

EVIDENCE BASED STATEMENT

DOMAIN **3**, Statement **10**

TOPIC: **Superficial venous disease procedures complications incidence & management.**

SEARCH TERMS & SOURCES

((complications) AND (superficial venous)) AND (procedure)

INCLUSION CRITERIA

- Lower limb only
- Reviews
- Publication < 10 years, only ENG

SEARCH RESULT BEFORE - AFTER SELECTION

124/17

PERTINENT LITERATURE NOT IDENTIFIED BY THE LITERATURE SEARCH

1. Eysenbach LM, Koo KSH, Monroe EJ, et al. Migration of n-BCA glue as a complication of venous malformation treatment in children. Radiol Case Rep. 2021 Sep 14;16(11):3526-3533.
2. Parsi K, Kang M, Yang A, et al. Granuloma formation following cyanoacrylate glue injection in peripheral veins and arteriovenous malformation. Phlebology. 2020 Mar;35(2):115-123.
3. Lane TR, Moore HM, Franklin IJ, Davies AH. Retrograde inversion stripping as a complication of the ClariVein mechanochemical venous ablation procedure. Ann R Coll Surg Engl. 2015 Mar;97(2):e18-20
4. Lun Y, Shen S, Wu X, et al. Laser fiber migration into the pelvic cavity: A rare complication of endovenous laser ablation. Phlebology. 2015 Oct;30(9):641-3
5. Dexter D, Kabnick L, Berland T, et al. Complications of endovenous lasers. Phlebology. 2012 Mar;27 Suppl 1:40-5.

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IDENTIFIED REFERENCES

1. Whing J, Nandhra S, Nesbitt C, Stansby G. Interventions for great saphenous vein incompetence. *Cochrane Database Syst Rev*. 2021 Aug 11;8(8):CD005624.
2. Kochubey MS, Siada SS, Tenet M, et al. Thrombotic complications of superficial endovenous ablation: a contemporary review of thermal and non-thermal techniques. *J Cardiovasc Surg (Torino)*. 2021 Oct;62(5):420-426.
3. Chan SJS, Chan YC, Walsh SR, et al. Endovenous cyanoacrylate ablation for chronic venous insufficiency and varicose veins among Asians. *Ann Acad Med Singap*. 2021 Mar;50(3):241-249.
4. Aggarwal V. Pathogenesis and management of superficial venous aneurysms through a case of thrombosed large great saphenous vein aneurysm. *Vascular*. 2021 Apr;29(2):297-300.
5. Teter KA, Kabnick LS, Sadek M. Endovenous laser ablation: A comprehensive review. *Phlebology*. 2020 Oct;35(9):656-662.
6. Hassanin A, Aherne TM, Greene G, et al. A systematic review and meta-analysis of comparative studies comparing nonthermal versus thermal endovenous ablation in superficial venous incompetence. *J Vasc Surg Venous Lymphat Disord*. 2019 Nov;7(6):902-913.e3.
7. Lin ZC, Loveland PM, Johnston RV, et al. Subfascial endoscopic perforator surgery (SEPS) for treating venous leg ulcers. *Cochrane Database Syst Rev*. 2019 Mar 3;3(3):CD012164.
8. Bissacco D, Stegheer S, Calliari FM, et al. Saphenous vein ablation with a new cyanoacrylate glue device: a systematic review on 1000 cases. *Minim Invasive Ther Allied Technol*. 2019 Feb;28(1):6-14.
9. Kiguchi MM, Dillavou ED. Thermal and Nonthermal Endovenous Ablation Options for Treatment of Superficial Venous Insufficiency. *Surg Clin North Am*. 2018 Apr;98(2):385-400.
10. Vos CG, Ünlü Ç, Bosma J, et al. A systematic review and meta-analysis of two novel techniques of nonthermal endovenous ablation of the great saphenous vein. *J Vasc Surg Venous Lymphat Disord*. 2017 Nov;5(6):880-896.
11. Sun JJ, Chowdhury MM, Sadat U, et al. Mechanochemical Ablation for Treatment of Truncal Venous Insufficiency: A Review of the Current Literature. *J Vasc Interv Radiol*. 2017 Oct;28(10):1422-1431.
12. Weber B, Hafner J, Willenberg T, et al. Bioengineered valves for the venous circulation. *Expert Rev Med Devices*. 2016 Nov;13(11):1005-1011.
13. Yiannakopoulou E. Safety Concerns for Sclerotherapy of Telangiectases, Reticular and Varicose Veins. *Pharmacology*. 2016;98(1-2):62-9.
14. Witte ME, Reijnen MM, de Vries JP, et al. Mechanochemical Endovenous Occlusion of Varicose Veins Using the ClariVein® Device. *Surg Technol Int*. 2015 May;26:219-25. PMID: 26055013.
15. Zhan HT, Bush RL. A review of the current management and treatment options for superficial venous insufficiency. *World J Surg*. 2014 Oct;38(10):2580-8.
16. Khilnani NM. Duplex ultrasound evaluation of patients with chronic venous disease of the lower extremities. *AJR Am J Roentgenol*. 2014 Mar;202(3):633-42.
17. National Clinical Guideline Centre (UK). *Varicose Veins in the Legs: The Diagnosis and Management of Varicose Veins*. London: National Institute for Health and Care Excellence (NICE); 2013 Jul. PMID: 25535637.

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TEXT FOR INCLUSION IN THE DOCUMENT

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Both superficial venous surgery and endovenous procedures demonstrated to be safe and associated with a low rate of complications, as long as performed by expert professionals.

All the interventions share the following possible side effects: allergy to the eventual anesthetic/ablation drug, infection, bleeding, nerve and lymphatic damage, arterio-venous-lymphatic fistula, thrombosis, pain, skin ulceration/burn, bruises, hematoma, catheter/fiber fracture and migration. The use of glue can lead to granuloma and to foreign body migration. Informing patients about the foreign body nature of the glue assisted ablation is mandatory.

***[Whing J, Nandhra S, Nesbitt C, Stansby G. Interventions for great saphenous vein incompetence. Cochrane Database Syst Rev. 2021 Aug 11;8(8):CD005624].**

Catheters used for mechano-chemical ablation can get stuck into the vein, forcing to a retrograde inversion stripping.

[Lane TR, Moore HM, Franklin IJ, Davies AH. Retrograde inversion stripping as a complication of the ClariVein mechanochemical venous ablation procedure. Ann R Coll Surg Engl. 2015 Mar;97(2):e18-20].

In the short term, postprocedural pain has been reported to be potentially lower following non-thermal non-tumescent. These last ones showed also lower rates of ecchymosis, while no difference was identified in paresthesia, skin pigmentation and thrombosis.

[Hassanin A, Aherne TM, Greene G, et al. A systematic review and meta-analysis of comparative studies comparing nonthermal versus thermal endovenous ablation in superficial venous incompetence. J Vasc Surg Venous Lymphat Disord. 2019 Nov;7(6):902-913.e3].

The reported thrombotic complications of endovenous heat induced thrombosis and deep venous thrombosis associated with thermal tumescent techniques are low (<2%). A dedicated review recently suggested non-thermal non-tumescent approaches might lead to a higher thrombotic complication rate (up to 6%).

[Kochubey MS, Siada SS, Tenet M, et al. Thrombotic complications of superficial endovenous ablation: a contemporary review of thermal and non-thermal techniques. J Cardiovasc Surg (Torino). 2021 Oct;62(5):420-426].

Nevertheless, properly powered trials with long follow up observation are needed on the topic.

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STATEMENT FOR PUBLIC EVIDENCE-BASED AWARENESS

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Superficial venous disease procedures are safe, yet significant complications can happen, therefore only expert physicians should be involved in their management .

SELECTED REFERENCES

1. ***Whing J, Nandhra S, Nesbitt C, Stansby G. Interventions for great saphenous vein incompetence. Cochrane Database Syst Rev. 2021 Aug 11;8(8):CD005624.**
2. **Lane TR, Moore HM, Franklin IJ, Davies AH. Retrograde inversion stripping as a complication of the ClariVein mechanochemical venous ablation procedure. Ann R Coll Surg Engl. 2015 Mar;97(2):e18-20.**
3. **Hassanin A, Aherne TM, Greene G, et al. A systematic review and meta-analysis of comparative studies comparing nonthermal versus thermal endovenous ablation in superficial venous incompetence. J Vasc Surg Venous Lymphat Disord. 2019 Nov;7(6):902-913.e3**
4. **Kochubey MS, Siada SS, Tenet M, et al. Thrombotic complications of superficial endovenous ablation: a contemporary review of thermal and non-thermal techniques. J Cardiovasc Surg (Torino). 2021 Oct;62(5):420-426**

IDENTIFIED LITERATURE BIAS

Lack of head to head safety profile comparison among different techniques in homogeneous study population

SUGGESTED NEXT LINES OF RESEARCH

Real world data on venous procedure complications