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When Deep Venous Reflux Repair Is Not Effective: What Next

Marzia Lugli

National Reference Training Center in Phlebology (LEMS)
European Center of Excellence for Venous Diseases
International Center of Deep Venous Surgery
Cardiovascular Surgery Clinic - Hospital Policlinico Modena
www.chirurgiavascolaremodena.com

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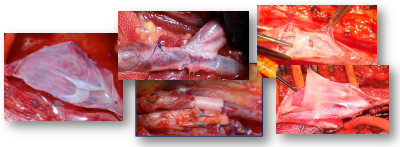
I have no conflict of interest to declare

Marzia Lugli

Deep venous reflux repair



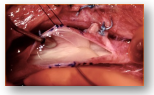
What about the effectiveness?

Journal of Vascular Surgery Veins and Lymphatics - under review –

Systematic review and meta-analysis of deep venous reflux correction in chronic venous insufficiency.

Authors: Oscar Maleti , Massimiliano Orso, Marzia Lugli, Michel Perrin

Valvuloplasty results



Author, Year	Surgical Technique	Valvuloplasty results Number of limbs (number of valves repaired)	Aetiology PDVI/Total	Follow-up month (m)	Ulcer recurrence or non healed ulcer (%)	Haemodynamic results Competent Valves (%)	AVP – VRT
Lehtola 2008	VI VE Transmur VI + VE Transmur	12 7 1	5/12 3/7 0/1	24–78 (54)	/	(55)	/
Masuda, 1994	VI	32	27/32	48–252 (127)	(28)	24/31 (77*)	AVP ↑ 81% (m) VRT ↑ 50% (m)
Perrin, 2000	VI	85 (94)	65/85	12–96 (58)	10/35 (29)	72/94 (77)	AVP normalized 63% (m)
Raju, 1996	VI	68 (71)	/	12–144	16/68 (26)	30/71 (42)	/
Raju, 1996	VE Transmur	47 (111)	/	12–70	14/47 (30)	72/111	/
Raju, 2000	VE Transco	141(179)	98/141	1–42	(37)	(59)	AVP ↑ 15% (m) VRT normalized
Rosales, 2006	VE Transmur	17 (40)	17/17	3–122 (60)	3/7 (43)	(52)	100% AVP ↑ 50% (m)
Sottiurai, 1996	VI	143	/	9–168 (81)	9/42 (21)	107/143 (75)	/
Tripathi, 2004	VI	90 (144)	118	(24)	(32) (50)	(79,8)	/
	VE Transmur	12 (19)				(31,5)	/
Wang 2006	VE Transmur	(40)	40/40	(36)	/	(91)	VRT ↑ 50% (m)

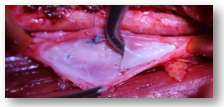
VI: Internal valvuloplasty; VE Transmur: external transmurale valvuloplasty; VE Transco: external transcommissurale valvuloplasty; *: reflux absence or moderate (<1 s); PDVI: primary deep venous insufficiency; AVP: ambulatory venous pressure; VRT: venous return time; ↑: increased; m: mean.

Transposition results

Author, year	Number of limbs	Aetiology PTS/Total	Follow-up month	Ulcer recurrence or non healed ulcer (%)	Haemodynamic results Competent Valves (%)	AVP – VRT
Cardon, 1999	16	16/16	24–120	4/9 (44)	12/16 (75)	/
Johnson, 1981	12	12/12	12	4/12 (33)	/	AVP unchang VRT unchang
Lehtola, 2008	14	12/14	24–78	/	(43)	/
Masuda, 1994	14	/	48–252	7/14 (50)	10/13 (77)	AVP ↑ 70% (r VRT ↑ 70% (r
Perrin, 2000	17	16/17	12–168	2/8 (25)	9/17 (53)	/
Sottiurai, 1996	20	/	9–149	9/16 (56)	8/20 (40)	/

PTS: post-thrombotic syndrome; AVP: ambulatory venous pressure; VRT: venous return time; ↑: increased; m: mean.

Neovalve

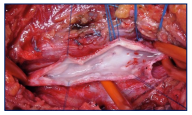


Author, year	Technique	Number of limbs	Aetiology PTS/Total	Follow-up month (m)	Ulcer recurrence or non healed ulcer (%)	Haemodynamic results Competent Valves (%)	AVP – VRT
Plagnol, 1999	Bicuspid neovalve	44	44/44	6–47 (17)	3/32 (17)	38/44 (86)	
Maleti-Lugli, 2009	Monocuspid or bicuspid neovalve	19 + 21 = 40	36/40	2–78 (28.5)	7/40 (17)	13/19 (68) 21/21 (100)	75 VRT improved
Ople, 2008	Monocuspid neovalve	14	/	(48)	0/6	13/14 (92)	

PTS: post-thrombotic syndrome; AVP: ambulatory venous pressure; VRT: venous return time; m: mean.

Deep venous reflux repair

What does it means «*not effective*»?



Effectiveness can be examined by different points of view

1. **Clinical**
2. **Instrumental**
3. **Technical**

1) Clinical evaluation of deep venous reflux repair

The valve repair/construction is done but symptoms/signs do not improve

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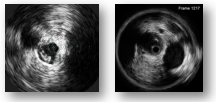
Search for an underlying unknown proximal obstruction



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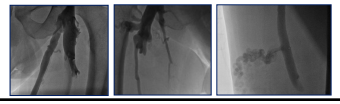
Search for other causes for symptoms/signs

1) Parallel refluxes
2) Superficial incompetence
3) Perforators incompetence



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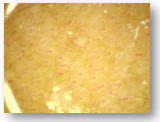
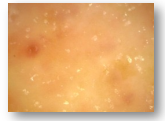
Wrong timing: reflux repair is performed too late.
the microcirculation is too damaged to regain a normal function

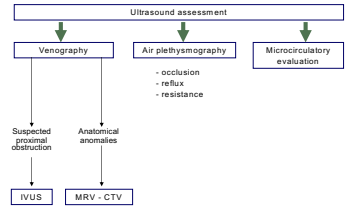


Normal malleolar capillaroscopy



Peri-ulcer findings

Diagnostic Protocol



2) Instrumental evaluation of deep venous reflux repair

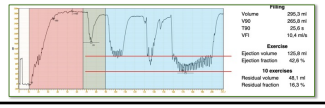
Deep venous valve repair address es axial reflux (IV Kistner):
All valves are inefficient/destroyed, and just one is repaired

Consequently, reflux will necessarily be detected at the popliteal level at US examination.

2) Instrumental evaluation of deep venous reflux repair

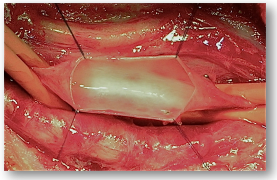
We rely more on plethysmography data that analyzes the entire system rather than just a single segment

Dynamic Wi-Fi plethysmography represents a turning point.
RVF and EF are the most relevant data.

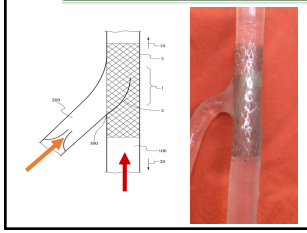


3) Technical evaluation of deep venous reflux repair

Impossibility to perform a valve repair/reconstruction usually in agenesia



Technical evaluation of deep venous reflux repair



Need for prosthetic valves

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Thank you