



1  
2  
2  
2  
12  
가  
1, 1, 2  
2  
5  
12  
4.5  
12.5 cm  
가 1  
가 1  
12  
11  
가  
12  
11  
1  
가

15% 25%  
(1). 가 가 (1).  
(primary varicose vein)  
(greater saphenous vein)  
(lesser saphenous vein) (3-7).

가 (4).  
(2).

<sup>1</sup>  
<sup>2</sup>  
2006 8 28 2006 12 13

2003 5 2006 5  
 12 130 가 3 가 9  
 55 (32-74 )  
 가 ,  
 가 (CT venography)  
 가 가  
 가 5mm  
 (3).  
 0.05% ( , )  
 (tumescent anesthesia)  
 1%  
 10 cc .  
 (Fig. 1).  
 가



Fig. 1. Location of the varicosity was marked on the patient's skin.

11 3 mm Ramelet  
 (Venosan North America, North Carolina, U.S.A.) (Fig. 2)

가  
 가 (Fig. 3).  
 가



Fig. 2. The photograph of RAMELET hooks.



Fig. 3. Greater saphenous vein was avulsed through skin incision.

5 cm

가

1, 1, 2  
,  
,  
2  
5 ( , , , , )

Abuckle sinus probe (Medtronic Xomed, Jacksonville, FL, U.S.A.) (dissection)

(Fig. 4).

(Suture strip, Shippert, Centennial CO, US)

(Duomed, Medi Bayreuth, Germany)



Fig. 4. Varicose vein was avulsed and removed through skin incision.



Fig. 5. Multiple bruise and hematomas were seen around skin incision.

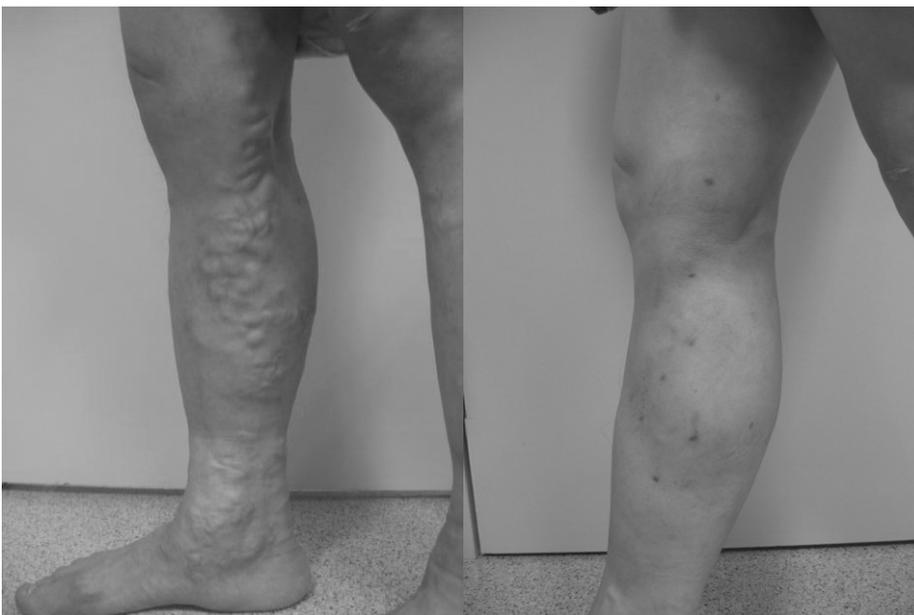


Fig. 6. Photographs obtained before and after ambulatory phlebectomy.

(Fig. 6),

11

“가 11,”

가 1

가

(Fig. 7).

10

가 가

가

(6, 9 - 11).

가

(8 - 11).

가

(12 - 14).

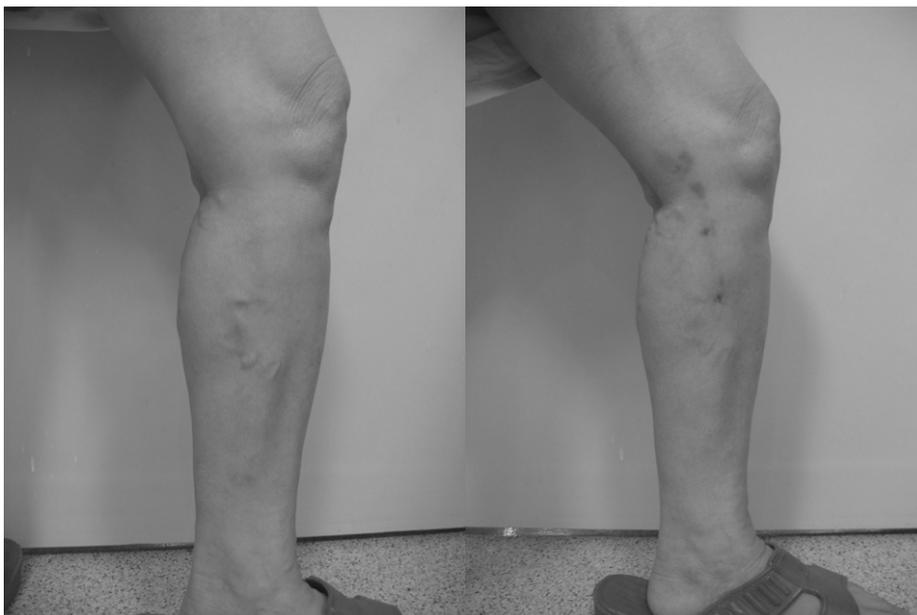
(standard

pulling technique)

가 1 (Table 1). 12  
 가 2 5 - cm  
 10 10 cm  
 4.5 (2 - 9 ) 12.5  
 cm (5 - 18.5 cm)  
 8.9 mm (4 - 12.5 mm)  
 1 40 (40 - 175 )  
 가 12 가 1 (Fig. 5)  
 가 1  
 가 7 , 7  
 가 2 ,  
 . 12 2  
 12 11

**Table 1.** Symptoms and Signs of Patients with Varicose Vein

	Befor Treatment	After Treatment
Mulsclе spasm	7	0
Timgling	2	0
Paralysis	1	0
Edema	6	0
Ardor	1	0
Pain	2	0
Discomfort	11	0



**Fig. 7.** Small segment of varicose vein remained after ambulatory phlebectomy.

(4). Sadick (3) multi -  
 focal pull through technique 가 .  
 가  
 5 cm 가  
 3 mm  
 . Multi - focal pull through technique  
 가  
 가 (3). 12  
 1

2. Min RJ, Navarro L. Transcatheter duplex ultrasound-guided sclerotherapy for treatment of greater saphenous vein reflux; preliminary report. *Dermatol Surg* 2000;26:410-414
3. Sadick NS. Multifocal pull-through endovascular cannulation technique of ambulatory phlebectomy. *Dermatol Surg* 2002;28:32-37
4. Olivencia JA. Ambulatory phlebectomy: a review. *Am J Cosmet Surg* 2000;17:27-35
5. Otley CC, Mensink LM. The phlebectomy probe: a new and useful instrument for ambulatory phlebectomy. *Dermatol Surg* 1999;25:573-575
6. Weiss RA, Goldman MP. Transillumination mapping prior to ambulatory phlebectomy. *Dermatol Surg* 1998;24:447-450
7. Neumann HA, De Roos KP, Veraart JC. Mueller's ambulatory phlebectomy and compression. *Dermatol Surg* 1998;24:471-474
8. Weiss RA, Weiss MA. Controlled radiofrequency endovenous occlusion using a unique radiofrequency catheter under duplex guidance to eliminate saphenous varicose vein reflux: a 2 year follow up. *Dermatol Surg* 2002;28:38-42
9. Min RJ. *Endovenous laser treatment of varicose veins; Mid-term results on 300 incompetent greater saphenous veins*. SCVIR 27th Annual Scientific Meeting, November 6-11, 2002, Baltimore.
10. Min RJ, Zimmet SE, Isaacs MN, Forrestal MD. Endovenous laser treatment of the incompetent greater saphenous vein. *J Vasc Interv Radiol* 2001;12:1167-1171
11. Navarro L, Min RJ, Bone C. Endovenous laser: a new minimally invasive method of treatment for varicose veins; preliminary observation using 810 nm diode laser. *Dermatol Surg* 2001;27:117-122
12. Garde C. Ambulatory phlebectomy. *Dermatol Surg* 1995;21:628-630
13. Otley CC, Mensink LM. The phlebectomy probe: a new and useful instrument for ambulatory phlebectomy. *Dermatol Surg* 1999;25:573-575
14. Bakst AA. Micro multivein incisions for the treatment of spider telangiectasias. *Am J Cosmet Surg* 1998;11:139-141

1. Min RJ, Khilnani NM. Lower-extremity varicosities: endoluminal therapy. *Semin Roentgenol* 2002;37:354-360

## Ambulatory Phlebectomy at Radiologic Outpatient Clinic<sup>1</sup>

Chang Jin Yoon, M.D., Sung-Gwon Kang, M.D., Sang Il Choi, M.D., Whal Lee, M.D.<sup>2</sup>,  
Jin Wook Chung, M.D.<sup>2</sup>, Jae Hyung Park, M.D.<sup>2</sup>

<sup>1</sup>Department of Radiology, Seoul National University Bundang Hospital

<sup>2</sup>Department of Radiology, Seoul National University, Medical College

**Purpose:** To evaluate safety, efficacy, and patient's satisfaction of an ambulatory phlebectomy, performed at a radiology outpatient clinic.

**Materials and Methods:** Between 2003 and 2006, an ambulatory phlebectomy was performed in 12 patients. Endovenous radiofrequency ablation was performed through a venotomy. The venotomy was ligated after RF ablation, and the ambulatory phlebectomy was performed. The patients visited the radiology outpatient clinic one day, one week, and 2 months after the procedure. The improvement in the clinical symptoms, cosmetic change in varicosity, and the procedure related complications were evaluated. The patient's satisfaction was evaluated using a 5-grade scale.

**Results:** RF ablation through a venotomy was performed successfully in all 12 patients. On average, 4.5 incisions were made, and 12.5 cm of varicosity had been removed. The mean procedure time was one hour and forty minutes. The complications of the ambulatory phlebectomy were bruising in one patient, and skin pigmentation in another. The complications associated with RF ablation were a hard palpable vein in 7 patients, numbness in 7 patients, and skin pigmentation along the vein in 2 patients. Follow-up duplex sonography was performed at 2 months after the procedure, showed complete occlusion in all 12 patients. The clinical symptoms had improved in 11 patients, and the varicosity disappeared cosmetically in 11 patients.

**Conclusion:** An ambulatory phlebectomy, combined with RF ablation of the greater saphenous vein, can be performed safely and effectively at a radiology outpatient clinic.

**Index words :** Veins, extremities  
Veins, transluminal angioplasty

Address reprint requests to : Sung-Gwon Kang, M.D., Department of Radiology, Seoul National University Bundang Hospital  
300, Gumi-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, 463-707, Korea  
Tel. 82-31-787-7603 Fax. 82-31-787-4011 E-mail : gangsg@radiol.snu.ac.kr