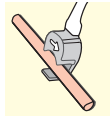


Neurosurgery Quick Reference

MEASURING FLOW

1. Select appropriate size Flowprobe and apply to the vessel as shown.
2. Add saline as needed to obtain good ultrasonic contact. Do not irrigate continuously because the Flowprobe will also measure the flow of the saline.
3. When flow reading is stable (10-15 sec) u PRINT. Leave probe on the vessel until printer stops.



IMPORTANT

- Use right size flowprobe.
- Check baseline flows before aneurysm clipping. Measure baseline flows after burst suppression, if administered.
- Record blood pressure and end tidal CO₂ during initial measurements. Keep these parameters constant during subsequent flow measurements.

PROBE SELECTION

Probe Size	Vessel ø mm
1.5	1.0 - 1.5
2.0	1.5 - 2.0
3.0	2.0 - 3.0

FLOW MEASUREMENT SUMMARY

ANEURYSM SITE	PROBE PLACEMENT	SIZE mm	EXPECTED FLOWS ml/min
CAROTID OPHTHAMIC A (OPH)	M1	2.0	80-110 and/or
	A1	2.0	40-60
	ICA	3.0	120-170
POSTERIOR COMMUNICATING A (PCOM)	M1	2.0	80-110 and/or
	A1	2.0	40-60
	ICA	3.0	120-170
ANTERIOR CHOROIDAL A (ACH)	M1	2.0	80-110 and/or
	A1	2.0	40-60
	ICA	3.0	120-170
	ACh	1.5	
CAROTID BIFURCATION (ICA)	M1	2.0	80-110 and/or
	A1	2.0	40-60
ANTERIOR COMMUNICATING A (ACOM)	A1 (ipsilateral)	2.0	40-60 and/or
	A1 (contralateral)	2.0	40-60
	A2 (both)	1.5	40-50
MIDDLE CEREBRAL A (MCA)	M2 (outlet)	2.0	50-80
POST. INFERIOR CEREBELLAR A (PICA)	VA (proximal or distal)	3.0	100-200 and
	PICA	2.0	10-15
SUPERIOR CEREBELLAR A (SCA)	SCA (ipsilateral)	1.5	18-20 and
	PCA	2.0	26-30
BASILAR TIP A (BA)	P2 (ipsilateral)	2.0	26-30 and
	SCA	1.5	18-20
	PCOM (prelude to sacrifice)		

TECHNICAL RECOMMENDATIONS DURING ANEURYSM SURGERY

ANEURYSM LOCATION	PROBE PLACEMENT	TIPS
MCA	M2 outlet vessels	This is a straightforward, relatively low stress case for the surgeon. One of the easiest places to put the probe. Ask if it's a wide neck.
Carotid Bifurcation	MCA and/or ACA	The technical challenge is to preserve flow in the M1 and A1 outlet vessels. Flow in the ICA (3 mm) can be checked also.
Carotid-Ophthalmic	MCA and/or ACA, ICA	Flow must be preserved in the the ICA and M1 and A1 outlet vessels. Usually large aneurysms with no proximal control.
Anterior Communicating	Ipsilateral A1 (and/or Contralateral) Both A2s	High risk. The technical challenge is to preserve flow in the A2 outlet vessels. No change in both A2s indicates flow is fully preserved. One A1 usually predominates and feeds both vessels.
Basilar tip	Ipsilateral P2 and SCA Pcom (prelude to sacrifice)	The perforators will still need to be inspected.
Superior cerebellar artery	Ipsilateral SCA & PCA	Check flow in the ipsilateral SCA & PCA.
Posterior Communicating	MCA and ACA, ICA	This is the one location where the probe might not be used because the surgeon may only expose the carotid and the aneurysm.
Posterior Inf Cerebellar	Proximal or distal VA and/or PICA	Check flow in PICA and VA.
Anterior Choroidal	MCA & ACA, ICA, Ant Choroidal	Flow in the anterior choroidal is particularly important. The 1.5 mm probe is good for this vessel.



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