Systematic review of outcomes after surgical management of venous disease incorporating subfascial endoscopic perforator surgery


CRD summary
This review evaluated surgical outcomes following subfascial endoscopic perforator surgery (SEPS) in patients with severe chronic venous insufficiency. The authors concluded that surgical management including SEPS leads to an 88% chance of ulcer healing and a 13% chance of recurrence in the short term. As the potential for error and bias cannot be determined, the results must be treated with caution.

Authors' objectives
To establish the rates of surgical outcomes following subfascial endoscopic perforator surgery (SEPS) in patients with severe chronic venous insufficiency.

Searching
MEDLINE was searched from 1966 to January 2003; the search terms were reported. In addition, the references of retrieved studies and reviews were checked and experts were contacted. Only studies reported in English were included.

Study selection
Study designs of evaluations included in the review
Randomised and non-randomised trials were eligible for inclusion. Studies with fewer than 10 patients with active ulcers were excluded.

Specific interventions included in the review
Studies of surgical management that included SEPS were eligible for inclusion.

Participants included in the review
Studies of people with severe chronic venous insufficiency that reported the number of patients with active ulceration at the time of SEPS were eligible for inclusion. The age of the participants ranged from 23 to 85 years, with an overall mean of 57 years. The proportion of females ranged from 11 to 75%. The CEAP (Clinical, Etiology, Anatomy, Pathophysiology) classification of the participants was class 2 to 6, with 70% having CEAP class 5 or 6.

Outcomes assessed in the review
Studies reporting the number of patients with ulcer healing during follow-up were eligible for inclusion. Study authors were contacted if the reported healing and recurrence rates were not clear. The outcomes of interest included healing, recurrence and adverse events. Overall healing was defined as the number of patients with class 6 disease that healed by last reported follow-up. Ulcer recurrence was recorded for patients with class 5 and 6 disease that healed after SEPS.

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
Two reviewers independently extracted the data.

For dichotomous outcomes, the odds ratio (OR) and 95% confidence intervals (CIs) were calculated for each study. The proportion of participants experiencing each outcome was also extracted.

**Methods of synthesis**

How were the studies combined?
To combine proportions, the logits of the proportions were calculated, then combined using an adapted DerSimonian and Laird random-effects meta-analysis. Pooled ORs and 95% CIs were also calculated using a random-effects model.

How were differences between studies investigated?
No statistical test for heterogeneity was performed. Some study details were tabulated, and some differences between the studies were discussed in the text.

**Results of the review**

Twenty studies (n=1,031) were included in the review: one randomised trial (n=20) and 19 case series.

**Ulcer healing (20 studies).**

The ulcer healing rate ranged from 56 to 100% with SEPS. When the studies were pooled, ulcers healed in 88% (95% CI: 83, 92) of limbs. In a subset of 9 studies, 40% (95% CI: 27, 53) of ulcers healed within 30 days, 64% (95% CI: 53, 74) within 60 days, and 86% (95% CI: 77, 92) after 60 days.

**Ulcer recurrence (18 studies).**

Ulcer recurred in 16% (95% CI: 10, 24) of patients with CEAP class 5 disease at surgery, 16% (95% CI: 11, 21) of patients with CEAP class 6 disease, and 13% (95% CI: 9, 18) of patients with CEAP class 5 or 6 disease at surgery.

**Adverse events.**

Early adverse events included wound infection (6% of patients, 95% CI: 4, 8), haematoma (9% of patients, 95% CI: 6, 13), neuralgia (7% of patients, 95% CI: 6, 9) and deep vein thrombosis (1% of patients, 95% CI: 0.7, 3).

**Authors' conclusions**

Surgical management of venous ulcer including SEPS, with or without saphenous ablation, leads to an 88% chance of ulcer healing and a 13% chance of recurrence in the short term.

**CRD commentary**

The review question was clear in terms of the intervention, participants, outcome and study design. The authors undertook a limited search and the potential for publication bias cannot be ruled out. The included studies were restricted to those written in English, which might have introduced language bias, and relevant studies might have been missed. The data extraction was conducted in duplicate, which helps to reduce the risk of bias, but it was unclear if the same approach was used during the study selection process. There was no validity assessment, and insufficient study details were provided to indicate the quality of the included studies. The authors stated that there was clinical heterogeneity across trials, but statistical heterogeneity was not assessed and it was unclear whether a statistical pooling of the results was appropriate. Since the potential for error and bias cannot be determined, the results must be treated with caution.

**Implications of the review for practice and research**

Practice: The authors did not state any implications for practice.
Research: The authors stated that prospective randomised trials are required to define the relative contributions of compression therapy, superficial venous surgery and SEPS in the management of severe venous disease.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.