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# Report of 3 Cases: The Importance of Sclerotherapy for Chronic Leg Ulcers Healing, in Guatemala

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## Abstract

Various veins are a worldwide problem, and Guatemala is not an exception to the rule [1]. In Guatemalan communities without the access to specialized medical attention for this problem it is common to see venous leg ulcers (VLU), which represents the most advanced stage form leg chronic vein disease (CVD). [2-5]. Understanding that VLU formation indicates when vein hypertension onset [4-8]. This review pretends to point out how valuable sclerotherapy from superficial insufficient veins surrounding chronic venous leg ulcers is, by showing the results in 3 patients, followed up few weeks after treatment, improving (2 patients) and completely healing (1 patient).

## Case Report

Various veins are the most common vascular disease in the lower extremities. It has important medical, social and economic consequences, affecting almost 1% of the global population, with an increasing incidence [1]. Diagnostic and treatment methods have improved and are now trending in minimally invasive and more cosmetically appealing for the patients [1,2]. Mostly affecting patients over 35 years old, with some predilection on female population [1]. In Guatemala affecting 30% of the female population with a 2:1 female-male ratio [1,3].

Venous leg ulcers (VLU) are a complication of under treated or untreated various vein disease on the lower extremities; these account approximately 80% of all leg ulcers, characterized by chronicity and frequent recurrences, VLU are the most advanced stage of leg chronic vein disease (CVD) [4,5].

Although the pathophysiology of VLU is not completely understood, Venous Hypertension (VH) independent from its cause, is described as one of the underlying causes of VLU [4-7]. When VH is established, it initiates an inflammatory response, with the activation of leucocytes, upregulation of pro inflammatory cytokines (IL 1  $\alpha$  and  $\beta$ , IL 12p40, IFN  $\gamma$ , tumor necrosis factor  $\alpha$ , TGF  $\beta$ ), chemokines, matrix metalloproteinases, iron free radicals, oxygen and nitrogen species [5,7,8]. Also, an increasing fibrin deposit around capillary beds [5]. All together produce endothelial damage and tissue edema which causes hypoxia and malnutrition for the tissue concluding with the ulcer formation [5,6].

Duplex ultrasonography has shown venous reflux on the superficial venous system (SVS) alone in 53% of cases, and 32 to 44% of cases involving both SVS and deep venous system (DVS) [2,4,9].

Conventional treatment with graduated compression stockings promotes and achieves healing of the ulcers, but these alone show a high recurrence rate, in some cases up to 69%, failing to provide long term relief from VLU [6,10].

Surgical treatment of superficial veins or perforator veins near the ulcer provides a significant benefit for patients suffering from VLU. Proving that eliminating the insufficient vein provides the adequate environment for engaging an adequate healing process. However, some patients experience complications such as lipodermatosclerosis, stasis dermatitis, and infection after surgery. Considering that not every patient is a candidate for surgery, or some patients would reject going through surgery, other methods were developed. Sclerotherapy (foam or liquid) and endogenous thermablate (radiofrequency or laser), these methods are widely used and show good results accompanied by low complication rate [4,9,10].

Sclerotherapy means the intravascular injection of detergent agent, which results in the occlusion of the targeted vessel [2,11]. It is a less invasive procedure and can be performed in an outpatient clinic [9]. polidocanol is the most used sclerosant in Guatemala, it can be administered in foam or in liquid, both at variable concentration between 0.25% to 3% according to the vein size. Foam sclerotherapy is produced by mixing air with the selected sclerosant, and it is preferred due to its wide dispersion through the venous system being treated with a more manageable application [4,9,10]. Guided application by ultrasound helps locate insufficient veins resulting in the most effective and safe method for sclerotherapy. Since foam is easier to identify under the ultrasound view during infiltration, it is preferred over liquid administration, but the latter can also be used [4,9].

After polidocanol sclerotherapy of the insufficient veins (superficial or/and communicating) the healing rate is about 83% of patients at 24 weeks (about 5 and a half months) after treatment, and a small recurrence rate (6.3%) after 24 months. Pain and edema relief are also expected approximately in 85% of cases [4,11].

In Guatemala to date the only minimally invasive treatment available for various vein disease, and VLU, is Sclerotherapy.







This short review is based on the outcome of 3 patients attending a private dermatology practice clinic in two rural areas in Guatemala, which were lacking specialized attention, for a long period of time. As expected, these patients improved significantly in size and depth of the VLU after their first Polidocanol 1% liquid sclerotherapy, on peripheral palpable insufficient veins surrounding the ulcers. Control was made at 1 month interval. 2 patients discontinued follow up after achieving improvement and pain relief at 2 months. 1 patient followed treatment until complete resolution in 3 months post treatment. Table 1 summarizes general patient data.

Table 1: General data.

ID	Age (Y)	Sex	VLU Location	Initial Depth of the ulcer (mm)	Unattended Time	Improvement achieved (weeks)	Complete Follow up until wound closure
1	42	F	Lower third of the left leg, lateral portion	3	2 years	4 weeks	No (8 weeks)
2	55	F	Lower third of the left leg, lateral portion	6	4 years	4 weeks	No (8 weeks)
3	48	F	Lower third of the left leg, medial portion	2	2 years	4 weeks	Yes (12 weeks)

It is my personal opinion after this short review, considering that venous hypertension is the root of the problem, that sclerotherapy with polidocanol should be the first step in the treatment of chronic VLU, having in mind that 70 to 80% of patients suffering from this condition do not have deep vein thrombosis disease, the safety even in patients with post thrombotic syndrome and anticoagulation treatment [9]. Low risk, fewer complications and benefits such as affordability, improvement of quality of life, and the low recurrence rate, are the pillars supporting sclerotherapy. In Guatemala Polidocanol is affordable and is making changes in the life of low-income patients (Table 2).

Table 2: Photographic follow up from patients after sclerotherapy.

	Initial	1 month	Last evaluation
1			
2			
3			

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