

# Cosmetic sclerotherapy



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## ABSTRACT

Telangiectasias and spider veins are considered a common cosmetic concern for both women and men. Sclerotherapy is a frequently used, low-risk, and highly successful method to treat these venous problems. This article reviews the pathophysiology and diagnosis of telangiectasias and reticular veins as well as the currently available agents and techniques of sclerotherapy. The possible complications and adverse outcomes of sclerotherapy are described. Standard care and follow-up for patients after the procedure are outlined. Also included are tips and tricks found to be valuable in a busy vein practice. (J Vasc Surg: Venous and Lym Dis 2017;5:437-45.)

Telangiectasias are common, and some sources assert that they are the number one cosmetic concern for women in the United States.<sup>1</sup> Spider veins appear in more than half of women by the age of 50 years, and many men also harbor them but seem less concerned.<sup>2</sup> For many people, visible veins influence how they dress and how they feel about themselves. Some individuals with visible veins become self-conscious and tend to modify their activities (eg, swimming, going to the beach, and dancing) to avoid exposing their legs. Telangiectasia and spider veins pose little if any risk to health; however, they can significantly affect self-confidence and cause patients to feel older or less attractive.

The two most common methods of treating spider veins and telangiectasias are sclerotherapy and surface laser. Both are relatively low risk procedures with a high potential benefit in appropriately selected patients. Laser equipment can be expensive to acquire, and office personnel should be fully trained in its use and understand potential dangers and side effects. Laser therapy is beyond the scope of this review; however, it is an important and effective treatment modality of which providers should be aware. Sclerotherapy was first attempted in the 1930s<sup>3</sup> and became popular with the discovery and use of hypertonic saline in the 1970s.<sup>4</sup> In this article, we review currently available agents, modern tips, and techniques of sclerotherapy and describe known complications.

## PATHOPHYSIOLOGY

Multiple factors predispose a patient to the development of telangiectasia. Family history, age, prolonged

sitting or standing, obesity, lack of activity, and local trauma are all risk factors. Family history may be the strongest risk factor for development. According to one study, 90% of children with two parents who have varicose veins develop varicose veins themselves.<sup>5</sup> Pregnancy and estrogen and progesterone supplementation are associated with vein dilation, which can lead to spider veins. Sun exposure and skin damage can also lead to telangiectasias, particularly on the face. There are hereditary and systemic conditions that can present with spider veins, including Osler-Weber-Rendu syndrome, Klippel-Trénaunay syndrome, CREST syndrome (calcinosis, Raynaud phenomenon, esophageal dysmotility, sclerodactyly, and telangiectasia), lupus, alcoholism, and several other less common diseases. This article focuses on the treatment of telangiectasias in the absence of these syndromes; however, it is important for practitioners to have an understanding of the hereditary and acquired conditions and how they may affect outcomes and recurrence after treatment. Both spider veins (<1 mm in diameter; Fig 1) and reticular veins (1-3 mm in diameter; Fig 2) are cosmetic concerns for many individuals and have similar risk factors and pathophysiologic mechanisms.

Redish and Pelzer<sup>6</sup> classified telangiectasias into four groups based on physical examination:

- Sinus or linear
- Arborizing
- Spider or star
- Punctiform (papular)

Linear are often red and found on the face. Arborizing will have multiple feeding vessels, and complete treatment requires injections in these areas. Spider or star typically arise from a central filling or feeding vessel and thus are best treated by injection of the feeding vessel. Papular are most commonly associated with collagen vascular diseases. Other classifications have been proposed, but they offer no new insights or explanation of the etiology.<sup>6</sup>

The etiology of telangiectasia and reticular veins mimics that of varicose veins; valvular incompetence and venous hypertension are thought to be at the root

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**Fig 1.** Arborizing telangiectasia and small (<1 mm) reticular veins.

of their formation. Classification systems that differentiate on the basis of treatment technique seem to be the most helpful. In our practice, we record the Clinical, Etiology, Anatomy, and Pathophysiology (CEAP) score and Venous Clinical Severity Score for all patients to ensure that more significant disease is not missed. Follow-up evaluation and accurate photographic documentation of treated lesions (in the patient's chart) are also important to track results and to manage the patient's expectations.

Telangiectasias can be seen in isolation or in combination with varicose veins and chronic venous insufficiency. An accurate history and physical examination can clearly differentiate between cosmetic and clinically important venous disease. A phone questionnaire can be performed with the patient, before the first visit, to identify those patients presenting with clinically significant symptoms. These time-saving tips make our practice more efficient from the standpoint of both the patient and the physician. Triaging patients before their first visit enables appropriate imaging to be ordered and avoids unnecessary testing. In patients with significant symptoms, such as edema, painful varicose veins, heaviness, and achy or tired legs, a venous color flow duplex scan (CFDS) to check for reflux is advised before any treatments. This will allow formulation of a logical and



**Fig 2.** Small and larger (1-3 mm) reticular veins.

comprehensive treatment plan. Treating spider veins without consideration of the underlying disease will likely lead to suboptimal results with possible failed treatment, matting, or hyperpigmentation. Conversely, treating asymptomatic truncal or perforator veins exposes the patient to potentially unnecessary procedures, cost, and risk. Both the American College of Phlebology and the American Venous Forum recommend the treatment of truncal and perforator disease only in symptomatic patients.<sup>7,8</sup>

Our focus in this review is sclerotherapy for cosmetic spider vein treatment. However, bleeding spider veins are a common complaint in the office, urgent care facilities, and emergency departments. These bleeding episodes tend to be anxiety provoking for the patient, often an elderly individual with thin, delicate, and dry skin prone to significant bleeding from relatively minor trauma. When evaluating these patients, clinicians should have a heightened degree of suspicion for underlying disease, such as congestive heart failure or chronic venous insufficiency. History, physical examination, and CFDS are critical in reaching a diagnosis. Many patients are taking oral anticoagulants or antiplatelet agents, which also exacerbates the problem. In the acute phase, treatment consists of digital pressure followed by a compression dressing. Rarely, a nylon skin suture is required. Long term, treatment of the underlying cause (eg, venous insufficiency) and sequential sclerotherapy may be required. Patients should be instructed in how to deal with bleeding should it recur. In general, most insurance should cover treatment of bleeding spider veins because it is considered therapeutic.

## DIAGNOSIS

A thorough history and physical examination are essential to reach the proper diagnosis. Some authors have suggested that sclerotherapy can be performed after physical examination without further diagnostic studies as most of these patients are less likely to have underlying venous reflux.<sup>9,10</sup> Clearly, proper selection of patients to identify those most likely to benefit from a pretreatment CFDS is desirable for judicious resource allocation. When suspected, correct identification of the feeding vessels can be helpful, and in some cases we have used ultrasound guidance to inject these feeding vessels.

## TECHNIQUE

Sclerotherapy is a procedure performed in the office setting. It is defined as the intravascular injection of a chemical agent to cause endothelial damage and subsequent vascular occlusion of the target vessel.<sup>1</sup> Informed consent is routinely obtained. A warm, quiet, and comfortable environment helps the patient relax and feel less apprehensive about the procedure. The patient is positioned on a comfortable examination table, either supine or prone, depending on the area being injected.

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