

Medical Note

Intraoperative Blood Flow Measurements during Carotid Endarterectomy

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Surgical Approach

No special adjustment in surgical technique is necessary for measurement of blood flow during carotid surgery. The sites on the carotid arteries skeletonized by dissection for vascular clamp placement are identical to those employed for Flowprobe placement. A 10 mm Flowprobe (sometimes an 8 mm Flowprobe is used) is employed for the distal common carotid artery and 6 mm Flowprobes for the origin of the internal and external carotid arteries.

The Flowprobe on the external carotid is placed just distal to the origin of the superior thyroid artery. We perform the pre-endarterectomy flow measurements immediately after administration of systemic heparin. Measurement of all three arteries (Fig. 1) only requires a few minutes.

After the first measurement, vascular clamps are placed and the endarterectomy is performed. After finishing the endarterectomy, removing all clamps, and establishing hemostasis, a repeat flow measurement is performed. Occasionally, a low flow or turbulent flow waveform is detected indicating the presence of a significant stenosis which requires immediate revision. As a consequence, we try not to reverse heparin with protamine until completion of the flow measurements.

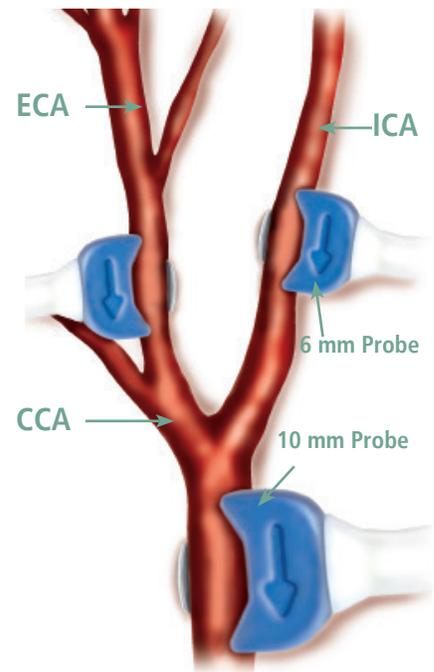


Fig 1: Flowprobe Positions: Pre and Post Endarterectomy.

TYPICAL FLOWS OBSERVED		
Conduit	Pre-Endarterectomy	Post-Endarterectomy
Common carotid a	287 ± 17	329 ± 18
External carotid a	126 ± 10	104 ± 8
Internal carotid a	135 ± 10	178 ± 11

Carotid Endarterectomy	Probe Size (mm)
Common carotid artery	8, 10
External carotid artery	6
Internal carotid artery	6



6 mm Carotid Flowprobe (-FME)

REFERENCES

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