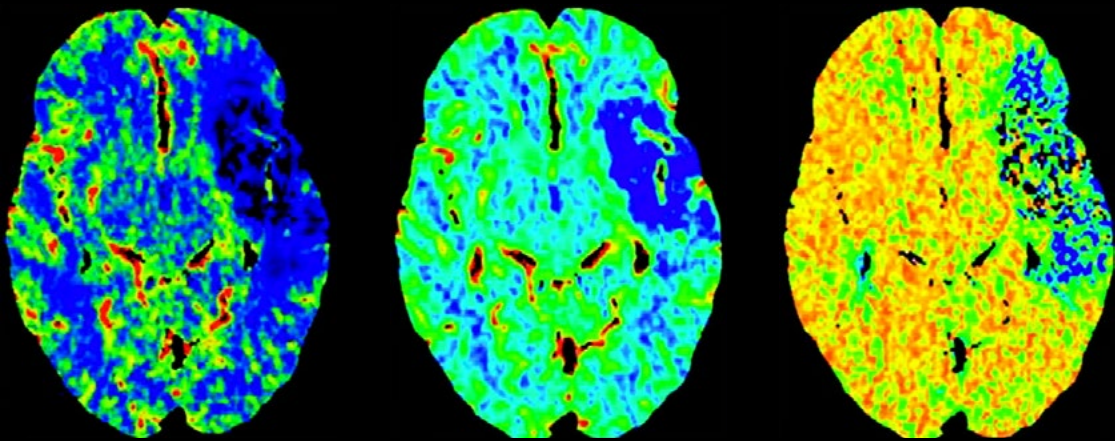


UPDATE:
STROKE PREVENTION
AND TREATMENT

Dr Rodney Allan

Neurosurgeon and Endovascular Neurosurgeon



Stroke - Revolutions in Treatment

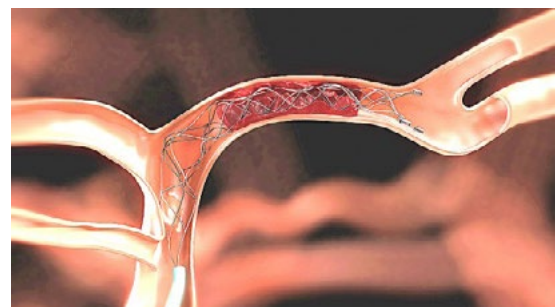
In 2015, 5 trials were reported, with near identical results. Unlike all previous trials (which had uniformly been negative), these all showed a significant reduction in death and disability with clot retrieval for large vessel occlusions, if instituted within 6-8 hours of stroke.¹⁻⁵

A more recent study suggests benefit out to 24 hours. (Presented at European Stroke Congress in 2017).

What is endovascular clot retrieval?

Access is gained (usually via the common femoral artery) and a stent is deployed within the clot, and removed under suction.

If a large vessel occlusion is opened, the chance of a good outcome *doubles*.



Endovascular clot retrieval: Case study

- 56 year old male - hemiparesis in Gosford at 11pm, last seen well at 2200. Transferred to RPA - arrival at 0030.



- ^ Pre treatment angiogram - showing occluded Middle Cerebral Artery



- ^ Post treatment angiogram - showing opening of all major vessels (30 minutes later)



- < Clot removed - past history of atrial fibrillation

Outcome

- Discharged, no deficits at 72 hours.

Who can have this treatment?

Anyone presenting with a stroke within 8 hours of onset, or at wake up *may* be a candidate.

More recent trials suggest benefit out to 24 hours.

Current Status of Carotid Treatment

Stenting versus Endarterectomy - which is best?

The answer - it depends!

The CREST trial (Carotid Revascularization Endarterectomy versus Stenting Trial (CREST)⁶ was the first trial to show equivalence between CEA (carotid endarterectomy) and CAS (Carotid Angioplasty and Stenting) for both symptomatic and asymptomatic carotid stenosis.

CEA remains the most studied procedure in medicine.

The benefit of CEA for symptomatic stenosis greater than 50 per cent, and asymptomatic stenosis greater than 70 per cent was well proved in studies from the 1990s (versus medical management alone).

Most other trials have not shown stenting to be as good as endarterectomy.

What was different about this trial?

- They included perioperative myocardial infarction as an outcome measure
- In fact the stroke rate was lower for CEA (2.3 per cent) than CAS (4.1 per cent) (p 0.01)

So who should have a carotid stent?

- Unstable cardiac status
- Previous neck surgery
- Radiotherapy to neck
- High lesion (above jaw line) or low lesion

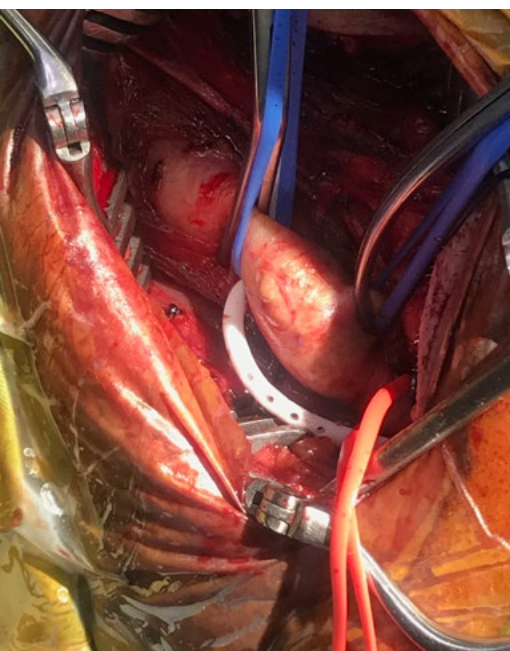
Who should have an endarterectomy?

- All others
- Those over 80 (tortuous anatomy makes access difficult for stenting)

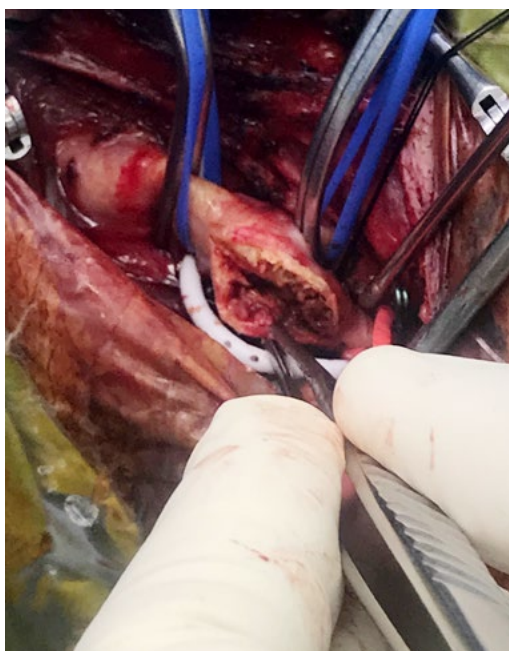
Who should be referred?

- Anyone with a TIA referable to a carotid > 50 per cent narrowed on ultrasound or on CTA
- Anyone with > 70 per cent narrowing on ultrasound or CTA even if asymptomatic
- All such patients should be on at least aspirin, with secondary risk reduction strategies in place

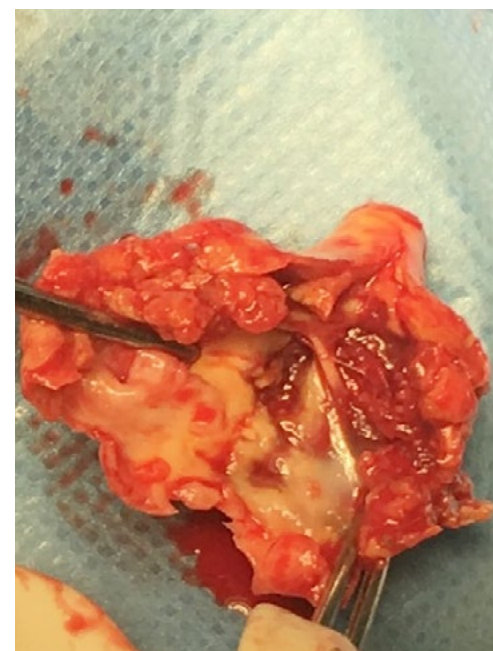
- ✓ Carotid exposed in the neck for a CEA



- ✓ Artery cross clamped and opened - plaque visible



- ✓ Plaque removed from artery - this surface was exposed to the blood stream





Pre-op



After deployment of stent

References

1. Berkhemer OA, Fransen PS, Beumer D, et al, *A randomized trial of intraarterial treatment for acute ischemic stroke*. N Engl J Med 2015;372:11-20.
2. Goyal M, Demchuk AM, Menon BK, et al, *Randomized assessment of rapid endovascular treatment of ischemic stroke*. N Engl J Med 2015;372:1019-1030.
3. Saver JL, Goyal M, Bonafe A, Diener HC, Levy EI, Pereira VM, Albers GW, Cognard C, Cohen DJ, Hacke W, Jansen O, Jovin TG, Mattle HP, Nogueira RG, Siddiqui AH, Yavagal DR, Baxter BW, Devlin TG, Lopes DK, Reddy VK, du Mesnil de Rochemont RD, Singer OC, Jahan R; SWIFT PRIME Investigators, *Stent-retriever thrombectomy after intravenous t-PA vs. t-PA alone in stroke*. N Engl J Med 2015;372:2285-2295.
4. Campbell BC, Mitchell PJ, Kleinig TJ, Dewey HM, Churilov L, Yassi N, Yan B, Dowling RJ, Parsons MW, Oxley TJ, Wu TY, Brooks M, Simpson MA, Miteff F, Levi CR, Krause M, Harrington TJ, Faulder KC, Steinfort BS, Priglinger M, Ang T, Scroop R, Barber PA, McGuinness B, Wijeratne T, Phan TC, Chong W, Chandra RV, Bladin CF, Badve M, Rice H, de Villiers L, Ma H, Desmond PM, Donnan GA, Davis SM; EXTEND-IA Investigators, *Endovascular therapy for ischemic stroke with perfusion-imaging selection*. N Engl J Med 2015;372:1009-1018.
5. Jovin TG, Chamorro A, Cobo E, de Miquel MA, Molina CA, Rovira A, Román LS, Serena J, Abilleira S, Ribó M, Millán M, Urra X, Cardona P, López-Cancio E, Tomasello A, Castaño C, Blasco J, Aja L, Dorado L, Quesada H, Rubiera M, Hernandez-Pérez M, Goyal M, Demchuk AM, von Kummer R, Gallofré M, Dávalos A; REVASCAT Trial Investigators, *Thrombectomy within 8 hours after symptom onset in ischemic stroke*. N Engl J Med 2015;372:2296-2306.
6. Brott TC, Hobson RW II, Howard G, et al, *Stenting versus endarterectomy for treatment of carotid-artery stenosis*. N Engl J Med 2010;363:11-23

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