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Original Article

A 5-year Evaluation of the Recurrence Rate Following Conventional Surgery and Ablation for Venous Insufficiency Revealed That Although Ablation Methods Were Employed, Conventional Surgery Was Not Abandoned

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Abstract

Objectives: Although conventional surgery (CS) has been less frequently employed in the treatment of great saphenous vein (GSV) in recent years, our clinic has not entirely abandoned this method. The objective of this study was to evaluate the recurrence and symptoms of patients treated with CS and radiofrequency ablation (RFA) for venous insufficiency (VI) 5 years ago.

Methods: A retrospective review was conducted on the results of 233 patients who were treated for varicose veins in our clinic 5 years ago (all in the same year). Patients aged 20 years or older with clinical class C2 to C6 clinical, etiological, anatomical, pathophysiological and GSV diameter >5.5 mm, reflux degree of at least 0.5 s were treated with RFA or conventional stripping. A total of 121 patients were treated with CS and 112 patients were treated with RFA. The method to be applied to the patients was randomly assigned without prior planning. The quality of life and recurrence rate were evaluated using the venous clinical severity score before surgery and at 1-month and 5-year intervals following surgery.

Results: In 2017, 233 patients were treated with RFA and CS methods due to VI (n=112, n=121). Clinical follow-up and examinations were conducted at the 1st week, 1st month, and 5th year after surgery. A comparison of the two groups revealed that RFA was non-inferior to CS in terms of clinical relapse after 5 years. However, in terms of recurrence, the situation was 16.36% (n=9) in CS and 46.80% (n=22) in RFA. Recurrence was found to be significantly associated with the operational technique ($p<0.006$). Furthermore, the recurrence rate was significantly higher among patients who underwent venous pouch excision simultaneously with the main procedure (90.84%, n=139) compared to those who did not (9.15%, n=14; $p<0.05$).

Conclusion: As long as the recurrence rate of the traditional surgical stripping method remains low in the treatment of VI, this method will continue to be valuable. Although ablation methods are effective in our clinic, we have not abandoned traditional surgery. Since traditional surgery greatly reduces the risk of reoperation after many years, it should be recommended as an alternative choice to patients who are indicated for the procedure.

Keywords: Venous disease; venous reflux; venous severity score.

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Venöz Yetmezlik İçin Konvansiyonel Cerrahi ve Ablasyon Sonrası Nüks Oranının Beş Yıllık Değerlendirmesi, Ablasyon Yöntemleri Kullanılmasına Rağmen Konvansiyonel Cerrahiden Vazgeçilmediğini Ortaya Koymuştur

Özet

Amaç: Büyük safen ven tedavisinde konvansiyonel cerrahi son yıllarda daha az uygulanmasına rağmen kliniğimiz bu yöntemi tamamen terk etmemiştir. Bu çalışmanın amacı, beş yıl önce venöz yetmezlik nedeniyle konvansiyonel cerrahi (KC) ve radyofrekans ablasyon(RFA) ile tedavi edilen hastaların nüks ve semptomlarını değerlendirmektir.

Gereç ve Yöntem: Kliniğimizde beş yıl önce (hepsi aynı yıl içinde) varis tedavisi görmüş hastaların sonuçları üzerinde retrospektif bir çalışma yapıldı. Klinik sınıf C2 ila C6 CEAP (Klinik, Etiyolojik, Anatomik, Patofizyolojik) ve büyük safen ven çapı 5.5 mm'den büyük, reflü derecesi en az 0.5 saniye olan 20 yaş ve üstü hastalar tedavi endikasyonu almışlardır. Toplam 121 hasta cerrahi ile tedavi edilirken 112 hasta ablasyon ile tedavi edildi. Hastalara uygulanacak yöntem önceden planlama olmadan rastgele yapılmıştır. Yaşam kalitesi ve nüks oranı ameliyat öncesinde ve ameliyattan sonraki bir aylık ve beş yıllık aralıklarla VCSS (venöz klinik şiddet skoru) kullanılarak değerlendirildi.

Bulgular: 2017 yılında 233 hasta venöz yetmezlik nedeniyle RFA ve KC yöntemleri ile tedavi edildi (n=112, n=121). Klinik takip ve muayeneler ameliyat sonrası 1. hafta, 1. ay ve 5. yılda yapıldı. İki grup karşılaştırıldığında, beş yıl sonra klinik nüks açısından RFA'nın KC'ye göre daha düşük olmadığı görüldü. Ancak nüks açısından durum KC'de %16,36 (n=9) iken RFA'da %46,80 (n=22) idi. Nüks, operasyon tekniği ile anlamlı derecede ilişkili bulunmuştur (p<0.006). Ayrıca, nüks oranı ana prosedur ile eş zamanlı olarak venöz pake eksizyonu yapılan hastalarda (%90.84, n=139) yapılmayanlara göre (%9.15, n=14; p<0.05) anlamlı olarak daha yüksekti.

Sonuç: Venöz yetmezlik tedavisinde geleneksel cerrahi stripping yönteminin rekürrens oranı düşük kaldığı sürece bu yöntem değerli olmaya devam edecektir. Kliniğimizde ablasyon yöntemleri etkili olsa da geleneksel cerrahiyi terk etmedik. Geleneksel cerrahi, yıllar sonra yeniden ameliyat riskini büyük ölçüde azalttığından, prosedur için endike olan hastalara alternatif bir seçenek olarak önerilmelidir.

Anahtar sözcükler: Venöz hastalık; venöz reflü; venöz şiddet skoru.

Introduction

Varicose veins are a prevalent condition in Western societies, affecting approximately 33% of adults.[1] Conventional surgery (CS) and high ligation and phlebectomy methods have been extensively utilized in the treatment of varicose veins in the past. However, in the past 10–15 years, methods such as radiofrequency ablation (RFA), endovenous laser ablation (EVLA), and ultrasound-guided foam sclerotherapy (UGFS) have been widely preferred.[2] The emergence of ablation methods can be attributed to several factors, including the time it takes surgical patients to return to active social life, wound healing status, and infections. The optimal treatment approach may vary depending on the clinician's subjective preferences and objective criteria. While our clinic typically employs the RFA method for the treatment of venous insufficiency (VI), we have not entirely abandoned the CS method.

The primary objective of this study is to evaluate the presence of VI-related symptoms in the post-operative period among patients who have undergone either radio RFA or CS for varicose veins. By focusing on the prevalence of symptoms such as pain, swelling, and discomfort, this study seeks to determine the effectiveness of each treatment method in alleviating the clinical manifestations of VI. It is not a study that aims to make comparisons between procedures. The results will provide valuable insights for cardiovascular surgeons and clinicians, aiding in the selection of treatment modalities that optimize patient outcomes and enhance post-operative recovery.

Materials and Methods

The study was retrospective, cross-sectional, and single-center in nature. The choice of surgery or RFA was made subjectively and randomly. Given that our hospital also provides resident training and education for surgical assistant doctors, both methods are used in the treatment. Table 1 presents the patients' age, gender, operating technique, side findings, and venous pouch excision findings. In our clinic, the decision regarding the method to be applied to patients with VI indications is made based on the pre-operative diameter of the great saphenous vein (GSV), the degree of reflux, and the presence of concurrent femoral and perforating vein insufficiency criteria. The pre-operative diameter of the VSM vessels ranged from 5.5 to 14 mm. A reflux degree of ≥0.5 seconds in the GSV was considered pathological, indicating the need for surgical intervention.[3] Patients with GSV insufficiency and simultaneous 1st-degree common femoral vein insufficiency were included in the treatment with both surgical and RFA methods. Patients with severe perforating vein insufficiency and grades 2, 3, and 4 of common femoral vein insufficiency were not subjected to these treatment methods. The median pre-operative venous clinical severity score (VCSS) score for the patients was 16.38±8.45. The examination findings varied from C2 to C6 according to the clinical, etiological, anatomical, pathophysiological (CEAP) clinical classification. The most recent iteration of this classification was revised in 2020.[4] According to the CEAP classification, 30 patients (12.87%) were classified as C2, 77 patients (33.04%) as C3, 79 patients (33.9%) as C4, 43 patients (18.45%) as C5, and four patients (1.71%) were classified as C6. Patients with a history of deep vein thrombosis (DVT), acute thrombophlebitis, pregnant women, and patients with a life expectancy of <1 year were excluded from the study and therefore not treated by CS and RFA. Both treatment modalities were administered in the same hospital, in the same operating room, by the same medical professionals. The method of anesthesia employed was either general or spinal. The method of anesthesia was selected at random based on the preference of the anesthesiologist. A 500 mL solution of 0.9% sodium chloride was prepared, to which was added one amp of epinephrine (1 mg/mL), one amp of 1% lidocaine hydrochloride, and one amp of 20 mL of 8.4% sodium bicarbonate.[5] This constituted the tumescent local anesthetic solution. This solution was employed in the ablation procedure.[6] The Medtronic ClosureFast Endovenous RFA Catheter 7 Fr (2.3 mm) 7 cm×100 cm was utilized for the RFA procedure in all patients. Before the procedure, all patients were informed of the method to be applied, possible side effects, and risks. They were also provided with an informed consent form to sign. The study was approved by the Bağcılar Hospital Ethics Committee with decision number 2023.03.07/017.

Table 1. Baseline characteristics

Variables	n	%
Age, median (IQR)	47 (39–55)	
Gender		
Female	105	45.06
Male	128	54.93
Operational technique		
RFA	112	48.1
CS	121	51.9
Side		
Right	116	49.78
Left	117	50.21
Excision of the venous bulge		
No	80	34.33
Yes	153	65.66
Post-operative symptom		
No	202	86.7
Yes	31	13.3

n: Number of patients; IQR: Inter quartile range (25th–75th percentiles); RFA: Radiofrequency ablation; CS: Conventional surgery.

Surgery and Ablation Technique

Following the application of sterile draping, a 3 cm incision was made in the patient's inguinal region to facilitate the insertion of the saphenous vein. The proximal saphenous vein and its lateral branches were ligated and removed by stripping from the saphenofemoral junction (SFJ) to 1/3 below the knee. The average surgical time was 45.3±8.7 minutes.

In the RFA group, the saphenous vein was located just below the knee in reverse Trendelenburg with Doppler ultrasound guidance, and a 7F introducer sheath was placed. The patient was placed in the Trendelenburg position, and the RFA catheter was advanced to the SFJ. In addition, if there is a large accessory greater saphenous vein branch, it is planned to apply simultaneous RFA to that vein and, if surgery is to be performed, at least high ligation. Tumescent local anesthesia was injected around the VSM under Doppler ultrasound guidance to reduce post-operative pain, hematoma, and potential bleeding. The catheter was fixed 2 cm distal to the SFJ at the beginning of the ablation, and the first shots were taken. Proximal VSM occlusion was verified by ultrasound. If the vessel diameter was >10 mm and complete occlusion was not observed, RFA was applied twice to that segment. A review of studies on EVLA methods in the GSV revealed that the most favorable results were observed in veins with diameters up to 6 mm. While some studies have demonstrated that good results can also be achieved in veins with a diameter of 12 mm and above, the number of these studies is limited.[7] Our current limit value for this parameter is 10 mm. We believe that patients with veins larger than 10 mm should be treated with greater caution during ablation treatment. The RFA process averaged 28.5±7.9 min.

If the patient had venous packets, they were often removed with the mini phlebectomy method in the same session as all other methods. Unless the venous protrusions are extremely large in diameter, some clinicians can leave them in place. Following the procedures, an elastic bandage was applied to the affected limb.

Patient Management

All patients were observed in the hospital for 1 day following the procedure and then discharged. They were subsequently evaluated in the 1st week and 1 month after discharge. The final follow-up was conducted 5 years later. Most patients were contacted through telephone. However, 16 patients who underwent the procedure could not be reached, and their data were excluded from the study. Patient evaluation was based on VCSS classifications (Fig. 1).[8] Ten different factors related to VI were evaluated, including pain, edema, skin pigmentation, varicose veins, inflammation, skin hardness, venous ulcer, ulcer diameter, ulcer duration, and compression therapy application. Each factor was scored on a scale of 0–3 according to its severity, with the maximum possible score being 30. Five years later, Doppler ultrasound was performed again in patients whose clinical symptoms had not improved and whose VCSS scores had not decreased. After the procedure, failure was evaluated under three main headings:

1. In the RFA group, the efficacy of the ablation procedure applied to the GSV was evaluated in terms of the degree of reflux and the necessity for additional intervention in the form of an accessory vein,

Attributes	Absent = 0	Mild = 1	Moderate = 2	Severe = 3
Pain	None	Occasional	Daily not limiting	Daily limiting
Varicose veins	None	Few	Multiple	Extensive
Venous edema	None	Foot and ankle	Below knee	Knee and above
Skin pigmentation	None	Limited (old)	Diffuse (recent)	Wider (recent)
Inflammation	None	Mild cellulitis	Moderate cellulitis	Severe cellulitis
Induration	None	Focal <5 cm	<1/3 of a gaiter	>1/3 of a gaiter
Number of active ulcers	None	One	Two	More than two
Active ulcer duration (diameter)	None	<3 months	3-12 months	>1 year
Active ulcer size	None	<2 cm	2-6 cm	.>6 cm
Compressive therapy	None	Intermittent	Most days	Full compliance

Figure 1. Venous clinical severity score.

Table 2. Comparison of patients according to the frequency of their symptoms in terms of age, gender, surgical side, pouch excision, and applied technique

	Symptom				
	No		Yes		
	n	%	n	%	p
Age, median (IQR)	47 (39–55)		49 (39–55)		0.562
Gender					
Female	90	85.71	15	14.28	0.690
Male	112	87.5	16	12.5	
Operational technique					
RFA	90	80.35	22	19.64	0.006
CS	112	92.56	9	7.43	
Side					
Right	101	87.06	15	12.93	0.867
Left	101	86.32	16	13.67	
Excision of the venous bulge					
No	63	78.75	17	21.25	0.010
Yes	139	90.84	14	9.15	

n: Number of patients; IQR: Interquartile range (25th–75th percentiles); RFA: Radiofrequency ablation; CS: Conventional surgery.

2. In the CS group, the possibility of a partial stripping situation, which would have involved leaving the SFJ stump for an extended period and/or not providing complete ligation of the proximal VSM branches, was a source of uncertainty,
3. In general, complaints related to general femoral vein (CFV) and/or perforating vein insufficiency, vena saphena parva (VSP) insufficiency, and reticular veins that did not exist before the RFA or surgical procedure and developed in the following years in both groups were observed.

Statistical Analysis

The statistical analysis was conducted using IBM SPSS Statistics software v27 (New York, U.S.). Categorical variables were expressed as frequencies and percentages, whereas numerical variables were presented using the median and the 25th–75th percentiles. The Kolmogorov–Smirnov and Shapiro–Wilk tests were employed to assess conformity to a normal distribution. The study assessed the impact of categorical variables among independent groups using the Pearson Chi-square and Fisher tests, with statistical significance set at $p<0.05$.

Results

This study aimed to analyze the recurrence of symptoms in patients with VI treated with two different methods over a 5-year period. The demographic characteristics of the patients are presented in Table 1. Table 2 compares the patients according to age, gender, surgical side, pouch excision, and surgical technique.

The satisfaction status and pre- and post-treatment VCSS scores of patients whose recurrence continued 5 years after treatment were evaluated. Their clinical status was then compared with their previous status.

The main source of problems in the RFA group was the ineffective ablation of the VSM and the presence of an accessory vein or duplicate saphenous vein requiring simultaneous intervention. Ineffective ablation of the VSM could have been caused by its excessively large diameter or technical application error. For example, in larger-diameter veins, ablation probably needed to be performed twice in a row, but it was probably done once. İn the patient depicted in Figure 2, as a result of the failure to perform simultaneous ablation of the accessory vein during the initial treatment, recurrence-like symptoms subsequently manifested.

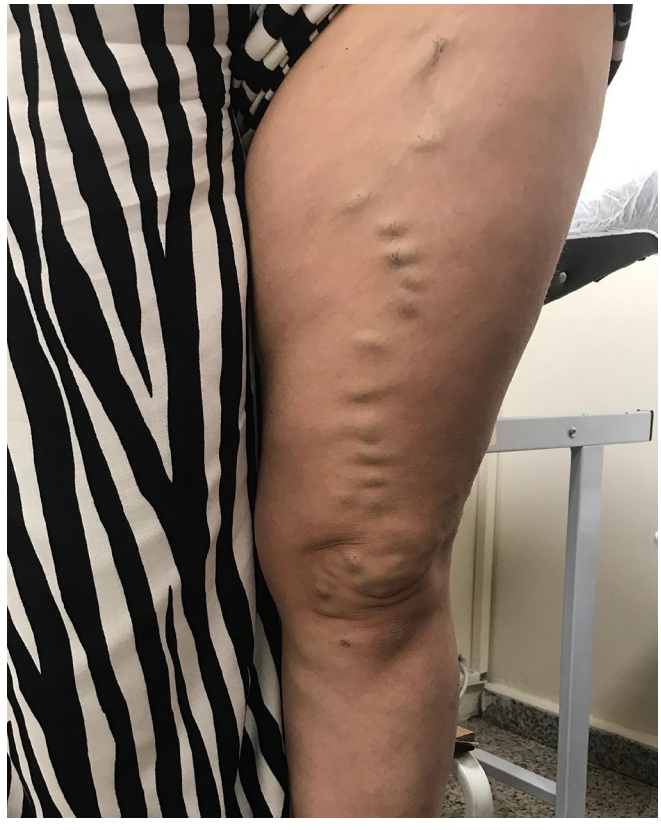

Figure 2. The anterior accessory saphenous vein.

Table 3. Post-operative evaluation of patients who underwent RFA

	Symptom				
	No		Yes		
	n	%	n	%	p
Age, median (IQR)	49 (22–67)		47 (33–65)		0.431
Excision of the venous bulge					
No	34	66.6)	17	33.3	<0.001
Yes	56	91.8)	5	8.19	
Gender					
Female	43	78.18)	12	21.81	0.569
Male	47	82.45)	10	17.54	
Side					
Right	42	76.36)	13	23.63	0.296
Left	48	84.21)	9	15.78	

RFA: Radiofrequency ablation; n: Number of patients; IQR: Inter quartile range (25^{th}–75^{th} percentiles).

The reasons for the recurrences were the long-left SFJ and reflux that did not disappear in this part in the surgical group patients and the ongoing reflux and insufficiency in the VSM part that was left in the partial stripping patient. The common cause of recurrence in the CS group patients was mostly related to newly formed reticular vessels and required sclerotherapy.

There was no statistically significant difference between the groups in terms of age, gender, and surgical side (p>0.05). However, a statistically significant difference was found between the groups in terms of operation technique and excision of additional venous bulge (p<0.05). Patients who underwent venous bulge excision had fewer post-operative symptoms (8.19% vs. 33.3%). The recurrence rate was observed to be higher in the RFA group (19.64% vs. 7.43%). In addition, the incidence of symptoms was lower in patients who underwent venous bulge excision during surgery (9.15% vs. 21.5%). When evaluating patients who underwent RFA only, we compared the presence of symptoms in the post-operative period according to age, surgical side, gender, and pare excision status (Table 3).

Post-operative Data

Post-operative data revealed that recurrence complaints persisted for up to 5 years in nine patients in the traditional surgery group. In two of these patients, recurrence was observed due to perforating vein insufficiency in the distal region, below the knee. This was because the stripping area was limited to the knee. Despite attempts to perform stripping in both antegrade and retrograde directions in two patients, the wire did not advance, and total stripping was unsuccessful. Two patients underwent partial stripping. One of these patients exhibited recurrence complaints, and it is likely that this was related to this condition. Despite the absence of CFV insufficiency at the time of the initial surgical indication, recurrence developed following partial stripping. In certain cases documented in the medical literature, measurable reflux was observed 1 year after GSV treatment. These observations were attributed to pre-operative small saphenous vein insufficiency and reflux below the treated area, as well as advanced age and high C in CEAP.[9]

In one of our patients, the SFJ stump was left approximately 3 cm long. Furthermore, there was ongoing reflux in this stump, which was an important indicator of recurrence secondary to surgery. Two patients had large-diameter VSPs requiring simultaneous intervention, and two patients had large anterior accessory veins.

Table 4. Total recurrence data

Recurrence	n	%
Incompletely closed VSM	14	45.16
Secondary to VSP	4	12.9
Accessory vein	3	9.68
Common femoral vein reflux	3	9.68
VSM duplication	2	6.45
Perforating vein	2	6.45
Saphenofemoral junction incompetence	1	3.23
DVT	1	3.23
Partial stripping	1	3.23

n: Number of patients; VSM: Vena saphena magna; VSP: Vena saphena parva; DVT: Deep vein thrombosis.

In the RFA group, 22 patients continued to experience recurrence complaints after 5 years. Residual reflux and recanalization were observed in 14 patients. These were identified as significant recurrences. It was recognized that two patients with recurrence had large VSM duplications in the pre-operative period, and one patient had a large anterior accessory vein (Fig. 2). In these individuals, RFA was performed solely on the primary VSM, and no simultaneous intervention was conducted on other vessels. The source of recurrence in two patients was determined to be due to VSP in the same extremity, which previously had advanced reflux. Although VSP ablation was required simultaneously with VSM in these patients, no intervention was performed. One patient developed DVT in the early post-ablation period. In the literature, we encountered data showing 7,7% thrombotic complication rate after RFA.[10] In this patient's control ultrasound Doppler, the starting point of the ablation appeared to be in the proximal SFJ region and partially included the common femoral vein. The reason for recurrence in two patients was due to the previous simultaneous presence of advanced reflux findings in both the CFV and the GSV. The total number of recurrences covering all patients is shown in Table 4. Patients in both groups were not given any blood products during and after the opera-

tion. The mean hospital stay for patients in the RFA was 6.3±2.4 h, whereas those for patients in the CS group were 25.2±3.1 h. Four patients in the RFA group exhibited fibrotic hardening and skin pigmentation in the VSM trace during the 1st month of follow-up. No patients in the CS group underwent revision surgery for any reason. While patients in the RFA group were able to resume their normal activities within 1 day, this period was between 3 and 7 days for those in the CS group.

Discussion

In the past 20 years, various methods have emerged as alternatives to the classical surgical approach for the treatment of GSV insufficiency. These include RFA, EVLA, transilluminated phlebectomy, and UGFS. Our statistical data indicate that the clinical recovery rate of patients who underwent stripping was higher, and the recurrence rate was lower. However, when compared to the RFA method, the partially longer surgery and anesthesia times, more bed rest, delay in returning to normal social activity, and sometimes post-operative hematoma and pain conditions were detected. These are undesirable conditions in patients undergoing classical surgery. In our RFA method, we received negative results in terms of clinical recovery. The number of recurrences was high. The ineffective rate of VSM obliteration was remarkable in this sense. However, the advantages of this group included a short operation and anesthesia duration, a short hospital stay, and an early return to a socially active life. When examining the recurrence findings of CS cases, the following conclusions were reached:

1. It is advisable to avoid partial stripping of the saphenous vein as much as possible
2. Partial stripping of the proximal and/or distal parts of the GSV should not be performed, and the medial part should not be left on the patient. In this situation, it is observed that the saphenous vein segments are not obliterated and their connection with the deep system through the perforating vein continues, resulting in residual VI findings over time. Local varicose vein complaints develop in these areas.
3. Following the ligation and division of the VSM, it is important to ensure that the saphenofemoral junction stump is not left for an excessive length. Otherwise, reflux may develop in this area over time, resulting in continued patient complaints.

One of the most significant reasons for recurrence in patients who underwent RFA was the complete or partial opening of the VSM, which indicated ineffective ablation. It became evident that the inadequate or non-repetitive use of the application parameters by the clinicians in the ablation procedure was a contributing factor. To elaborate on this situation, the time of the ablation procedure should be repeated, particularly if the vein diameter is large. It is necessary to perform the procedure two or even 3 times in the same segment. Of course, the numbers indicating the appropriate ablation temperature are also a guide when making these repetitions. Some clinicians may not perform these repetitions sufficiently, which may result in ineffective treatment. We attribute the high rate of GSV patency after ablation in our study to this. In the literature, there are studies reporting recanalization rates of 17.5% 5 years after the RFA procedure.[11] Our similar result has a higher rate. To avoid high rates of recanalization, it is necessary to be more careful in patients with a high CEAP class. From this perspective, total surgical stripping is a radical method that yields superior outcomes compared to ablation, as there is no chance of residue in the GSV. In patients undergoing RFA, even incorrect placement of the catheter in the VSM can cause complications. In fact, in one of our patients, DVT ruptured in the common femoral vein in the early post-operative period due to the ablation catheter overflowing from the VSM to the proximal part. A review of the literature revealed an incidence of newly diagnosed DVT within 30 days after the ablation procedure of 3.2%.[12] DVT was observed in only one of our patients who developed recurrence, which corresponds to a rate of 3.2%. In the RFA group, reflux may also develop in the distal part of the below-knee region, where the ablation process ends. This is another reason for the low recurrence rate in the surgical method. In other words, it may be advantageous for the stripping endpoint to be more distal than RFA.

Another important issue, both in traditional surgery and in patients undergoing ablation, is to pay attention to the presence of anterior accessory and duplicate saphenous veins. In the event that these veins are present, it is imperative that simultaneous intervention be undertaken.[13,14] Even if the initial procedure is successful, the patient may apply again with recurrence findings years later. In our patient cohort, three individuals exhibited substantial enlargement of the anterior accessory veins, whereas two others displayed duplication of the saphenous veins. Despite the successful completion of the primary VSM procedures in these patients, their symptoms persisted due to the recurrence of additional vessels over time. There is a body of literature indicating that procedures performed simultaneously on the GSV and the anterior accessory saphenous vein have superior functionality compared to RFA targeting the GSV alone.[13,14]

Another reason for recurrence is the failure to address the VSP veins despite the simultaneous indication. Patients with both VSM and VSP insufficiency with reflux should be treated simultaneously. The incidence of VSP insufficiency is notable. In cases of suspected recurrence after surgery or ablation, a thorough physical examination, usually complemented by a Doppler examination, is essential for accurate diagnosis. Four of our patients presented with recurrence findings. Re-procedure was recommended for these patients after 5 years.

To provide further context, a similar study conducted in the Netherlands found that surgical patients had a 17% recurrence rate after 5 years, whereas those undergoing ablation had a 33% recanalization recurrence rate.[15] It is likely that the SFJ anatomy is approached more radically and directly in patients undergoing surgery, which may contribute to lower recurrence rates in this region over time. Nevertheless, neither of the aforementioned methods has been demonstrated to reduce the incidence of recurrent telangiectasia and reticular veins in the years that follow.

Limitations of the Study

Despite the use of telephone or other methods to reach patients, not all of them could be contacted. The number of patients included and reached in the study was sufficient for us to compare the results.

It was not possible to conduct follow-up of the patients post-discharge at any other time points. No interim checks were conducted.

Conclusion

As long as the traditional surgical stripping method continues to yield positive results in the treatment of VI, it remains a valuable approach. While our clinic employs new and effective ablation methods, we have not abandoned the use of traditional surgery.

Disclosures

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