotherapy** so you must check with your company.

How long will I be off work after the procedure?

Following **sclerotherapy**, most patients are able to return to work the same day. You need to wear the **compression stocking** or wrap as instructed for a minimum of 3 days and usually as long as 7 days. You should try to walk and avoid activities which prevent movement of the legs such as bed rest or prolonged sitting. You will usually have a follow up with your doctor 7-14 days after the procedure.