Vein-patch closure was better than primary closure in decreasing early strokes and arterial occlusion in carotid endarterectomy


**Objective**
To compare early outcomes for patients who have carotid endarterectomy (CEA) with primary closure, vein-patch closure (saphenous and jugular veins), or polytetrafluoroethylene (PTFE) patch closure.

**Design**
Randomised controlled trial.

**Setting**
A U.S. university hospital.

**Patients**
357 adults (mean age 68 y, 51% men) who were scheduled for CEA (315 unilateral and 42 bilateral procedures). Exclusion criteria were repeat CEA, CEA with concomitant coronary artery bypass grafting, or internal carotid artery diameters < 4 mm.

**Intervention**
Primary closure (n = 135) using polypropylene sutures, PTFE patches (n = 134)

**Commentary**
This detailed study by AbuRahma and colleagues adds to our knowledge of this topic and is worthy of careful analysis. The statistical power to detect differences among the groups was reduced by a lower-than-expected rate of neurological events. The execution of the study was probably appropriate, although no information is given about the randomisation.

The main results were a reduction in perioperative stroke in patients whose carotid arteries were patched and a reduction in the incidence of carotid stenosis of ≥ 50% at 30 days. Prevention of perioperative stroke is a major objective in carrying out CEA. Analysis of patients who had a stroke showed that carotid occlusion was the predominant event. The issue is how best to prevent carotid thrombosis. The conventional wisdom is that early events, such as arterial occlusion, are predominantly caused by technical error. Patching may reduce carotid occlusion by enlarging the artery and masking the effects of residual defects in the artery. Would alternative methods, such as intraprocedural angiography or ultrasonography, detect these imperfections and allow them to be corrected immediately, thus reducing the incidence of perioperative occlusion?

**Conclusion**
Patients who received vein-patch closure (saphenous or jugular veins) compared with primary closure for CEA had lower rates at 30 days for stroke, stroke plus reversible ischaemic deficits, and artery narrowing ≥ 50%.

**Source of funding: No external funding.**
For article reprint: Dr. A.F. AbuRahma, Robert C. Byrd Health Sciences Center of West Virginia University, Charleston Division, 3100 MacCorkle Avenue Southeast, Suite 603, Charleston, WV 25304, USA. FAX 304-345-3229.

**Outcomes at 30 days**

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Vein-patch closure</th>
<th>Primary closure</th>
<th>RRR (95% CI)</th>
<th>ARR</th>
<th>NNT (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroke</td>
<td>0%</td>
<td>4%</td>
<td>100%</td>
<td>4%</td>
<td>23 (13 to 103)</td>
</tr>
<tr>
<td>Stroke and ischaemic deficits</td>
<td>1%</td>
<td>5%</td>
<td>85%</td>
<td>4%</td>
<td>23 (10 to 257)</td>
</tr>
</tbody>
</table>

*Abbreviations defined in Glossary; RRR, ARR, NNT, and CI calculated from data in article.

**Therapeutics**

Vein-patch closure was better than primary closure in decreasing early strokes and arterial occlusion in carotid endarterectomy

Evid Based Med 1997 2: 117-177
doi: 10.1136/ebm.1997.2.117

Updated information and services can be found at:
http://ebm.bmj.com/content/2/4/117.citation

These include:

References
This article cites 1 articles, 0 of which you can access for free at:
http://ebm.bmj.com/content/2/4/117.citation#BIBL

Email alerting service
Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Notes

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/