Management of Anterior Accessory of the Great Saphenous Vein

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Background

An ACP guideline pointing to the importance of diseased anterior accessory of the GSV (AAGSV) was recently published [1]. Usually the GSV is ablated with a "safety distance" to the junction, sparing all other branches and thus leading to a considerable number of consecutive AAGSV insufficiencies and additional treatments, potentially more frequent than after adequate surgical crossectomy [2]. Should ablation of non-refluxive AAGSV be routinely included, or are technical modifications required [3]?

A prospective randomized trial was performed to clarify the conditions for distinguished AAGSV strategies.

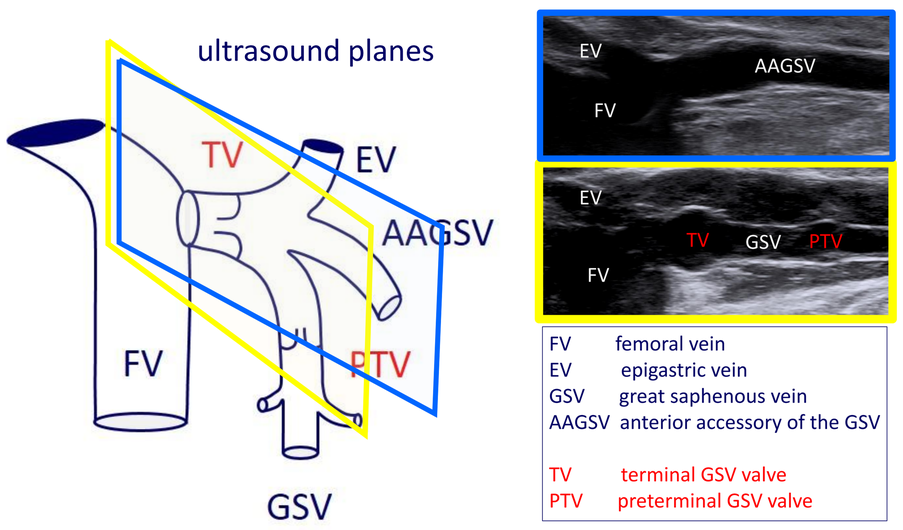


Fig. 1: Anatomy and criteria of SFJ with relevance for ablation techniques. As the standard ultrasound view is along the GSV-EV plane, AAGSV entry is often neglected.

Patients/Methods

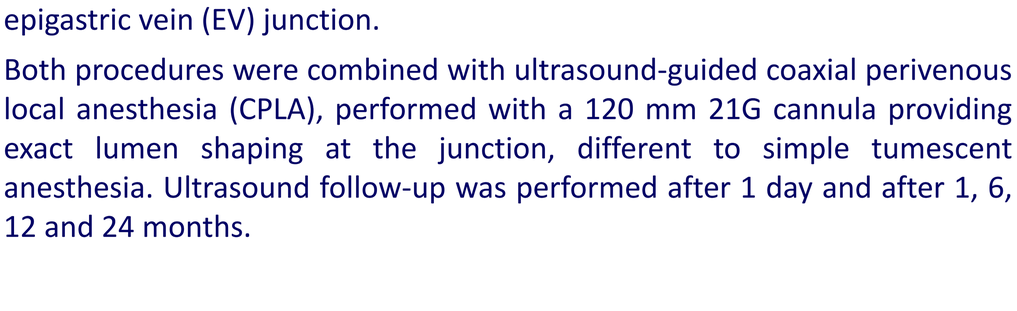
240 consecutive patients with GSV insufficiency (C2 – C6; d = 6.5 – 17.8, mean 8.8 mm), reflux origin from the SFJ (missing, destroyed or mal-functioning terminal valve), non-refluxive AAGSV and no other refluxive branch of SFJ were selected for endovenous laser ablation (EVLA, 1470 nm, radial, 50-80 J/cm). Cases were randomized to two groups, A: EVLA starting at femoral vein level ("laser crossectomy"), or B: EVLA starting below epigastric vein (EV) junction.

Both procedures were combined with ultrasound-guided coaxial perivenous local anesthesia (CPLA), performed with a 120 mm 21G cannula providing exact lumen shaping at the junction, different to simple tumescent anesthesia. Ultrasound follow-up was performed after 1 day and after 1, 6, 12 and 24 months.

Results

GSV occlusion was obtained in all cases, but with different morphology: Laser crossectomy (group A) showed no stump (88/120, 73.3%), minor stumps < 5 mm (14/120, 11.7%) or moderate stumps (5 – 17 mm, mean 11.5 mm, 18/120, 15%, at 1 month exam); 118/120 (98.3%) entries of AAGSV were covered. In group B, GSV vein stumps of 8 – 31 mm length, mean 23 mm, were present in 120/120 cases. AAGSV entry was covered in 13/120 cases (10.8%) (Tab. 1).

Within 2 year follow-up, AAGSV insufficiency was detected in 5/120 cases (4.2%) of group A and 26/120 (21.7%) of group B ($p > 0.01$). Just 1/120 (A) resp. 6/120 (B) cases were clinically relevant at that time.



a b c

Fig. 2: Typical morphology of SFJ on day 14
a) mode A - closure at femoral level („laser crossectomy")
b) mode A - with short stump (15.0%)
c) mode B – closure below epigastric vein with longer stump

modality	Laser started at femoral level	Laser started below epigastric vein
GSV morphology		
No stump	88/120 (73.3%)	14/120 (11.7%)
stump < 5 mm	18/120 (15.0%)	
Relevant stump	14/120 (11.7%)	120/120 (100%)
length (mm)	6 – 17 (mean: 11.5)	8 – 31 (mean: 23.0)
AAGSV entry closed	118/120 (98.3%)	13/120 (10.8%)
AAGSV reflux 2 year Follow up	5/120 (4.2%)	26/120 (21.7%)

Tab. 1: Comparison of laser techniques: Lower rate of AAGSV reflux with laser crossectomy

modality	Laser started at femoral level	Laser started below epigastric vein
EV morphology		
Epigastric vein patent (at 1 month FU)	79/120 (65.8%)	120/120 (100%)
GSV lumen at junction	- 35 to - 52 % (- 47	- 8 to - 28 % (-19%)
EV as source of reflux	0/5	4/26 (15.4%)*

Tab. 2: Role of epigastric vein: Rare source of reflux for AAGSV insufficiency at 2 year FU.
* implies errors in inclusion screening, or incidental valvuloplasty effects of terminal valve.

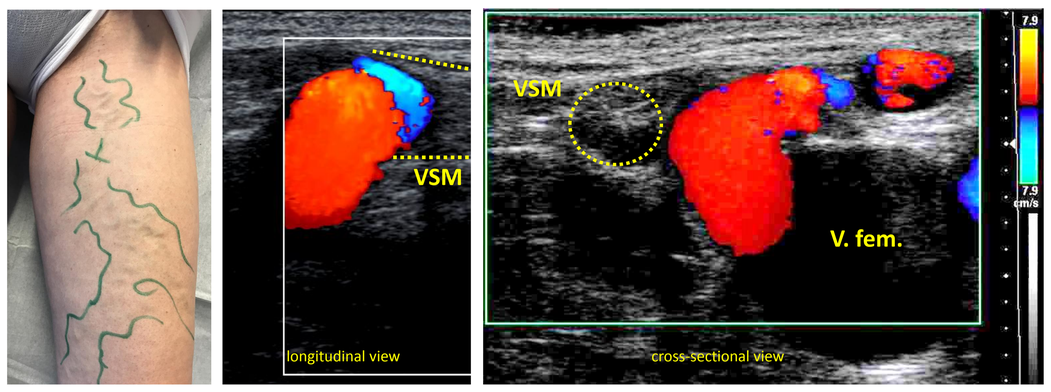


Fig. 3: Typical AAGSV insufficiency within one year after standard EVLA with „safety distance"

Conclusions

Consideration of AAGSV anatomy is crucial for the right choice of strategy. "Laser crossectomy", even if attacking just the GSV like in this study and even in case of recanalized epigastric vein entry (Tab. 2), is more effective in preventing secondary AAGSV reflux than techniques using a "safety distance" and leaving stumps ($p < 0.01$).

Further studies will have to detect factors of AAGSV vulnerability, like diameter, valve morphology and previous phlebitis, to consider primary ablation in selected non-refluxive cases.

Literature

[1] Gibson K, Khilnani N, Schul M, Meissner M, on behalf of the American College of Phlebology Guidelines Committee. American College of Phlebology Guidelines – Treatment of refluxing accessory saphenous veins. Phlebology 2017, Vol 32, Issue 7, pp. 448 - 452

[2] Zollmann P, Zollmann C, Zollmann Ph, Veltmann J, Kerzig D, Doerler M, Stücker M. Determining the origin of superficial venous reflux in the groin with duplex ultrasound and implications for varicose vein surgery.J Vasc Surg Venous Lymphat Disord. 2017 5(1):82-86. doi: 10.1016/j.jvsv.2016.10.001

[3] Ragg JC, Apel S, Hettwer R., Wolschner J, Bludau C, Ragg FM. Endovenous Laser: 8 year recurrence is rare and benign compared to surgery. Phlebolymphology 2012;20(1);51

[4] Dickson R, Hill G, Thomson IA, Van Rij AM. The valves and tributary veins of the saphenofemoral junction: ultrasound findings in normal limbs. Veins Lymphatics 2013;2:e18:63-7.

No disclosures.

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