

How to Manage LVO Stroke with Access Blocked by Cervical Carotid Occlusion

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Disclosures

Affiliation/Financial Relationship

Grants/Trials

Consulting Fees/Honoraria

Stock Shareholder/Equity

Company

- ▶ Stryker, Microvention
- ▶ Penumbra, Stryker
- ▶ Cerebrotech, Endostream, Synchron



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Tandem Occlusion

- ▶ Occlusion of the cervical carotid artery as well as carotid terminus or anterior or middle cerebral artery branches



**2015 AHA/ASA Focused Update of
the 2013 Guidelines for the Early
Management of Patients With Acute
Ischemic Stroke Regarding
Endovascular Treatment**



Patients should receive **endovascular therapy** with a stent retriever if they meet all the following criteria (*Class I*). (*New recommendation*):

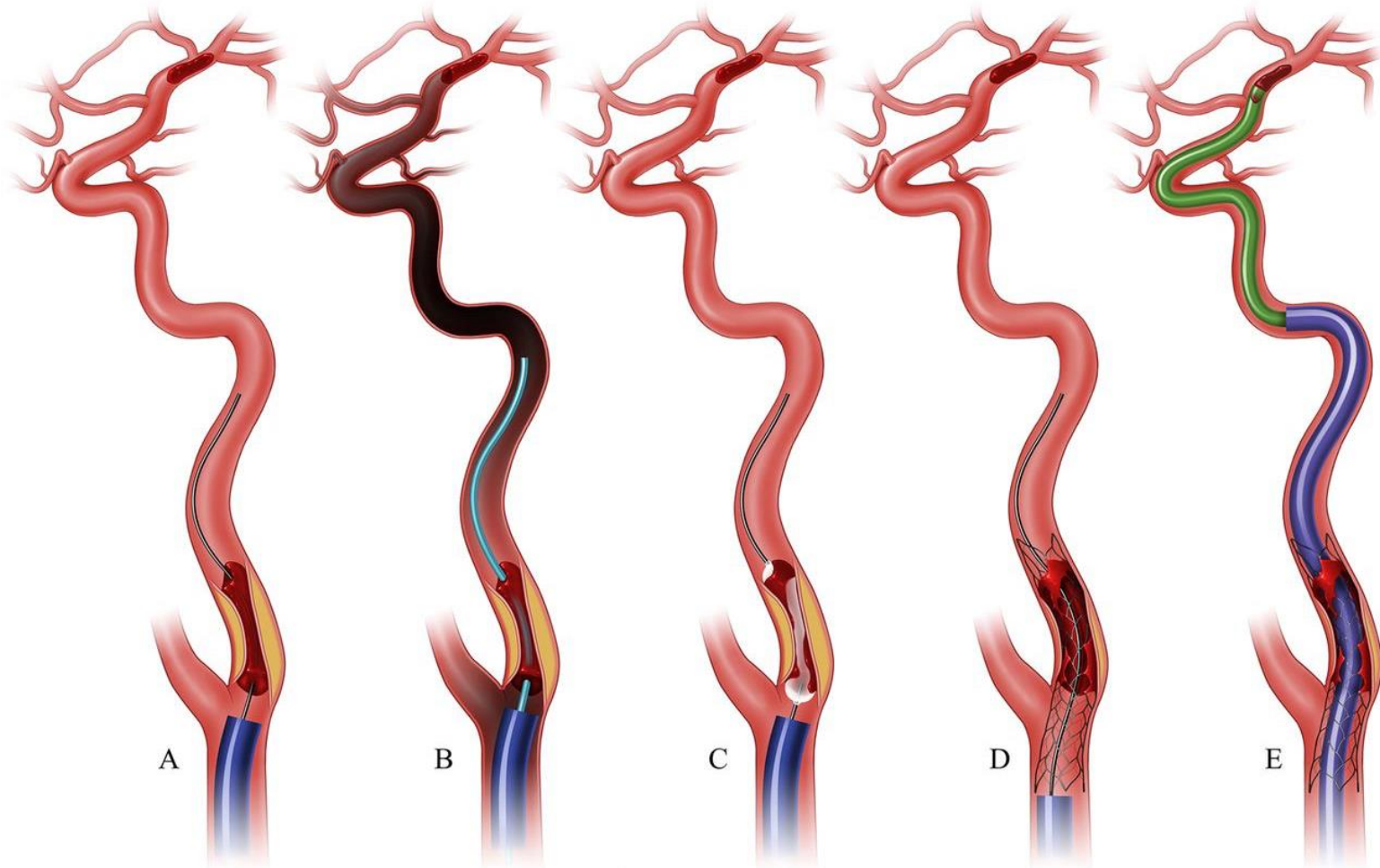
- pre-stroke **Modified Rankin Scale score 0 to 1**
- acute ischemic stroke receiving **IV r-tPA within 4.5 hours** of onset according to guidelines from professional medical societies
- causative occlusion of the **ICA or proximal MCA**
- age ≥ 18 years
- **NIHSS score of ≥ 6**
- Alberta Stroke Program Early CT score (**ASPECTS**) ≥ 6
- treatment can be initiated (groin puncture) **within 6 hours of symptom onset**

2015 AHA/ASA Focused Update on Management of Acute Stroke Patients with Endovascular Therapy

- ▶ Angioplasty and stenting of proximal cervical atherosclerotic stenosis or complete occlusion at the time of thrombectomy may be considered, but the usefulness is unknown (Class IIb; Level of Evidence C). Future randomized studies are needed. (New recommendation)

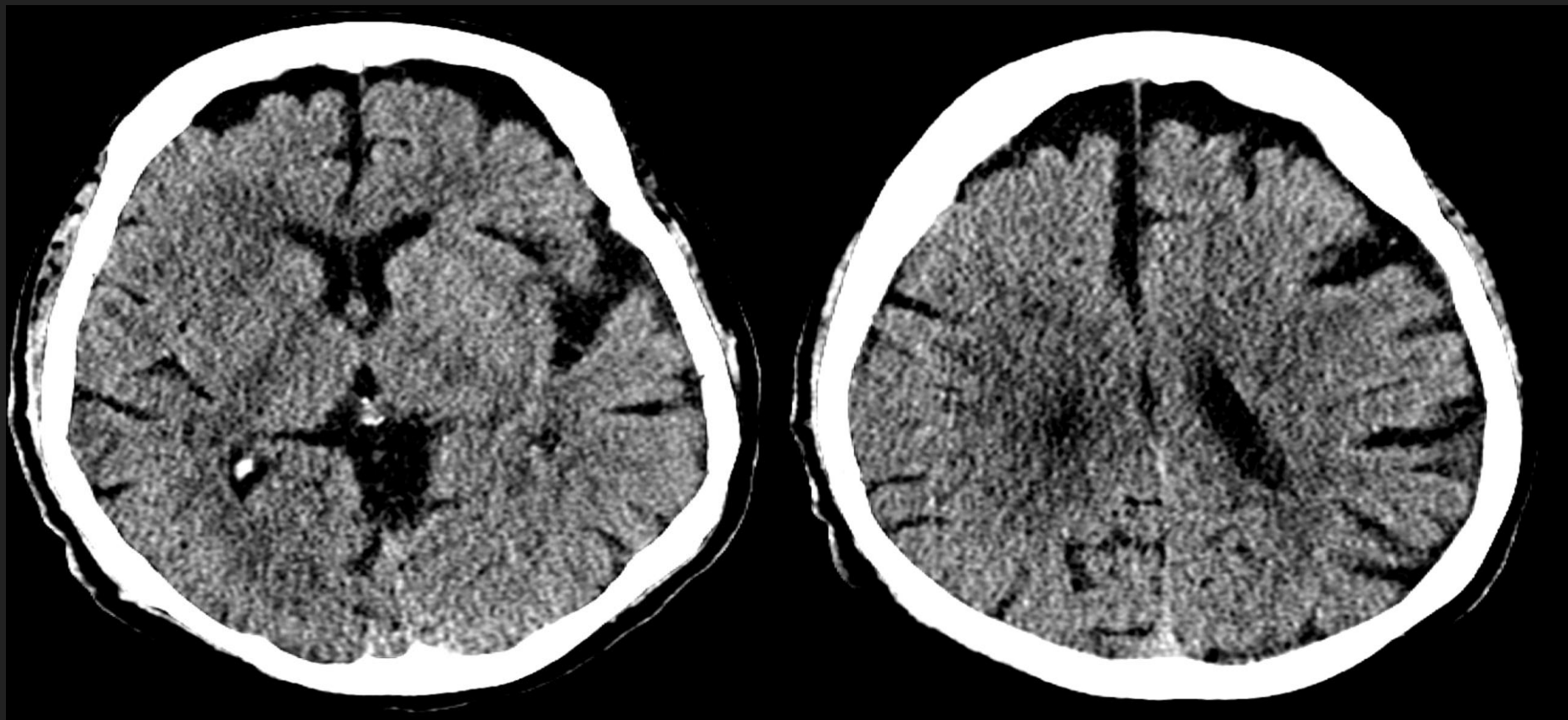
Tandem Occlusion – Important questions

- ▶ Which is causing acute symptoms?
- ▶ Question of collateral flow?
- ▶ Anti-coagulation/ anti-platelets?
- ▶ Two approaches
 - Fix proximal lesion first
 - Fix distal lesion first

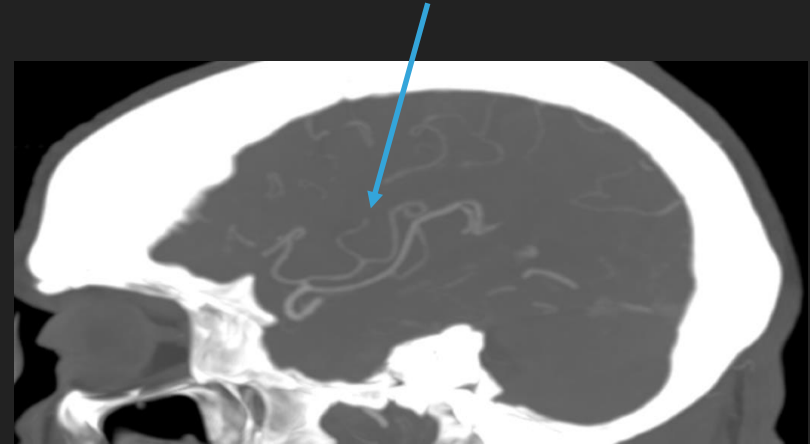
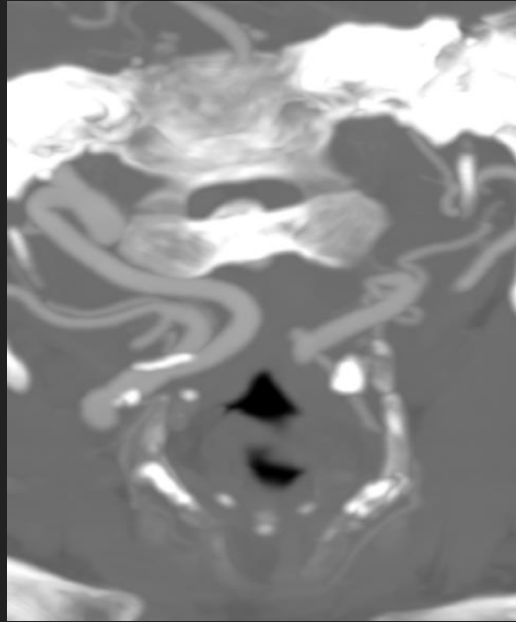
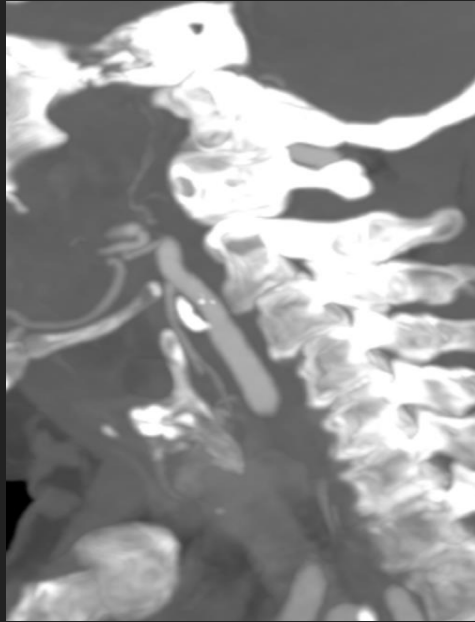


CASE #3

- 75 yo F with history of HTN and DM
- Presented with right facial weakness, and dysarthria: NIHSS 7
- CT and CTA obtained
- Patient received IV tPA



Baseline CT (ASPECTS 9)



Left cervical ICA occlusion with left M3 tandem lesion



LEFT CCA RUN
DEMONSTRATING
COMPLETE ICA
OCCLUSION

AHA/ASA 2013 Guidelines - Intravenous tPA

- ▶ **Initiation of anticoagulant therapy within 24 hours of treatment with intravenous rtPA is not recommended (*Class III; Level of Evidence B*). (Unchanged from the previous guideline¹³)**
- ▶ **The administration of other intravenous antiplatelet agents that inhibit the glycoprotein IIb/IIIa receptor is not recommended (*Class III; Level of Evidence B*). (Revised from the previous guideline¹³) Further research testing the usefulness of emergency administration of these medications as a treatment option in patients with acute ischemic stroke is required.**
- ▶ **6. The administration of aspirin (or other antiplatelet agents) as an adjunctive therapy within 24 hours of intravenous fibrinolysis is not recommended (*Class III; Level of Evidence C*). (Revised from the previous guideline¹³)**

HOW TO MANAGE ANTIPLATELETS

? Dual anti-platelets?

? Anticoagulation for procedure?

? Use GP2B3A inhibitors emergently as aspirin and clopidogrel may take time to load?

? IV TPA

? WITHOUT IV TPA

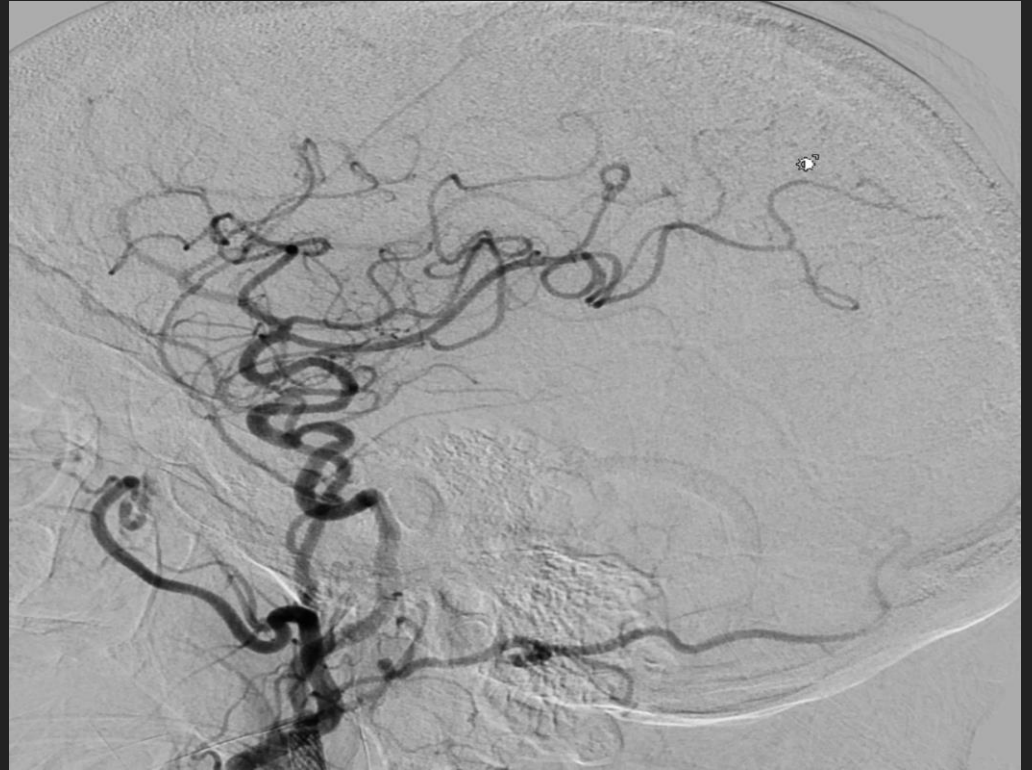
? ESTABLISHED INFARCT VS NONE

THIS PATIENT

- ❑ Rectal aspirin 600 mg prior to start of case
- ❑ Heparin bolus on low side prior to stent deployments
- ❑ Half load of integrillin, no drip

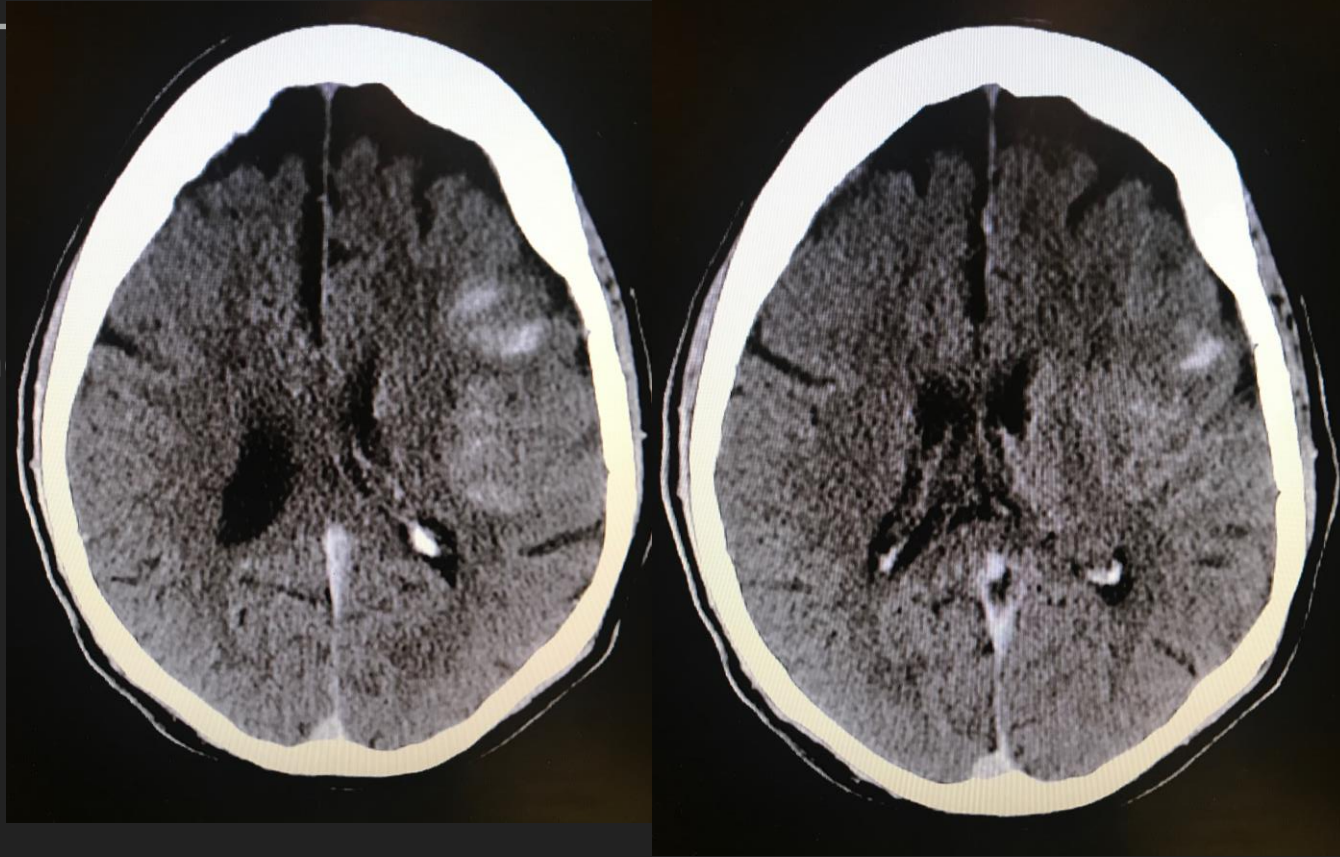


Status post angioplasty with Sterling 4 x 30
and stenting with Carotid Wallstent 8 x 29
using Filterwire 3.5-5.5 EPD

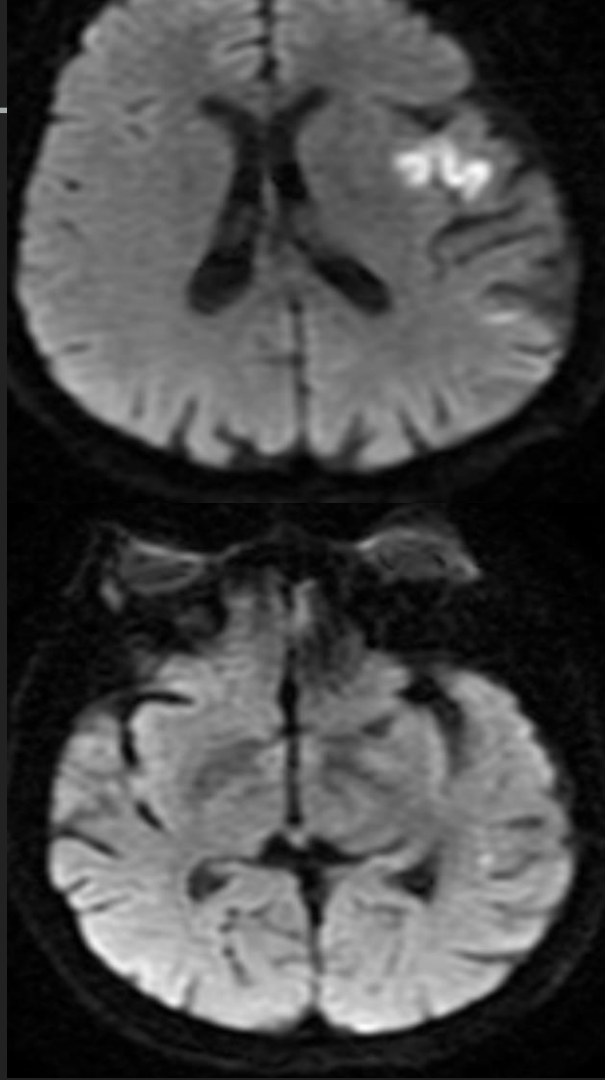
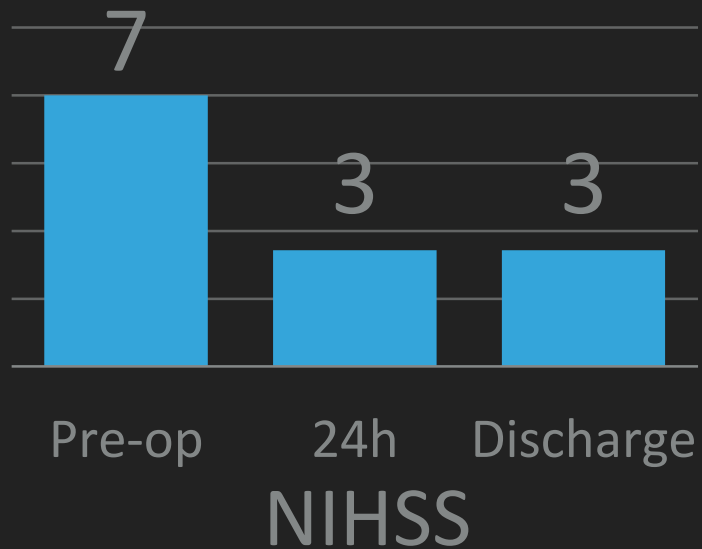


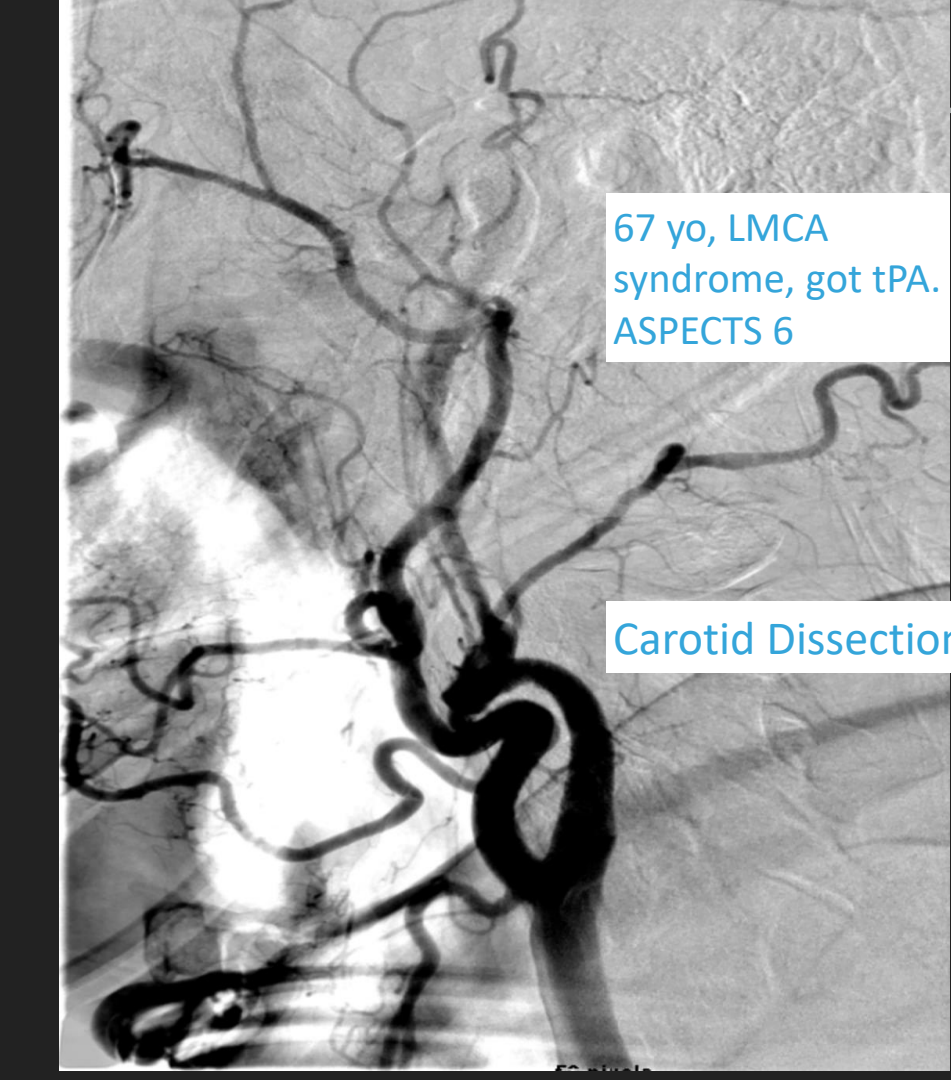
CT 6 HOURS LATER

- ❓ Repeat CT stable
- ❓ Started clopidogrel the next day




OUTCOME





67 yo, LMCA
syndrome, got tPA.
ASPECTS 6

Carotid Dissection



Acute stenting with
LVIS

Pre-loaded with half bolus of
Integrilin and loaded with ASA

OUTCOME

- ❑ DynaCT revealed a large left intraparenchymal hematoma.
- ❑ Patient was taken for emergent hemicraniectomy, but family declined to proceed.
- ❑ Palliative consult and eventually expired.

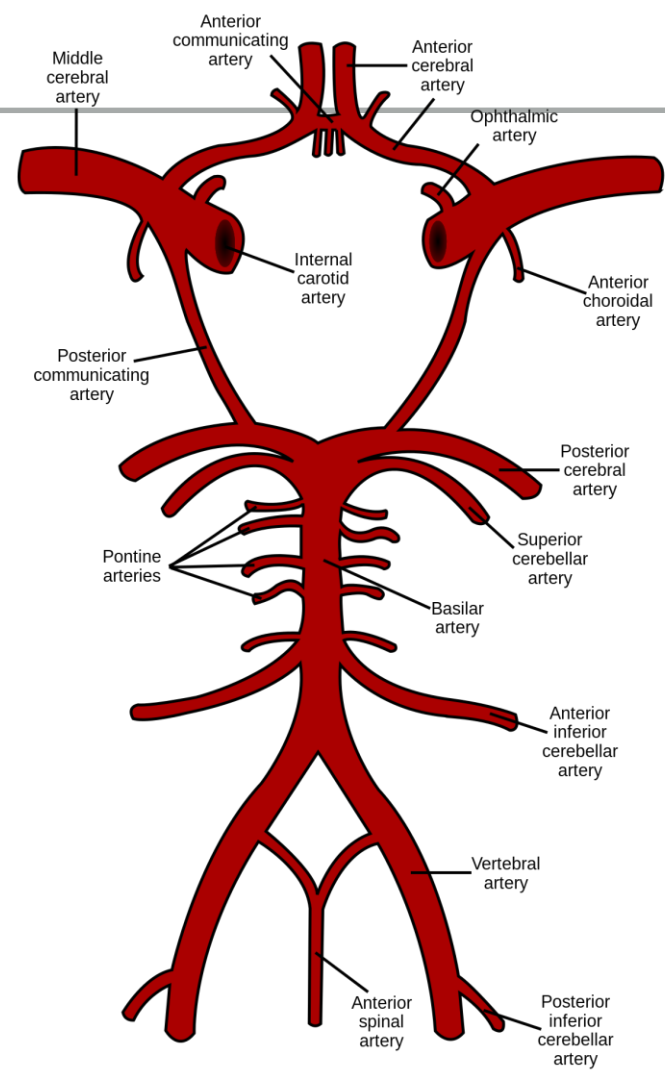
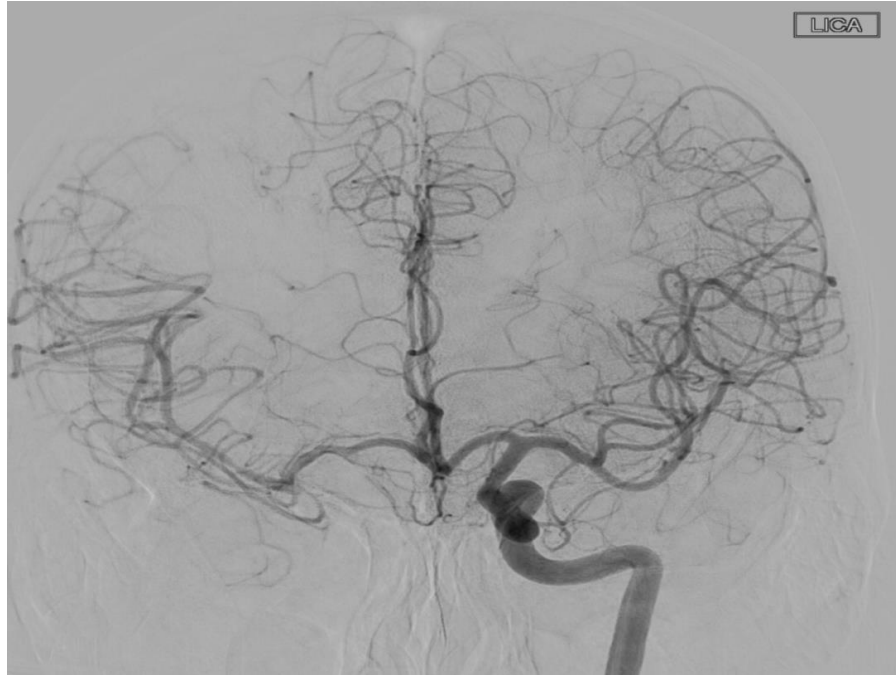


ORIGINAL RESEARCH

Carotid stenting and intracranial thrombectomy for treatment of acute stroke due to tandem occlusions with aggressive antiplatelet therapy may be associated with a high incidence of intracranial hemorrhage

Donald V Heck, Morry D Brown

ASSESS THE COLLATERALS



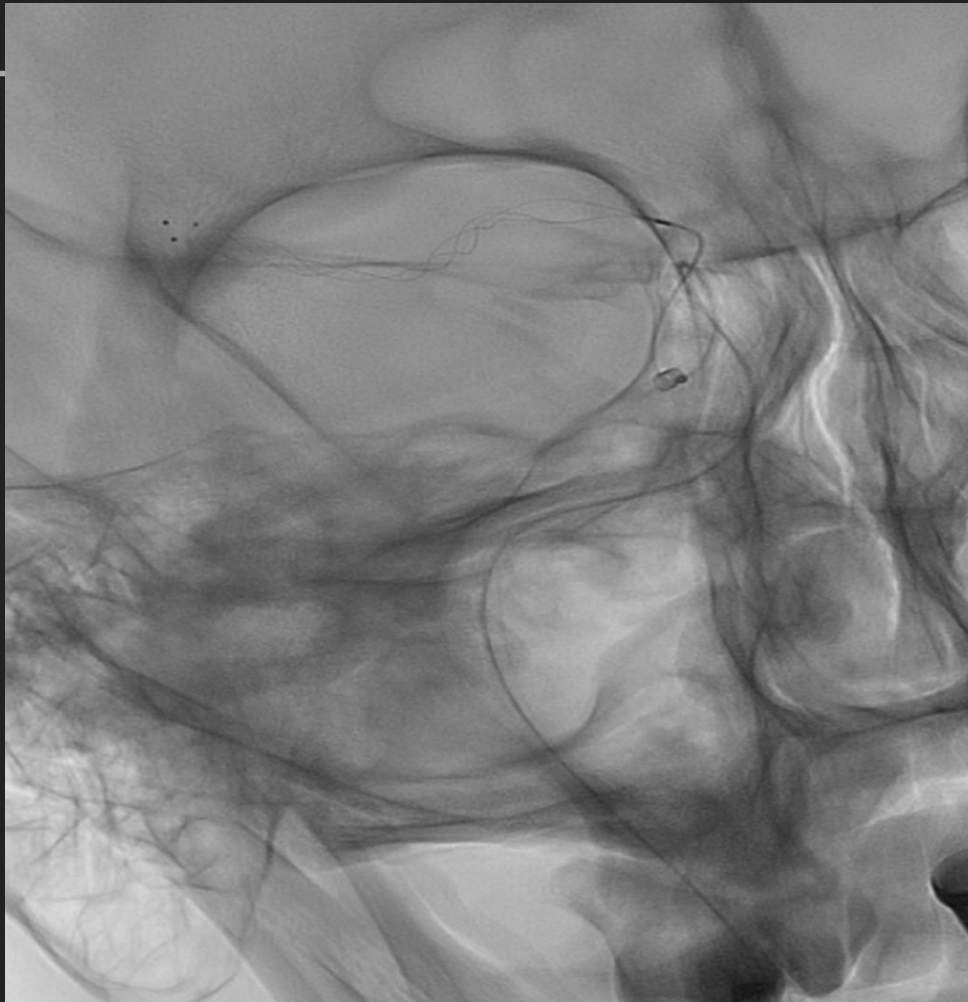
CASE #1

- ❑ 53 M with pmh of HTN
- ❑ Presented with left hemiplegia and right sided gaze deviation, NIHSS 15
- ❑ CT of the head was obtained then was taken to the angio suite



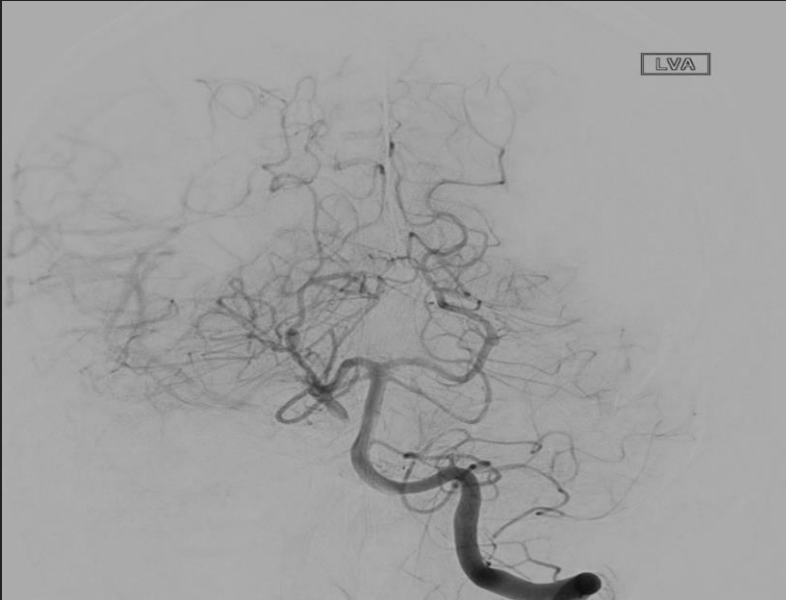
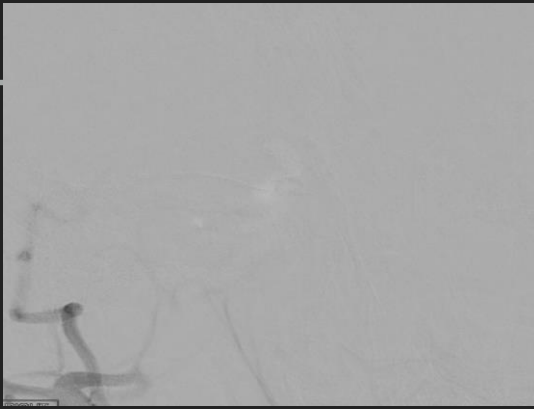
Baseline CT - 22:44 (ASPECTS 6-7)





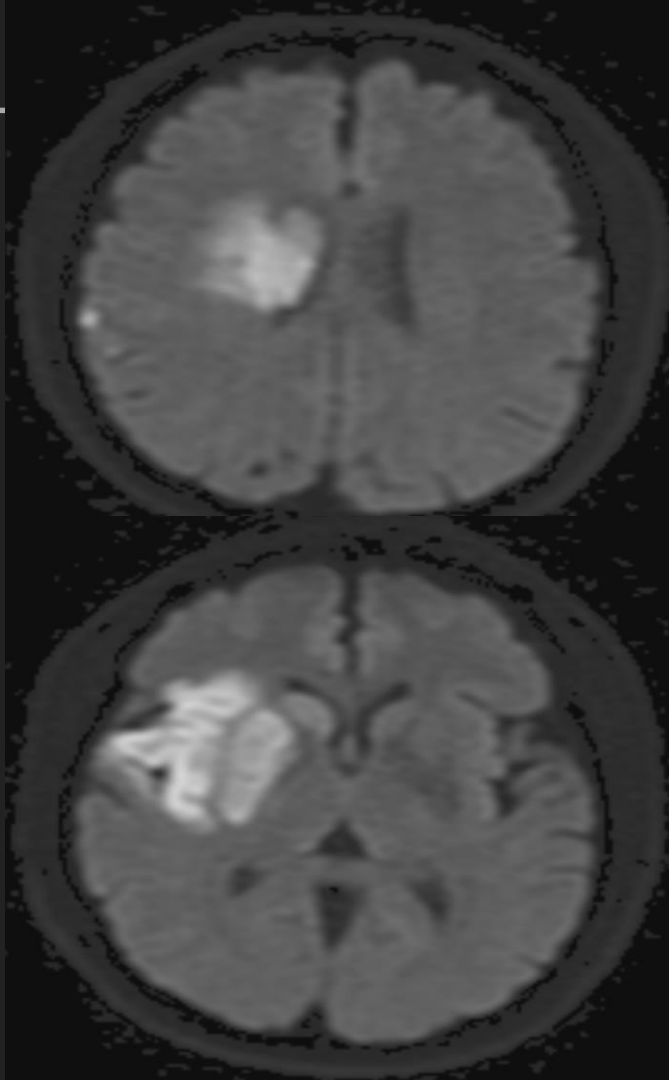
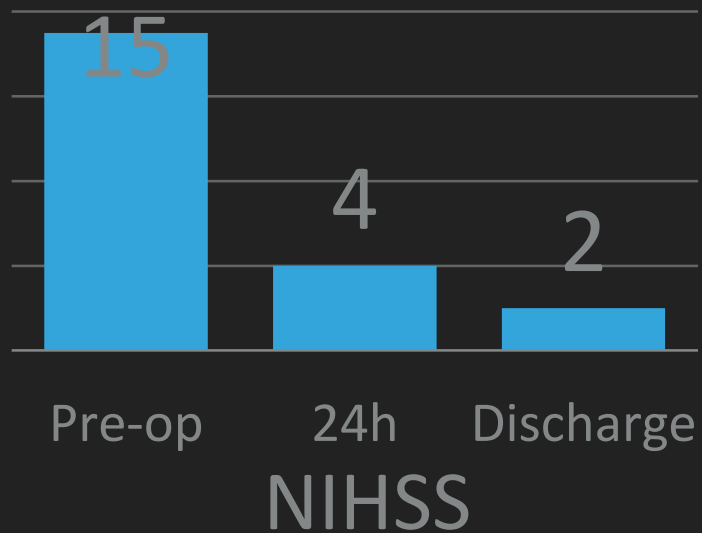
STENTRIEVER
(TREVO) DEPLOYED
ACROSS THE M1
OCCLUSION

Right CCA run
demonstrating
persistent
complete
occlusion of
cervical ICA



Excellent collateral flow across
the A-comm and P-comm arteries

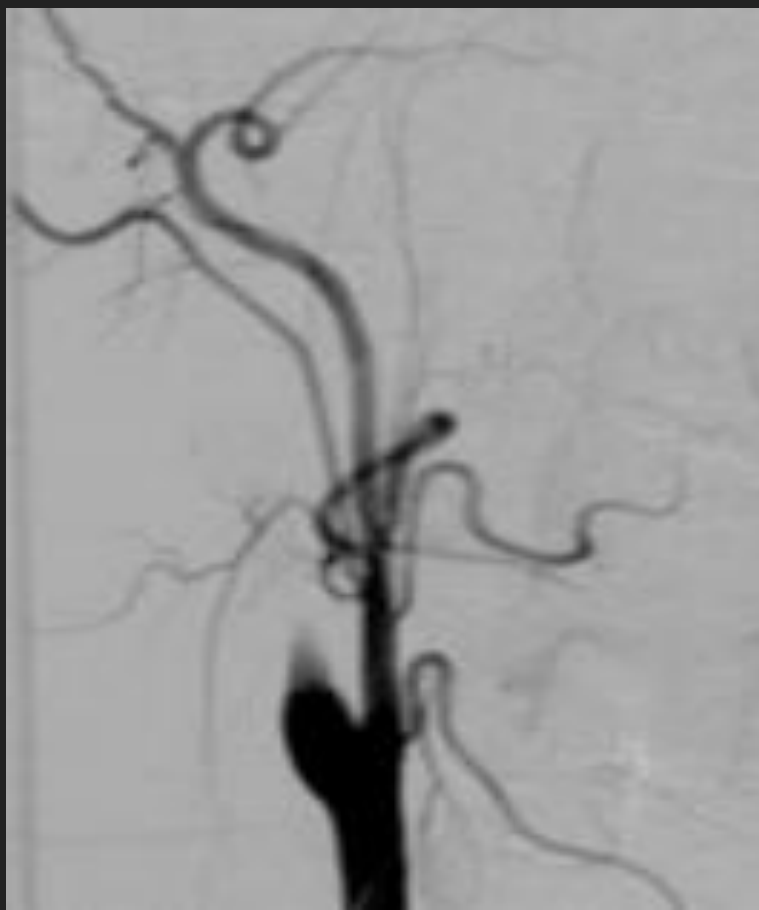
OUTCOME

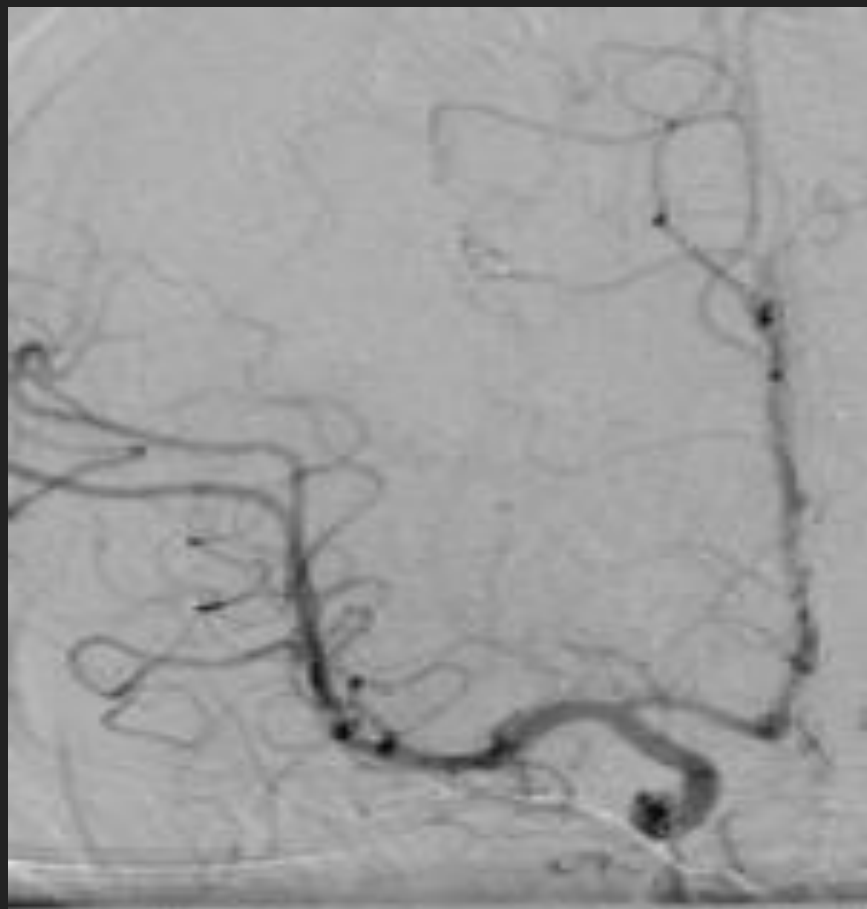
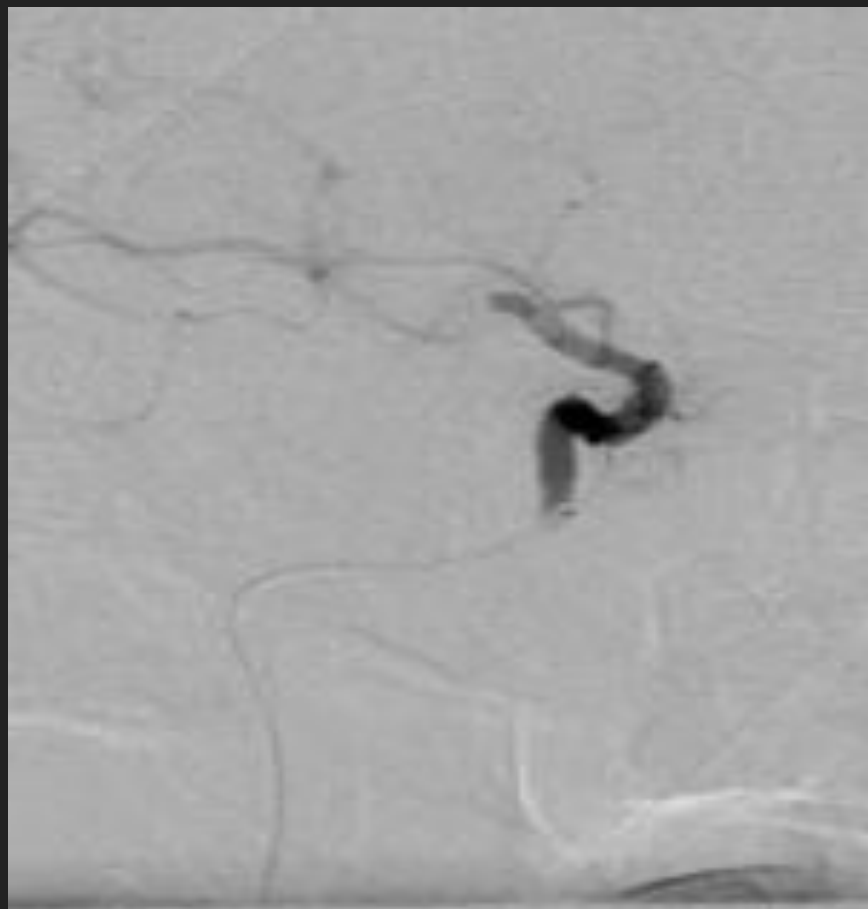


CASE #2

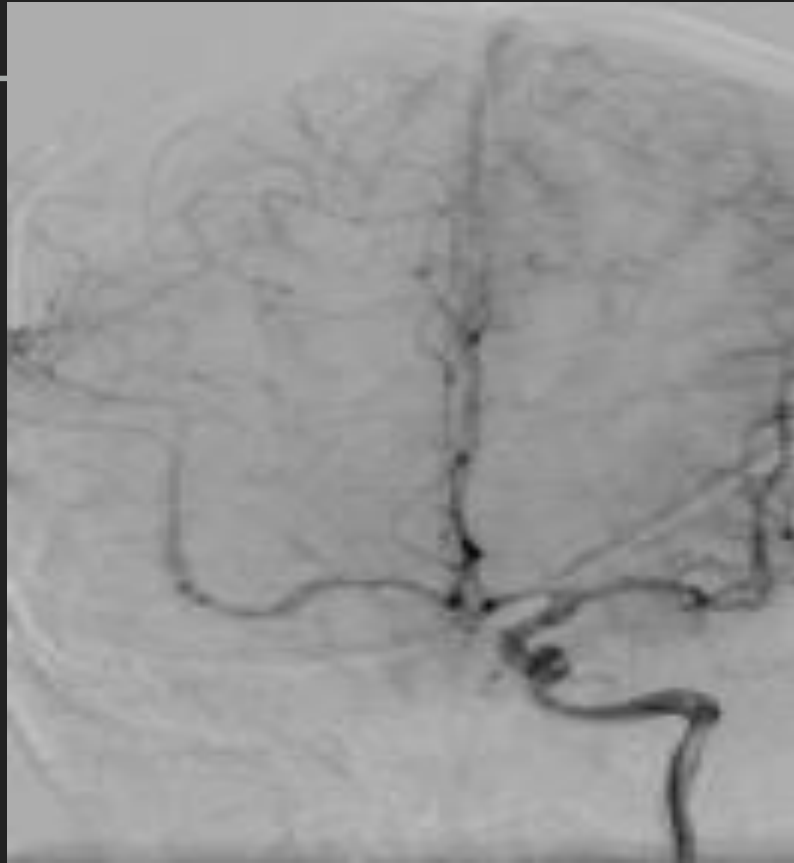
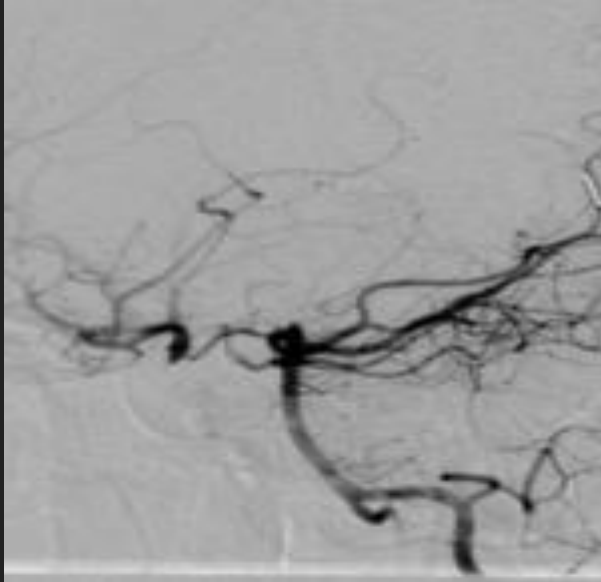
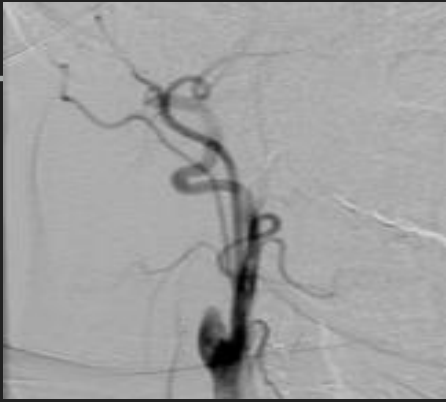
- ❑ 40 F presenting status post motor vehicle accident with clavicular fracture.
- ❑ Left facial droop and hemisensory loss: NIHSS 9.
- ❑ CToH and CTA obtained.
- ❑ No tPA given the recent trauma.





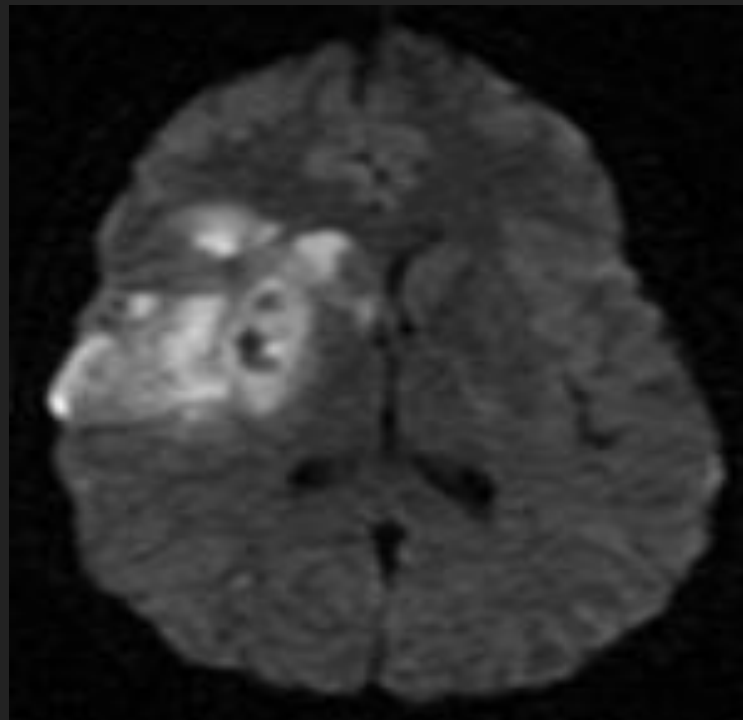
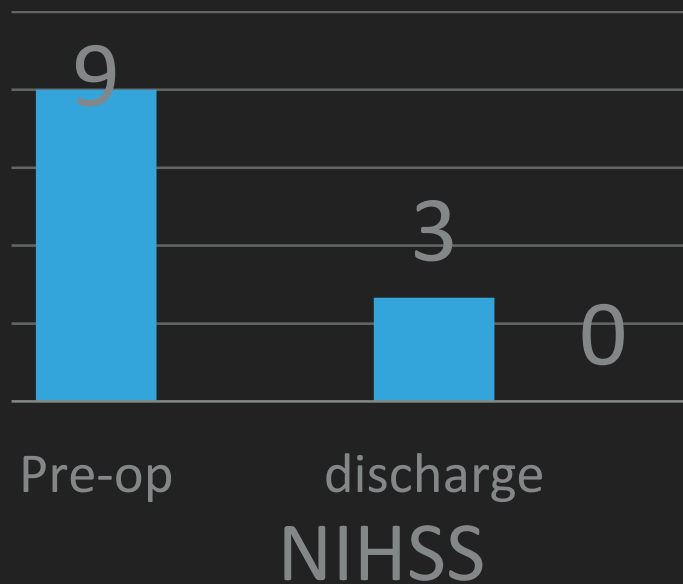


Right CCA run
demonstrating
persistent
complete
occlusion of
cervical ICA



Excellent collateral flow across the A-
comm and P-comm arteries

OUTCOME



Conclusions

- ▶ Cervical carotid occlusion in acute stroke treatment is not well studied
- ▶ Literature limited to case reports and series
- ▶ Controversy over stenting in acute setting
- ▶ Care must be tailored to the patient and clinical situation

- ▶ In general, I try to avoid acute stents unless absolutely necessary to keep vessel open and improve neurological symptoms

Thank you!



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MOUNT SINAI NEUROENDOVASCULAR TEAM



Mocco



Fifi



De Leacy



Kellner



Oxley

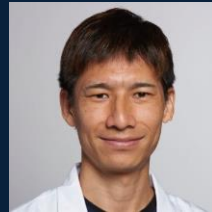


Singh



Berenstein

Fellows



Shigematsu



Shoirah



Yaniv



Nouri