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## Short Communication

## Review of treatment for varicose veins



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## ABSTRACT

Varicose veins affect 20–25% of the general population in the UK. Open surgery dominated the treatment approach until the end of the millennium with variable outcome. During the last 15 years minimally invasive endovenous approach have been developed with better overall result. Many of these newer methods have been tested through large scale clinical trials with promising result. In this review I have analysed the treatment outcome comparing radiofrequency ablation, laser ablation, open surgical procedure and Ultrasound Guided Foam Sclerotherapy collecting the evidence from large scale clinical trials and from Cochrane analysis. Although there are no robust evidence for some of the newer procedures, the techniques appear to be attractive and hopefully will have a place for treatment of varicose veins in future. Despite these advances in the treatment of varicose veins there remains many unanswered questions that have been discussed.

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## 1. Introduction

Varicose veins affect 20–25% of general population in the UK and remains the commonest vascular condition requiring treatment (Fig. 1). Different modalities of treatment have been tested by clinical trials with variable outcomes and some of these have been approved by the National Institute of Clinical Excellence for use in the NHS. Recently, there has been increasing interest in newer techniques that are likely to simplify the management of varicose veins. The aim of this presentation was to analyse the available evidence in support of various treatment options available, e.g. open surgery, endothermal ablation including radiofrequency, laser, mechanochemical ablation using Clarivein, Ultrasound Guided Foam Sclerotherapy (UGFS) and glue using Sapheon. While there is a large body of experience with availability of long-term data with endothermal ablations, Clarivein and Foam Sclerotherapy, the treatment with glue is relatively new.

Furthermore, Clarivein and Sapheon without the need for tumescent anaesthesia, and UGFS being a simple technique have been attractive. It is also claimed that all these procedures except open surgery can be performed as an outpatient procedure.

## 2. Methods

We selected 3 large studies as level 1 evidence for our analysis.

1. Randomised clinical trial by Rasmussen et al. comparing laser ablation, radiofrequency ablation, UGFS and surgical stripping of great saphenous varicose veins with 3-year follow-up.
2. CLASS Trial by Brittenden et al. comparing Foam with laser ablation and surgery.
3. Cochrane analysis by Nesbitt et al. comparing endovenous ablation (radiofrequency and laser) and UGFS with open surgery for great saphenous varicose veins. The results of treatment with Clarivein (Fig. 2) and the glue (Saphena) were also analysed.

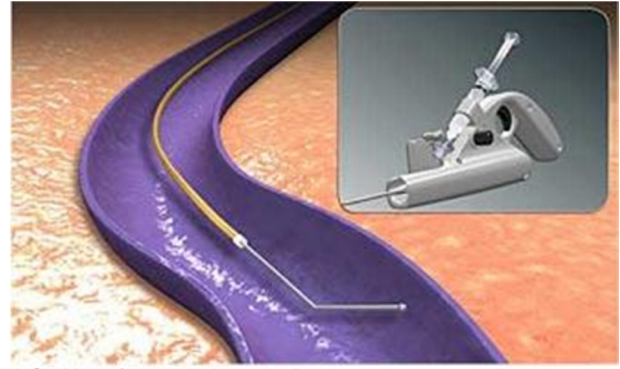
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Fig. 1 – Varicose veins.



1. Clarivein infusion catheter is introduced percutaneously into the vein under ultrasound guidance. The catheter tip is positioned near the saphenofemoral junction. No tumescent anesthesia required.

Fig. 2 – Clarivein infusion catheter.

### 3. Results

The outcome of treatment at 3 years using Kaplan–Meier plot suggested that the treatment with UGFS had the highest number of recurrences (30%) whereas the recurrence following endothermal ablation and surgery remained <10%. The Clinical Severity Score at 3 years had improved and remained

identical in all the groups. The Aberdeen Varicose Vein Severity Score improved by the end of 3 years and remained identical in all the 3 groups. The mean cost for treatment was lowest in the UGFS group and highest in the thermal ablation groups. The CLASS Trial recommended laser ablation as the preferred option in terms of both clinical outcomes at 6 months and estimated 5-year cost effectiveness. The Cochrane review included 13 studies with a combined total of 3081 patients. The overall quality of evidence was moderate due to variations in the reporting of the results. Comparing UGFS and surgery, the findings indicated no difference in the rate of recurrences and no difference in the groups for symptomatic recurrence (OR 1.74, 95% CI 0.97–3.12;  $P = 0.06$  and OR 1.28, 95% CI 0.66–2.49 respectively). Recanalization at <4 months had an OR of 0.66 (95% CI 0.20–2.12), recanalization >4 months an OR of 5.05 (95% CI 1.67–15.28) and for neovascularisation an OR of 0.05 (95% CI 0.00–0.94). For EVLT versus surgery, there were no differences between the

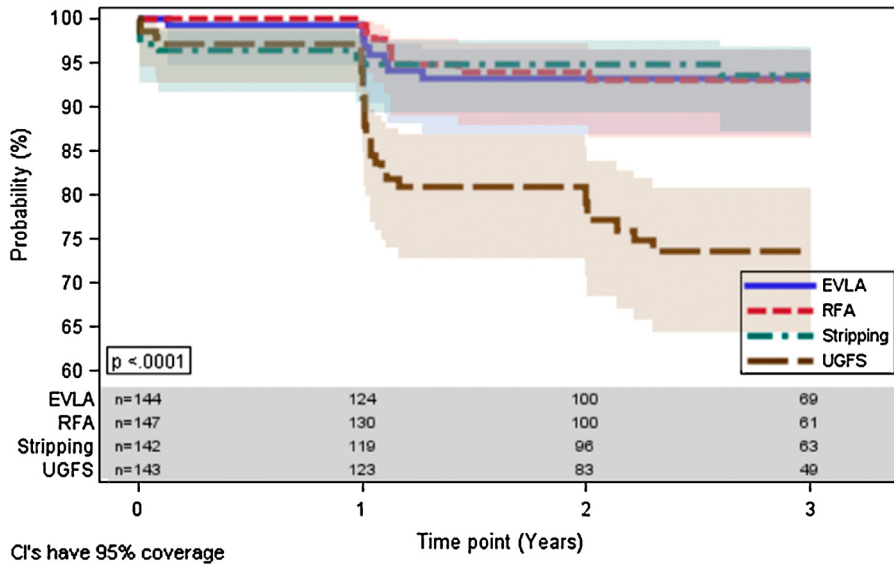


Fig. 3 – Kaplan–Meier (KM) plot of open refluxing great saphenous veins (GSVs). The KM figures represent time to the event. CIs, confidence intervals; EVLA, endovenous laser ablation; RFA, radiofrequency ablation; UGFS, ultrasound-guided foam sclerotherapy.

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