



Letter to the Editor / Editöre Mektup

Ultrasound-guided perforator vein sealing with cyanoacrylate glue

Siyanoakrilat yapıştırıcı ile ultrason eşliğinde perforatör ven mühürleme

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Dear Editor,

We read the paper by Basbug et al.^[1] with great interest. We would like to congratulate the authors for this report. However, we would also like to comment on this topic and to share some questions about this recent endovenous intervention.

Firstly, in this case presentation, we are in the opinion of that the eligibility of the patient for an intervention or surgery is controversial. Perforating venous insufficiency was detected in only one point. However, the patient had the complaints of edema and itching in the lower extremity. In addition, it is not clear in this report whether any conservative treatment was applied or recommended before this procedure. Thus, this issue should be elucidated.

The authors also reported that endovenous treatment with cyanoacrylate was suggested to be safe in terms of embolization. However, in a study by Chan et al.,^[2] a thrombus occurrence of 21% was shown with its progression toward to saphenofemoral junction following endovenous ablation with cyanoacrylate. The identical risks are possible in both superficial and deep venous direction after this intervention. There are also data related to this intervention and, therefore, it needs further investigations. As a result, we believe it is early to conclude that this application is safe.

The Guideline for the Management of Peripheral Artery and Vein Diseases published by the Turkish

Society of Cardiovascular Surgery in 2008 clearly states that surgery is indicated for C4, C5, C6, according to the Clinical-Etiology-Anatomy-Pathophysiology (CEAP) classification in perforating venous insufficiency.^[3] No suggestion for surgical and endovenous treatment of isolated perforating venous insufficiency were included in the 2016 update of this guideline.^[4]

In conclusion, we believe it would be more appropriate to educate the patient, to initiate compression therapy, and to use venoactive drugs before such an expensive and technically difficult method.

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REFERENCES

1. Başbuğ HS, Özışık K. Ultrasound-guided perforator vein sealing with cyanoacrylate glue. Turk Gogus Kalp Dama 2016;24:763-6.
2. Chan YC, Law Y, Cheung GC, Ting AC, Cheng SW. Cyanoacrylate glue used to treat great saphenous reflux: Measures of outcome. Phlebology 2017;32:99-106.
3. Bozkurt AK, editör. Türk Kalp Damar Cerrahisi Derneği Periferik Arter ve Ven Hastalıkları Tedavi Kılavuzu. Ankara: Güneş Tıp Kitabevleri; 2008.
4. Bozkurt AK, editör. Türk Kalp Damar Cerrahisi Derneği Periferik Arter ve Ven Hastalıkları Ulusal Tedavi Kılavuzu. İstanbul: Bayçınar Tıbbi Yayıncılık; 2016.

Author Reply

Dear Editor,

We would like to thank the authors for their precious and insightful comments about our paper entitled "Ultrasound-guided perforator vein sealing with cyanoacrylate glue" which was previously published in your journal.^[1] The questions and the concerns mentioned in this letter were answered and clarified point by point in this reply.

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Perforator veins (PVs) are the group of veins which penetrate the anatomic layers and muscular aponeurosis to connect the superficial to the deep venous system. They have one or two bicuspid valves located beneath the fascia allowing the blood flow unidirectionally from the superficial to the deep venous system. Of note, in case of incompetence, this blood flow reverses from deep to the superficial causing venous hypertension. Although the lower extremity venous system contains numerous PVs (80 to 140), most of them are small and clinically insignificant which rarely contribute to the development of an ambulatory venous hypertension.^[2] The lower extremity perforators are classified into four main groups including thigh, medial calf, lateral calf, and foot perforators. Medial calf perforators constitute the most important perforator group. Among these perforators, the Cockett perforators (the posterior tibial perforator veins) connect the (deep) posterior tibial veins to the (superficial) posterior accessory saphenous vein of the calf (Leonardo's vein or posterior arch veins in the old terminology) in three levels (Cockett I, II, and III). This anatomic concern is significant, as the surgical (stripping) or endovenous (ablation) treatment of the great saphenous vein (GSV) do not affect the pathological flow through the incompetent Cockett perforators.^[2]

After giving this precise anatomical knowledge about the perforator vein system of the lower extremity, the questions in the letter were answered and clarified as follows:

1. The authors stated that the suitability of this intervention was controversial due to the presence of only a single perforator incompetence and the lack of previous conservative treatment. The conservative treatment had already been applied to the patient with oral venotonic medications together with specialized compression bandages. However, it is known that these conservative treatment methods neither treat the underlying venous pathology nor change the diagnostic fact for the presence of an incompetent perforator vein. Furthermore, the patient's compliance and adherence to these treatments decrease over time, thereby, leading to the worsening of the signs and symptoms as the underlying pathology remains untreated. It is also known that an untreated perforator vein incompetence or reflux has a fundamental role in the development of varicose veins, trophic skin changes, and venous ulcers. This patient was fortunately diagnosed and intervened, while she had CEAP (Clinical-Etiology-Anatomy-Pathophysiology) Class-3 signs before developing lipodermatosclerosis (Class-4) or stasis ulcers (Class-5&6). It was shown that, in about 56 to 63% of the patients with venous ulcers, the

pathology was associated with an underlying PV incompetence.^[3] Therefore, irrespective of the site or number, the importance of addressing and treating the perforator vein incompetence should never be underestimated or extenuated.

2. In our case report, we did not state that the endovenous treatment with cyanoacrylate (CA) has been reported to be safe regarding embolization. In contrary to the authors' misconception, we emphasized that the peripheral emboli can still rarely be encountered, despite the faster polymerization time and it has a theoretical risk of deep vein thrombosis. However, we stated that the CA was considered to be safer than the other sclerosants.^[1] Furthermore, the reference given by the authors about a thrombotic complication after endovenous ablation with CA^[4] is about the great saphenous vein application. As aforementioned in the anatomical brief about the perforating vein system, there is no direct relationship or anatomical connection between the Cockett veins and the great saphenous vein.^[2] Besides, it should be remembered that the direction of the blood flow through an insufficient perforator is reversed, resulting in the blood leakage from deep vein to the superficial vein. Therefore, it is nearly impossible for the CA injected in a perforator vein to embolize into the deep venous system against a reversed flow.

3. In this case report, as well as in our daily practice, the indications for interventions in chronic venous insufficiency have been constituted upon the recommendations of the guidelines of The Society for Vascular Surgery (SVS) and the American Venous Forum (AVF).^[5] According to this guideline, it is recommended that patients with chronic venous insufficiency, Duplex scanning of the perforating veins is performed selectively. It is also recommended that the definition of "pathologic" perforating veins includes those with an outward flow of duration of >500 ms, with a diameter of >3.5 mm (Grade of recommendation 1B). The Duplex ultrasound scanning of this case revealed the Cockett-II perforator was 5.2 mm in diameter (normal: 1.0-3.5 mm) with reflux for more than 500 milliseconds. The guideline also recommends the treatment of "pathologic" perforating veins (regardless of number) suggesting the subfascial endoscopic perforating vein surgery, ultrasonographically guided sclerotherapy, or thermal ablations (Grade of recommendation 2C).

In conclusion, the ultrasound-guided vein sealing with CA glue is a novel method for the treatment of perforator vein insufficiency. We performed this new technique with great success and ease in this case. The

patient was treated on time before having complication secondary to venous hypertension. Nonetheless, further studies with long-term follow-up data are needed to establish a definite conclusion. The update for the suggestions regarding the surgical and endovenous treatment of isolated perforator vein insufficiency should be also considered in the forthcoming issues of the related guidelines.

REFERENCES

1. Başbuğ HS, Özışık K. Ultrasound-guided perforator vein sealing with cyanoacrylate glue. Turk Gogus Kalp Dama 2016;24:763-6.
2. Moore WS. Endovascular Surgery. 4th ed. Philadelphia: Elsevier Saunders; 2011. p. 711-24.
3. Başbuğ HS, Bitargil M, Babaroğlu S, Günerhan Y, Göger H, Özışık K. Is color Doppler ultrasound-assisted perforating vein ligation with a mini-incision still a viable alternative? Turk Gogus Kalp Dama 2015;23:493-8.
4. Chan YC, Law Y, Cheung GC, Ting AC, Cheng SW. Cyanoacrylate glue used to treat great saphenous reflux: Measures of outcome. Phlebology 2017;32:99-106.
5. Gloviczki P, Comerota AJ, Dalsing MC, Eklof BG, Gillespie DL, Gloviczki ML, 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(5 Suppl):2S-48S.

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