



ORIGINAL ARTICLE

# Quality of life after great saphenous vein ablation in Thai patients with great saphenous vein reflux



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## KEYWORDS

endovenous  
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**Summary** *Background/Objective:* To determine the quality of life (QoL) in Thais after intervention for great saphenous vein (GSV) reflux.

*Methods:* Patients with Clinical Etiologic Anatomic Pathophysiologic classes 2 and 3 were enrolled in this study. QoL was measured using the EuroQol descriptive system (EQ-5D) questionnaire, and patients chose to receive either endovenous treatment or surgery after consulting with their surgeons. The QoL before the intervention, at 1 week, and at 1 month after the intervention were evaluated. Patients who reported “no problem” in each domain of the EQ-5D questionnaire before and 1 month after the intervention were compared. Utility gain was estimated from the questionnaire and compared between clinical classes. The proportion of worsening QoL at 1 week after the intervention was compared between patients receiving endovenous procedures and surgery.

Conflicts of interest: All contributing authors declare no conflicts of interest.

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**Results:** A total of 83 patients—56 received endovenous procedures [23 received ultrasound-guided foam sclerotherapy (UGFS) and 33 received radiofrequency ablation (RFA)] and 27 received surgery—were enrolled. QoLs were significantly better in all domains after the intervention: pain/discomfort (58%), mobility (42%), anxiety/depression (38%), usual activities (19%), and self-care (9%). Utility gain was 0.255 (95% confidence interval: 0.197–0.313) and higher in class 3. At 1 week after the intervention, surgery had significantly higher patients with worse mobility scores. Among endovenous procedures, UGFS had higher patients with worse pain/discomfort scores than RFA at 1 week after the intervention (16% vs. 0%,  $p = 0.025$ ).

**Conclusion:** GSV ablation for GSV reflux in Thai patients with CEAP C2 and C3 categories significantly improves both physical and mental QoL; patients who received endovenous procedures were found to have better early physical QoL.

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## 1. Introduction

Varicose veins are common with prevalence rates of 10–15% in men and 20–25% in women<sup>1</sup> with an increasing prevalence with advancing age.<sup>2</sup> This has led to significant health spending.<sup>3</sup> The great saphenous vein (GSV) is the most common site of venous reflux and the standard treatment is ablation of this vein. Important outcomes after GSV ablation are anatomical occlusion, abolishment of reflux in the treated vein, good function, and good quality of life (QoL) for treated patients.<sup>4</sup>

Assessing patient's QoL is important in patient-centered approach because QoL measures patient's perceptions and concerns. QoL is also used for estimating utility scores, which are used to estimate quality-adjusted life years gained for health technology assessments to determine cost effectiveness of interventions.<sup>5–7</sup> Data from European countries have demonstrated improvement in patient's QoL using both generic<sup>8,9</sup> and disease-specific QoL questionnaires<sup>10,11</sup> after GSV ablation for GSV incompetence in patients with simple varicose veins and more severe disease such as lipodermatosclerosis and venous ulceration.

Recent guidelines recommend endovenous thermal ablation over open surgery because endovenous ablation is associated with less pain and morbidity with shorter times to recovery.<sup>4</sup> In terms of post-treatment QoL, a recent systematic review and meta-analysis<sup>12</sup> found better QoL at 1–2 weeks in favor of endovenous procedures over surgery but QoL thereafter was similar.

GSV-related QoL data in Asians are limited and there are no data from Thailand. Currently, all patients with GSV reflux treated by standard surgery and ultrasound-guided foam sclerotherapy (UGFS) are reimbursable by the Thai health care system irrespective of the Clinical Etiologic Anatomic Pathophysiologic (CEAP) clinical class and symptoms; however, those treated by radiofrequency ablation (RFA) are not eligible for reimbursement. A previous cost analysis for health economic evaluation in Thailand indicated that RFA had procedure-related costs of 26,417 Thai Baht, compared with 5556 Thai Baht and 5096 Thai Baht for UGFS and surgery, respectively.<sup>13</sup> Treatment for patients in CEAP clinical classes 4–6 clearly demonstrated significant

QoL gain,<sup>14</sup> but treatment benefit in patients with less severe disease (clinical classes 2 or 3) was still questionable. Therefore, this study was conducted to determine QoL after intervention in CEAP clinical classes 2 and 3 patients with GSV reflux who seek medical attention in Thailand and also compared QoL after endovenous procedures and surgery.

## 2. Methods

The study was conducted at two university hospitals (Thammasat University Hospital, Pathum Thani, Thailand and Ramathibodi Hospital, Bangkok, Thailand) and one provincial hospital (Chonburi Hospital, Chonburi, Thailand) and was approved by the Ethics Committee Boards of all three study hospitals. All patients were informed and signed consents before the intervention. Patients were treated by a general and vascular surgeon who had experience working in this area for 5 years. Eligible patients were those with CEAP clinical classes 2 or 3 with a documented history of isolated unilateral GSV reflux, diagnosed by duplex scan, who underwent any one of the these procedures: RFA, UGFS, or surgery (high ligation and stripping). The study was conducted between October 2011 and February 2013. Exclusion criteria were any one of the following: (1) history of deep vein thrombosis, (2) history of superficial thrombophlebitis, (3) peripheral arterial occlusive disease, and (4) pregnancy.

Consecutive patients who met the eligibility criteria and treated at the clinics of the participating surgeons were invited to participate in the study. The benefit and cost of each intervention was explained to the patients by the participating surgeons and then the patients were allowed to select an intervention method. RFA (Covidien Closure-Fast, San Jose, CA, USA) was performed with tumescent anesthesia. The ablation was performed with incremental steps of 7 cm starting from 2–3 cm distal to the saphenofemoral junction to the knee level. The UGFS was performed concomitantly with saphenofemoral ligation by injecting foam sclerosant (Tessari's method; 1 cm<sup>3</sup> of 1% aethoxysklerol mixed with 3 cm<sup>3</sup> of air) of about 6–8 cm<sup>3</sup> to the GSV just below the knee level. Surgery was performed

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