

## LETTERS TO THE EDITOR

### Regarding: "Initial experience with eversion carotid endarterectomy: Absence of a learning curve for the first 100 patients"

We read with interest Dr Brothers' article on his initial experience with eversion carotid endarterectomy (eCEA).<sup>1</sup> Comparing his first 100 patients who underwent eCEA with 100 cases of traditional CEA and patching (tCEA), he found a significantly higher rate of restenoses >50% in the former (38% vs 6%) and no evidence of a learning curve. Shunting was also needed more often during eCEA (87% vs 59%), and four carotid occlusions occurred  $\leq$ 36 months of eCEA compared with only one occlusion after tCEA. Hence, the author's concern about eCEA, and he urges surgeons undertaking eCEA to monitor their initial results carefully.

In a recently published study on 1150 CEAs performed in 1000 patients, we compared the outcome of 848 eCEAs with 302 tCEAs.<sup>2</sup> Unlike Dr Brothers, we found that eCEA reduced perioperative (30-day) mortality (0% vs 1.2%) and stroke risk rates (0.3% vs 0.6%). In >6 years of follow-up, only two restenoses (one >50% and 1 >70%) and 1 occlusion occurred in the eversion group.

Because group comparability in terms of external and intrinsic vascular risk factors is always crucial, a few years ago we conducted a prospective randomized study comparing clinical outcome and incidence of restenosis in 86 patients who had tCEA on one side and eCEA on the other.<sup>3</sup> Selective shunting was statistically higher in the tCEA group (39.5% vs 1.2%), and patched patients had a slightly higher rate of combined transient ischemic attacks and strokes (7% vs 1.2%). Most importantly, patched patients had a significantly higher incidence of restenosis >50% (4.7% vs 0%) and combined occlusions and restenoses (13% vs 1.2%), with a significantly worse cumulative patency rate and freedom from restenoses at 2 and 3 years ( $P = .001$ ).

Several statistically and clinically significant findings relate to the better early results with eCEA.<sup>3</sup> First, the higher incidence of residual angulations after patching, compared with the lack of residual distal elongation with eversion (10.5% vs 0%), indicates that this defect may be a major determinant of perioperative stroke secondary to primary thrombosis and a predictor for late occlusions. Second, eCEA takes less time than tCEA (mean carotid cross-clamping time of 9 minutes vs 21 minutes), significantly reducing the need for shunting (1.2% vs 39.5%). Finally, eCEA preserves the original carotid configuration, offering theoretical hemodynamic advantages in terms of minimizing turbulence and the potential for restenosis.<sup>3,4</sup> So, in our hands eCEA is a safe, effective, and durable procedure.

Dr Brothers' results are plausible, but his study has several weaknesses: (1) being retrospective, the analysis can have no significant clinical implications; (2) the timing of enrollment differs between the groups, (3) the incidence of important risk factors such as diabetes and hypertension in each group and (4) the drop out rate are not known; (5) carotid plaque morphology (low vs high embolic risk) is never mentioned, and (6) no carotid imaging was performed on the restenoses.

We agree with Dr Brothers that it is always wise to carefully monitor initial results after adopting a new technique, bearing in mind the experience of other colleagues.

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### Reply

Dr Baracchini and his colleagues are to be congratulated for their excellent results with eversion carotid endarterectomy. While laudable, their findings of reduced perioperative 30-day mortality and stroke with the eversion technique do not appear to be statistically significantly lower than their outstanding results with traditional endarterectomy and patching (my calculation using Fisher's exact test). Certainly, their extremely low rate of restenosis of <1% in their retrospective study appears to be far superior of that of 3.6% documented for eversion endarterectomy in the much larger prospective, randomized Eversion Endarterectomy versus Standard Trial (EVEREST) trial.<sup>1</sup> Clearly, few vascular surgeons have been able to achieve the surgical precision of Dr Baracchini with this technique, and I welcome his comments.

I readily acknowledge that my report suffers from all of the inherent weakness of a retrospective study, as does his own 2004 study. Although not reported in my article, there were no differences in the prevalence of diabetes and hypertension between the groups. The dropout rate is included with the life-table analysis.

Finally, although I do share his intellectual curiosity regarding the angiographic appearance of the carotids detected to have >50% stenosis by duplex, ethically, I did not feel that I could study these patients angiographically unless their degree of stenosis was >80%. I am glad that we agree that all surgeons must carefully monitor their own results.

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