BÖLÜM 7

NONTERMAL ABLASYON TEDAVİSİ

Fatih GÜMÜŞ [1]

GİRİŞ

Kronik venöz yetmezlik gelişmiş ülkelerde daha yüksek prevalansla görülen, nüfusun neredeyse yarısını etkileyen ve tedavi edilmediği takdirde ciddi komplikasyonlara yol açabilen ciddi bir hastalıktır.(1) Kronik venöz yetmezlik esas olarak safen ven yetmezliğinden kaynaklanır ve hastalığa özgü yaşam kalitesinde azalma ile ilişkilendirilmiştir.(2,3) Tarihsel olarak bakıldığında safen ven ablasyonu, kısmi veya tam cerrahi ven eksizyonu ile safenofemoral bileşke (SFJ) ligasyonu olarak gerçekleştirilmiştir. Kronik venöz yetmezliği tedavi etmek için minimal invaziv yöntemler yirminci yüzyılın sonlarına doğru ortaya çıkmış ve venöz yetmezlik cerrahisinin yönetilme şeklini önemli ölçüde değiştirmiştir. Kronik yüzeysel venöz hastalığın geleneksel tedavisi, kompresyon çorapları, cerrahi, endovenöz ısı ablasyon teknikleri (radyofrekans ve lazer ablasyon) ve sıvı skleroterapi veya köpük tedavisini içerir.(4) Yüzeysel venöz reflü için endotermal tedavi ilk seçenek hale gelmiştir hatta açık cerrahisinin artık kabul edilemez olduğunu belirtilmektedir.(5) Öte yandan endoter-

[1] Doç. Dr., Memorial Ankara Hastanesi, Kalp Damar Cerrahisi Kliniği, fgumus1@gmail.com

KAYNAKLAR

1. Aslam MR, Muhammad Asif H, Ahmad K, et al. Global impact and contributing factors in varicose vein disease development. *SAGE Open Med* 2022; 10: 20503121221118992. 2022/09/03. DOI: 10.1177/20503121221118992.
2. Eklöf B, Rutherford RB, Bergan JJ, et al. Revision of the CEAP classification for chronic venous disorders: consensus statement. *Journal of vascular surgery* 2004; 40: 1248-1252.
3. Carradice D, Mazari F, Samuel N, et al. Modelling the effect of venous disease on quality of life. *Journal of British Surgery* 2011; 98: 1089-1098.
4. Gloviczki P, Comerota AJ, Dalsing MC, et al. The care of patients with varicose veins and associated chronic venous diseases: clinical practice guidelines of the Society for Vascular Surgery and the American Venous Forum. *J Vasc Surg* 2011; 53: 2s-48s. 2011/05/06. DOI: 10.1016/j.jvs.2011.01.079.
5. Guideline N. Varicose veins in the legs: the diagnosis and management of varicose veins. *CG168* 2013.
6. Kerver AL, van der Ham AC, Theeuwes HP, et al. The surgical anatomy of the small saphenous vein and adjacent nerves in relation to endovenous thermal ablation. *Journal of vascular surgery* 2012; 56: 181-188.
7. Bakker N, Schieven L, Bruins R, et al. Compression stockings after endovenous laser ablation of the great saphenous vein: a prospective randomized controlled trial. *European Journal of Vascular and Endovascular Surgery* 2013; 46: 588-592.
8. Tal MG, Dos Santos SJ, Marano JP, et al. Histologic findings after mechanochemical ablation in a caprine model with use of ClariVein. *Journal of Vascular Surgery: Venous and Lymphatic Disorders* 2015; 3: 81-85. DOI: https://doi.org/10.1016/j.jvsv.2014.07.002.
9. Elias S and Raines JK. Mechanochemical tumescentless endovenous ablation: final results of the initial clinical trial. *Phlebology* 2012; 27: 67-72. 2011/08/02. DOI: 10.1258/phleb.2011.010100.
10. Whiteley MS, Dos Santos SJ, Lee CT, et al. Mechanochemical ablation causes endothelial and medial damage to the vein wall resulting in deeper penetration of sclerosant compared with sclerotherapy alone in extrafascial great saphenous vein using an ex vivo model. *J Vasc Surg Venous Lymphat Disord* 2017; 5: 370-377. 2017/04/17. DOI: 10.1016/j.jvsv.2016.12.009.
11. Boersma D, van Haelst ST, van Eekeren RR, et al. Macroscopic and Histologic Analysis of Vessel Wall Reaction After Mechanochemical Endovenous Ablation Using the ClariVein OC Device in an Animal Model. *Eur J Vasc Endovasc Surg* 2017; 53: 290-298. 2016/12/28. DOI: 10.1016/j.ejvs.2016.11.024.

12. Van Eekeren RR, Boersma D, Konijn V, et al. Postoperative pain and early quality of life after radiofrequency ablation and mechanochemical endovenous ablation of incompetent great saphenous veins. *Journal of vascular surgery* 2013; 57: 445-450.
13. Alozai T, Huizing E, Schreve M, et al. A systematic review and meta-analysis of mechanochemical endovenous ablation using Flebogrif for varicose veins. *Journal of Vascular Surgery: Venous and Lymphatic Disorders* 2022; 10: 248-257.e242. DOI: https://doi.org/10.1016/j.jvsv.2021.05.010.
14. Singhal S and Uthappa MC. Endovascular management of varicose veins: a review of literature. *Journal of Clinical Interventional Radiology ISVIR* 2019; 3: 098-104.
15. Sun JJ, Chowdhury MM, Sadat U, et al. Mechanochemical ablation for treatment of truncal venous insufficiency: a review of the current literature. *Journal of Vascular and Interventional Radiology* 2017; 28: 1422-1431.
16. Ammollo RP, Petrone A, Giribono AM, et al. Early results of mechanochemical ablation with Flebogrif® in great saphenous vein insufficiency: does polidocanol concentration affect outcome? *Translational Medicine@ UniSa* 2020; 21: 47.
17. Vinters HV, Galil KA, Lundie MJ, et al. The histotoxicity of cyanoacrylates. A selective review. *Neuroradiology* 1985; 27: 279-291. 1985/01/01. DOI: 10.1007/bf00339559.
18. Almeida JI, Min RJ, Raabe R, et al. Cyanoacrylate adhesive for the closure of truncal veins: 60-day swine model results. *Vasc Endovascular Surg* 2011; 45: 631-635. 2011/07/16. DOI: 10.1177/1538574411413938.
19. Proebstle TM, Alm J, Dimitri S, et al. The European multicenter cohort study on cyanoacrylate embolization of refluxing great saphenous veins. *J Vasc Surg Venous Lymphat Disord* 2015; 3: 2-7. 2015/01/01. DOI: 10.1016/j.jvsv.2014.09.001.
20. Morrison N, Gibson K, McEnroe S, et al. Randomized trial comparing cyanoacrylate embolization and radiofrequency ablation for incompetent great saphenous veins (VeClose). *J Vasc Surg* 2015; 61: 985-994. 2015/02/05. DOI: 10.1016/j.jvs.2014.11.071.
21. Gibson K and Ferris B. Cyanoacrylate closure of incompetent great, small and accessory saphenous veins without the use of post-procedure compression: Initial outcomes of a post-market evaluation of the VenaSeal System (the WAVES Study). *Vascular* 2017; 25: 149-156. 2016/05/22. DOI: 10.1177/1708538116651014.
22. Koramaz İ, El Kılıç H, Gökalp F, et al. Ablation of the great saphenous vein with nontumescent n-butyl cyanoacrylate versus endovenous laser therapy. *J Vasc Surg Venous Lymphat Disord* 2017; 5: 210-215. 2017/02/20. DOI: 10.1016/j.jvsv.2016.09.007.

23. Cabrera J, Cabrera J and Garcí-Olmedo A. Treatment of Varicose Long Saphenous Veins with Sclerosant in Microfoam Form: Long-Term Outcomes. *Phlebology* 2000; 15: 19-23. DOI: 10.1177/026835500001500103.
24. Cabrera J, Cabrera J, Jr. and Garcia-Olmedo MA. Sclerosants in microfoam. A new approach in angiology. *Int Angiol* 2001; 20: 322-329. 2002/01/10.
25. Cavezzi A, Frullini A, Ricci S, et al. Treatment of Varicose Veins by Foam Sclerotherapy: Two Clinical Series. *Phlebology* 2002; 17: 13-18. DOI: 10.1177/026835550201700105.
26. Carugo D, Ankrett DN, Zhao X, et al. Benefits of polidocanol endovenous microfoam (Varithena®) compared with physician-compounded foams. *Phlebology* 2016; 31: 283-295. 2015/06/04. DOI: 10.1177/0268355515589063.
27. Asbjornsen CB, Rogers CD and Russell BL. Middle cerebral air embolism after foam sclerotherapy. *Phlebology* 2012; 27: 430-433. 2012/03/01. DOI: 10.1258/phleb.2011.011002.
28. Bush RG, Derrick M and Manjoney D. Major neurological events following foam sclerotherapy. *Phlebology* 2008; 23: 189-192. DOI: 10.1258/phleb.2007.007073.
29. Leslie-Mazwi TM, Avery LL and Sims JR. Intra-arterial air thrombogenesis after cerebral air embolism complicating lower extremity sclerotherapy. *Neurocrit Care* 2009; 11: 247-250. 2009/03/19. DOI: 10.1007/s12028-009-9211-2.
30. Gibson K and Kabnick L. A multicenter, randomized, placebo-controlled study to evaluate the efficacy and safety of Varithena® (polidocanol endovenous microfoam 1%) for symptomatic, visible varicose veins with saphenofemoral junction incompetence. *Phlebology* 2017; 32: 185-193. 2016/03/26. DOI: 10.1177/0268355516635386.