

# ADVANCED TECHNOLOGIES IN THE TREATMENT OF CHRONIC VENOUS INSUFFICIENCY - LONGTERM RESULTS

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**REZUMAT.** Sursele de energie (laser și radiofrecvență) au început să fie utilizate în tratamentul bolii varicoase doar de la începutul secolului 21, fiind actualmente considerate de către un număr tot mai mare de chirurghi actualmente “standardul de aur” în tratamentul insuficienței venoase. Am aplicat această metodă în perioada 1.09.2009-30.12.2012 la un număr de 50 de pacienți cu boală varicoasă. În prezenta lucrare analizăm rezultatele la distanță, după o perioadă de urmărire de 3 ani. În această perioadă pacienții au fost examinați la 3 respectiv 6 luni postoperator și apoi anual. Din totalul de 50 de pacienți doar 27 s-au prezentat la controalele postoperatorii. Dintre aceștia am observat recidivă în 2 cazuri, dar cu reflux semnificativ într/un singur caz. Rezultatele obținute cu această tehnică s-au dovedit a fi similare cu cele ale tehnicilor chirurgicale clasice.

**Cuvinte cheie:** tratament laser, radiofrecvență, terapie laser endovenosă, EVLT, varice.

**ABSTRACT.** Since the beginning of the 21st century energy sources (laser and radiofrequency) are successfully applied in the treatment of varicose disease, being considered by many surgeons nowadays the “gold standard” in treatment of chronic venous insufficiency. From 1.09.2009 to 30.05.2010 we treated 50 patients with great saphenous vein (GSV) insufficiency using the EVLT treatment. In this paper we verify and analyze the long-term results of this advanced technique, after a follow-up period of 3 years, and compare the results with those of the classic surgical technique. Patients were examined at 3 and 6 month postoperatively, then every 12 months. The follow-up exam included clinical examination and venous ultrasound of the lower limbs. Only 27 patients out of 50 completed the follow-up. Repermeabilization of the GSV was noted only in 2 patients (%), but with significant reflux only in 1 patient, results being similar with those of the classic technique.

**Keywords:** laser treatment, radiofrequency, endovenous laser therapy, EVLT, varicose veins.

## 1. INTRODUCTION

Until recently surgical ligation and stripping were considered to be the “gold standard” in the treatment of chronic venous insufficiency, but with recurrence rates of up to 57% at 10 years. The first application of laser therapy in the treatment of chronic venous insufficiency was reported in 2000 [1,2].

Endovenous laser therapy (EVLT) is a minimally invasive treatment for varicose veins. EVLT is recommended in the treatment of varicose veins with or without sapheno-femoral or sapheno-popliteal junction insufficiency, treatment of truncal varicose veins, large branch veins and larger tributaries[3,4].

## 2. METHODOLOGY

The aim of our study was to verify the efficacy of this novel method for the treatment of chronic venous insufficiency and to analyze the results at 3 years after treatment.

The laser device used was a Angiodynamics Delta 30 diode laser with the wavelength of 810 nm, applying a energy of ~100 J/cm, according to manufacturer instructions. In all cases we used ultrasound-guided catheter placement of the laser, combined with control by skin transillumination [5].

Preoperative assessment included clinical exam and Doppler ultrasound in all cases with preoperative marking of entry point [6].

All patients underwent a postoperative follow-up at 1 month and 6 month during the first year after surgery, and then yearly. The postoperative follow-up also included a clinical exam and ultrasound of the lower limbs.

### 3. RESULTS AND DISCUSSIONS

From 1.09.2009 to 30.11.2010 we treated 50 patients with great saphenous vein insufficiency using the EVLT treatment. The patients were classified in CEAP classes C3-C6 (Fig. 1) and mean age of the patients was 45±16.4 years.

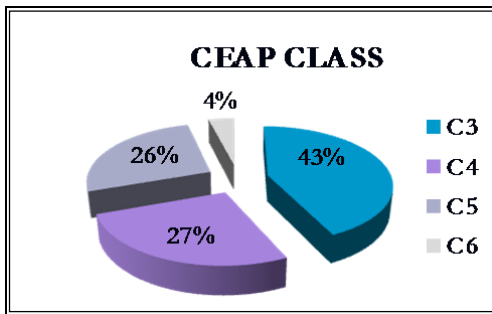


Fig. 1. CEAP classification of the studied patients.

In 48 cases the ultrasound control at 3 month postoperative revealed complete thrombosis of GSV (Fig. 2). In one other case we observed no thrombosis of the GSV with significant reflux and in one case asymptomatic incomplete thrombosis of the GSV (Fig. 2).



Fig. 2. Complete thrombosis of GSV at ultrasound control 3 month postoperative.

No major complications were noted. Minor bruising was recorded in 40 patients and transient leg swelling with normal ultrasound exam in 6 patients (Fig.3).

Only 27 patients out of the 50 patients we treated completed the follow-up (Table 1).



Fig. 3. Minor bruising and leg swelling postoperative.

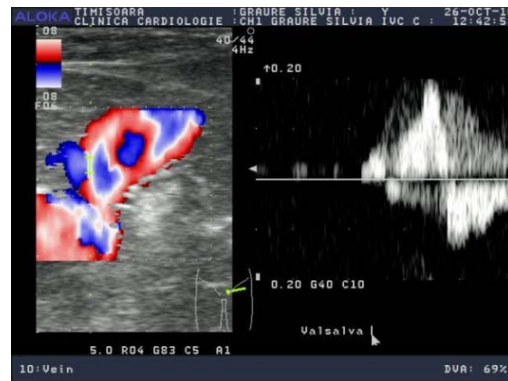


Fig. 2. Recurrence of venous disease with significant reflux at ultrasound control 1 year postoperative.



Table 1 Number and % of Patients who were present for the follow-up exam.

Follow-up at	Patients	%
3 month	47	94%
6 month	40	80%
1 year	31	62%
2 years	29	58%
3 years	27	54%

We compared the results obtained with this new technique with a previous study done in our clinic (Table 2, Fig. 4) [7,8].

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Table 2. Classic technique and EVLT: comparative results.

Parameter	Classic technique [8]	EVLT	p
Minor complications	2.65%	8%	S
Major complications	5.45%	0	S
Hospitalisation (days)	4,2±3,2	2,1±1,1	S
Sick leave (days)	28±15,2	16±7,3	S
Recurrent reflux	Not applicable	4	-
Reflux requiring redo surgery	2,74%	2	S

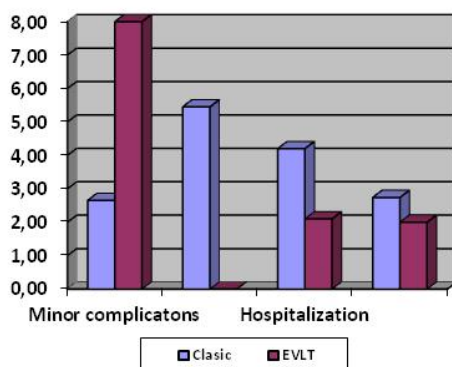


Fig. 4. Classic technique and EVLT: comparative results.

## 4. CONCLUSIONS

Although more expensive (190 Euro), the endovenous laser treatment EVLT is a good alternative to traditional surgery for chronic venous insufficiency

in selected cases with excellent results, but with higher costs for the single-use material. The complication rate was significantly lower compared to the classic technique of ligation of the GSV and stripping. This higher costs are compensated by reducing hospital stay and a faster postoperative recovery period.

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