

P10 Greater Sphenous Vein Diameters As a Function of Reflux Patterns

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Purpose: Design of a prospective trial comparing surgical treatments for venous insufficiency required quantitative data relating greater saphenous vein (GSV) diameter to patterns of reflux.

Methods: Ultrasonographic (US) was performed in 1042 women and 158 men prior to varicose vein surgery. With the patient standing, (1) GSV diameters were measured in B-mode cross-section at the femoral junction (J), upper, mid and lower thigh (UT, MT, LT), knee (K) and upper, mid and lower calf (UC, MC, LC); and (2) segmental reflux (>0.5 sec, >30 cm/s) was observed with Doppler spectral analysis in longitudinal section throughout the entire GSV. The six types of reflux patterns examined are succinctly defined as:

Reflux Type	no reflux	perijunction	proximal	distal	segmental	diffuse
Source	none	tributaries	junction	perforator	perforator	junction
Drainage	none	branches	perforator	to ankle	perforator	to ankle

Results: Average diameters for women are tabled below. Median coefficient of variation (standard deviation/mean) was 0.34 (0.23-0.73). Severity of diameter enlargement increased down the rows (i.e. at the junction normal veins had smaller diameters and veins with junction reflux had larger diameters).

WOMEN GSV DIAMETERS (mm)

Reflux	n	J	UT	MT	L	K	UC	MC	LC
Normal	386	5.70	3.98	2.90	2.79	2.77	2.32	2.10	2.25
Perijunction	44	6.37*	4.19	3.15*	3.07*	2.87	2.56*	2.30*	2.34
Distal	111	6.43*	4.44*	3.14*	3.31*	3.08*	2.68*	2.35*	2.27
Segmental	174	6.49*	4.72*	3.60**	3.38*	3.50**	2.83*	2.37*	2.39*
Proximal	153	7.57**	6.32**	4.82***	4.69**	4.38***	3.32**	2.30*	2.33
Diffuse	174	8.08**	6.74**	5.37***	5.43***	5.03***	4.15***	3.06**	2.81**

* greater than normal (p<0.05); extra *indicates increased diameter down the column (p<0.05)

Conclusion: We quantitated the relationship between reflux patterns and GSV diameters. Distal reflux related to minor diffuse GSV dilation, segmental reflux to thigh enlargement, proximal reflux to dilation down to the upper calf and diffuse reflux to significant enlargement throughout the entire GSV. Apparently a 2 mm GSV diameter change in the thigh and a 1 mm diameter change in the calf could be the difference between significant reflux or no reflux. These data will become the basis for decision making regarding limited or staged ligation and/or stripping.