

The prevalence of varicose veins and the effect of varicose vein treatment on knee pain in patients with knee osteoarthritis and chronic knee pain

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INTRODUCTION:

Varicose veins (VV) of the lower extremities are associated with knee pain or knee osteoarthritis (KOA). However, few studies have reported this association. Oga et al. (*Ann Vasc Dis*, 2021) reported improvement in knee pain in 25 of 35 patients with KOA and VV (71%) after endovenous thermal ablation. This study aimed to verify that the prevalence of VV of the lower extremities among patients with KOA is higher than that reported and that KOA symptoms can be improved by VV treatment.

METHODS:

This was a prospective case series study. Female patients aged over 50 years with long-term knee pain and KOA were included in this study. This study was approved by our institutional review board. Written informed consent was obtained from all patients. Based on the visibility of veins in the lower extremities, patients were divided into two groups: the “less visible group,” where veins were seen under the skin without being enlarged, and the “more visible group,” where veins were enlarged, twisted, or gnarled. KOA was classified using the Kellgren–Lawrence grading system (KL1–4) by evaluating X-ray images. VV was diagnosed by detecting the reverse flow of venous blood over 0.5 s using duplex scanning by ultrasonography of the lower extremities. Treatments for VV included compression stockings or radiofrequency ablation, and each patient selected the suitable treatment.

The Knee injury and Osteoarthritis Outcome Score (KOOS) was administered at baseline and 1 or 2 months after treatment. Treatment outcomes were measured and divided into five groups based on patients’ responses to the outcome interview: (group 1) “excellent improvement,” showing improved knee pain with objective changes, including decreased pain medication usage, increased knee range of motion, or improved activities of daily living, (group 2) “improvement,” showing improved subjective knee pain, (group 3) “slight improvement,” showing improvement in some symptoms of the lower extremities, but not knee pain (group 4) “unchanged,” (group 5) “refused,” referring to patients who refused to use compression stockings because of itching or uncomfortable feelings. Changes in KOOS before and after treatment were compared using the Wilcoxon signed-rank sum test.

RESULTS SECTION:

A total of 60 women (mean age 75 years) were included in this study (12 patients with KL1, 20 with KL2, 17 with KL3, and 11 with KL4). Of the 60 patients, 27 were included in the “less visible group,” 30 were included in the “more visible group,” and the data of the remaining 3 patients were not available. Of the 60 patients, 37 (62%) were diagnosed with VV (Table 1), with approximately 50% of the “less visible group” being diagnosed with VV. Of the 37 patients with VV, 32 started the treatment, and 25 received treatment for more than 1 month (compression stockings (n = 23) and radiofrequency ablation (n = 2)). Among them, 15 patients (60%) experienced an improvement in knee pain (groups 1 and 2), and 20 patients (80%) experienced an improvement in knee pain or some symptoms of the lower extremities (swelling, ankle motion, gait speed, etc.) (groups 1, 2, and 3) (Table 2). Regardless of age, knee pain improved in some patients. In terms of KL, 45% of patients in improvement groups 1 and 2 had KL1 and 2, and 71% had KL3 and 4 (Table 3). The mean score of the KOOS in improvement groups 1 and 2 increased from 53 to 67 (p < 0.01).

DISCUSSION:

The prevalence of VV of the lower extremities among older women with KOA is higher than that reported in the Shimane Community-Based Healthcare Research and Education (CoHRE) study, which showed that 24% of older women living in the same circumstance in Japan had VV of the lower extremities (Kohno K, et al., *J Dermatol*, 2014). This study had a limitation. Since the participants were informed about the study purpose, which was to investigate the relationship between VV and knee pain or KOA, it is possible that a high number of patients who were worried about having VV were included in this study. However, the prevalence of VV in the “less visible group” who might not suspect themselves of having VV was twice as high as that in the Shimane CoHRE study (48% and 24%). Oga et al.¹⁾ reported that the treatment is more effective in patients with KL1 and 2 than in those with KL3 and 4. In this study, more patients with KL3 and 4 reported improvement after VV treatment (Table 3). The differences in the treatment effects in patients with KL3 and 4 might depend on the treatment methods because most treated patients in this study selected compression stockings. This study showed only short-term outcomes. Thus, further studies are needed to assess long-term outcomes.

SIGNIFICANCE: The prevalence of VV of the lower extremities among patients with KOA is high. VV treatment has the potential to improve knee pain in patients with VV and KOA.

REFERENCES:

IMAGES AND TABLES:

Table 1 Prevalence of varicose vein (VV) among all patients and each visible group

	VV (+)	VV (-)	Total
60 patients	62% (37)	38% (23)	60
Less visible group	48% (13)	52% (14)	27
More visible group	77% (23)	23% (7)	30

Table 2 Number and percentage of treatment outcomes in 25 patients

Treatment outcomes	n (%)
(1) Excellent improvement	7 (28%)
(2) Improvement	8 (32%)
(3) Slight improvement	5 (20%)
(4) Unchanged	2 (8%)
(5) Refused	3 (12%)

Table 3 Percentage of improvement of symptoms in KL1 and 2 groups or KL3 and 4 groups

	KL classification	KL1	KL3	Total
	KL2	KL4		
Oga et al. ¹⁾		82%	50%	71%
Improvement groups (1), (2), and (3)		73%	86%	80%
Improvement groups (1) and (2)		45%	71%	60%