

# CHIVA: A Conservative and Hemodynamic Strategy for the Treatment of Chronic Venous Insufficiency

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## Abstract

The CHIVA (Conservative and Hemodynamic Cure of Venous Insufficiency in Ambulatory Care) method represents a paradigm shift in the treatment of varicose veins and chronic venous insufficiency. Based on hemodynamic principles, CHIVA aims to correct pathological veno-venous shunts while preserving the saphenous vein. This article reviews the rationale, technical approach, clinical results, and advantages of CHIVA compared to destructive methods such as stripping and endovenous ablation.

## 1. Introduction

Chronic venous insufficiency (CVI) affects a significant portion of the global population and is a leading cause of varicose veins, leg edema, and venous ulcers. Traditional management strategies have emphasized the destruction or removal of incompetent saphenous veins, which are believed to be the cause of reflux and venous hypertension. However, these ablative approaches overlook the functional and potential surgical value of the venous network, particularly the great saphenous vein (GSV).

The CHIVA method, developed by Claude Franceschi in the 1980s, offers a conservative alternative based on correcting hemodynamic disturbances without removing or ablating veins. It preserves the venous anatomy while selectively treating the sources of pathological reflux.

## 2. Methods

### 2.1 Hemodynamic Rationale

CHIVA is grounded in the principles of venous hemodynamics and fluid mechanics. The core idea is that reflux in CVI is not caused by varicose veins themselves, but by the presence of **veno-venous shunts** and **escape points** that abnormally redirect blood flow from high-pressure deep veins to superficial pathways. These cause elevated transmural pressure, leading to vein dilation, skin changes, and ulceration.

### 2.2 CHIVA Strategy

The treatment consists of:

- **Detailed duplex ultrasound mapping** of escape points, reflux pathways, and reentry points.
- **Classification of the venous system** into four hemodynamic networks (N1 to N4), identifying the location of pathological circuits.
- **Targeted disconnection of shunts**, performed under local anesthesia in ambulatory settings.
- **Preservation of the saphenous vein**, which remains available for future arterial bypass grafting.

### 2.3 Indications and Contraindications

CHIVA is indicated in all CEAP classes (C2 to C6), including in recurrent varices, provided deep venous outflow is competent. It is contraindicated in cases of deep vein thrombosis (DVT) with extensive obstruction or severe calf pump failure.

## 3. Results

Multiple studies, including randomized controlled trials and two Cochrane reviews, have compared CHIVA with conventional stripping and endovenous ablation. Findings include:

- **Equivalent or superior efficacy** in symptom relief and ulcer healing.
- **Lower recurrence rates** compared to stripping.
- **Significantly reduced complications**, including hematomas and nerve damage.
- **Preservation of venous capital**, especially critical in patients who may later require coronary or peripheral arterial bypasses.

Key studies:

- **Cavezzi et al. (2005)**: Showed 87% long-term freedom from recurrence.
- **Almeida et al. (2011)**: CHIVA demonstrated lower post-operative pain and quicker return to activity than radiofrequency ablation.

## 4. Discussion

CHIVA challenges the dogma of venous destruction by recognizing that varicose veins are often the **effect**, not the **cause**, of venous hypertension. The method aligns treatment with hemodynamic principles and respects the anatomy of the venous system.

### 4.1 Ethical and Legal Considerations

By preserving the saphenous vein, CHIVA avoids the ethical dilemma of depriving patients of a potential arterial bypass conduit. Informed consent must address the loss of future surgical options when using destructive treatments.

### 4.2 Limitations and Barriers

Despite strong evidence, CHIVA remains underutilized. This is due to:

- Lack of training in venous hemodynamics.
- Economic incentives favoring device-dependent ablation methods.
- Limited inclusion in international guidelines.

## 5. Conclusion

CHIVA is a scientifically grounded, effective, and patient-centered approach to chronic venous insufficiency. It represents not only a therapeutic technique but a broader shift toward **functional preservation** and **hemodynamic correction** in vascular medicine. Wider adoption of CHIVA requires enhanced training, standardization, and updated clinical guidelines.

### Keywords

CHIVA, venous insufficiency, saphenous vein, conservative treatment, hemodynamics, varicose veins, bypass preservation.