

	Endovenous Laser or EVLT®	Radiofrequency (RF) ClosurePlus™	ClosureFAST™
Mode of Action (Treatment Parameters)	Laser (14W , continuous pullback, 2-4 min treatment time)	RF Energy ¹⁸ (85°C, continuous pullback, tissue / impedance measurement, 18-24 min treatment time) ^{18,19}	Conductive Heat Transfer ¹⁸ (120°C, segmental ablation, no impedance measurement, 3-5 min treatment time) ^{18,19}
Patient Preference (based on internet search results) ¹	>6000 requests/month	<170 requests/month	
Disposable Cost	\$275-360	\$725	Similar to ClosurePlus® (Upgrade or New Generator Required)
Success Rate (comparative studies)	94-100% ^{2,3,4,5}	86-92% ^{2,3,4,5}	Unknown Long-Term (>6 mos.) Results (No independent, n>100 data available as of September 2007)
Complications			
Deep Vein Thrombosis (DVT) or Saphenous Thrombus Extension	0.3% ^{6,7}	2.1% ^{6,8}	
Pulmonary Embolism (PE)	None Reported ⁹	16 Cases ⁹	
Side Effects			
Ecchymosis/ Hematoma	Mild to Moderate (<35%) ^{4,11,15}	Mild to Moderate (<35%) ^{4,10,11}	13 DVT Cases ⁸ and 3 PE Reported ⁹ through September 2007
Pain/Tenderness	Mild to Moderate (<25%) ^{4,11}	Mild to Moderate (<25%) ^{4,10,11}	
Paresthesia	0.08% ^{5,15}	11% ^{5,10,12,13} ("Higher with treatment at or below the calf") ¹⁷	
# Procedures (2006) ¹⁴	103,000 (laser)	78,000	Brand New (launched May 2007)
Patient Satisfaction	99.8% ¹⁵	98% ¹⁶	Unknown
Reimbursement Denial Rate (Medicare) ²⁰	12% (CPT Code 36478)	26% (CPT Code 36475)	

- Google, Yahoo, MSN & Ask search volumes, nationally, averaged over 6 months (Oct 2006 to Mar 2007) for variety of RF terms (endovenous RF/radiofrequency, RF/radiofrequency vein treatment, Closure procedure, etc.) and variety of laser terms (EVLT, endovenous laser, varicose vein laser treatment, etc.). For more complete list of terms, refer to 'Patients Prefer Laser' document.
- Black CM, et al. Failure Rates of Endovenous Radiofrequency Ablation Compared Endovenous Laser Ablation J Vasc Interv Radiol 2005;16(2 Suppl 2):S52
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- Puggioni A, Kalra M, Carmo M, Mozes G, Gloviczki P. Endovenous Laser Therapy and Radiofrequency Ablation of the Great Saphenous Vein: Analysis of Early Efficacy and Complications J Vasc Surg 2005;42:488-93
- Almeida JI, Raines J Radiofrequency Ablation and Laser Ablation in the Treatment of Varicose Veins. Ann Vasc Surg 2006; 20:547-552
- Mozes G, Gloviczki P, et al. Extension of saphenous thrombus into the femoral vein: A potential complication of new endovenous ablation techniques J Vasc Surg 2005;41:130-5
- No DVT reported (MAUDE, see footnote 9); 0.3% represents non-occlusive thrombus extension
- Some DVT reported (MAUDE); 2.1% and ClosureFAST cases represent a combination of DVT and non-occlusive thrombus extensions
- FDA reported events on Manufacturer & User Facility Device Experience (MAUDE) database (up to September 2007) since product inception. Up to date results available at <http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfMAUDE/search.cfm>. ClosureFAST PE cases in VNUS 10-Q for quarter ending 09/30/07
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- Rautio et al. Endovenous obliteration versus conventional stripping operation in the treatment of primary varicose veins: A randomized controlled trial with comparison of the costs. J Vasc Surg 2002;35:958-65
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- Millenium Research Group, US Markets for Varicose Vein Treatment Devices 2006. GSV procedures only. Laser volume reflects all lasers.
- Min, Khlilnani, Zimmet. Endovenous Laser Treatment of Saphenous Vein Reflux: Long-Term Results. J Vasc Interv Radiol; 2003;14:991-996
- Weiss RA, et al. Controlled Radiofrequency Endovenous Occlusion Using a Unique Radiofrequency Catheter Under Duplex Guidance to Eliminate Saphenous Varicose Vein Reflux: A 2-Year Follow-up, Dermatologic Surgery, Jan 2002; 28:1: 38-42
- VNUS Website, Closure Procedure Safety Summary, Potential Complications & Risks, May 2007
- Lumsden AB, Peden EK. Endovenous Therapy for Varicose Veins. Presentation at "All That Jazz" meeting, New Orleans, LA, May 2007
- VNUS Closure Fast Website, How it Works, May 2007
- Part B News® How to bill correctly for varicose vein treatment. October 15, 2007. RF rate from e-mail communication from editor.