RESCUE PROCEDURES TO TREAT STROKE AFTER CAS OR CEA

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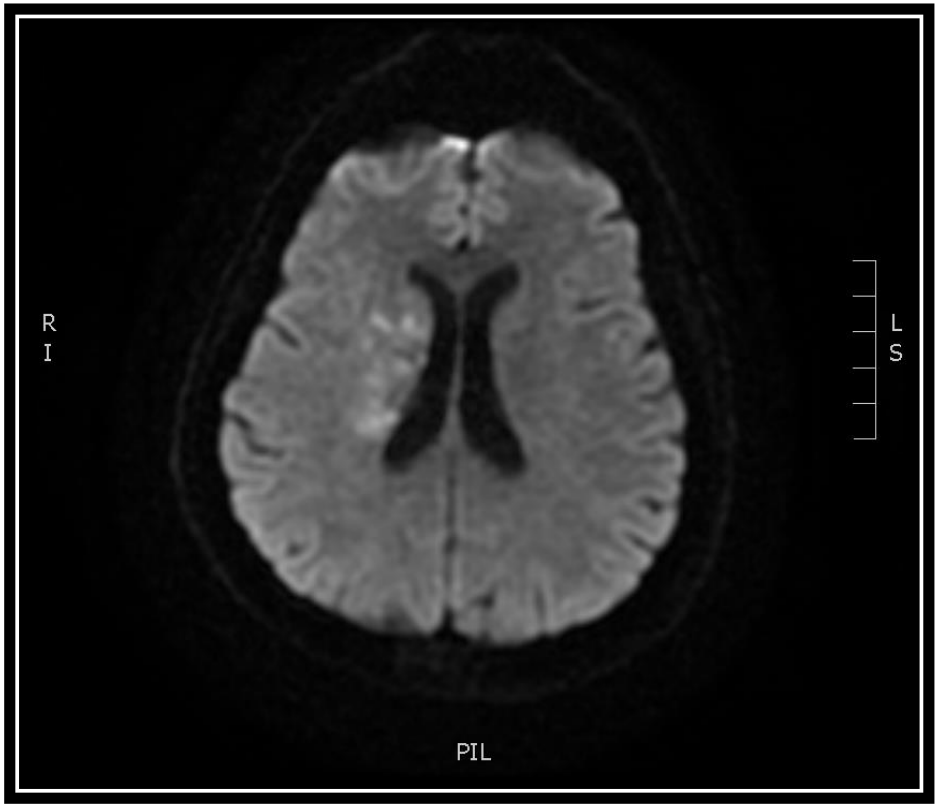
Disclosure of Interest

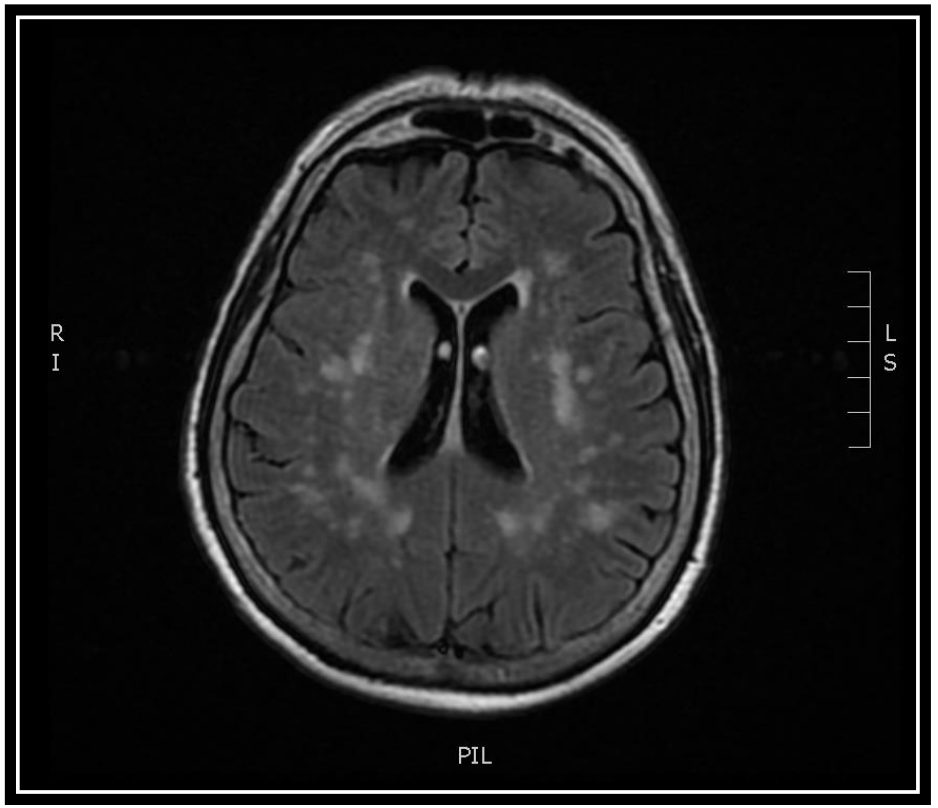
I do not have any potential conflict of interest with respect to this topic

CASE study (1)

- 61 year-old female patient
- 70% right asymptomatic carotid stenosis
- 50-60% left ICA stenosis
- Right TEA + patch under general anesthesia
- Shunt because of unfavourable cerebral oxymetry (NIRS: 15% drop)
- Initial normal neurological exam in the post-anesthesia recovery room
- 4 hours later: massive left frank hemiplegia, facial palsy and aphasia

Immediate Brain MRI





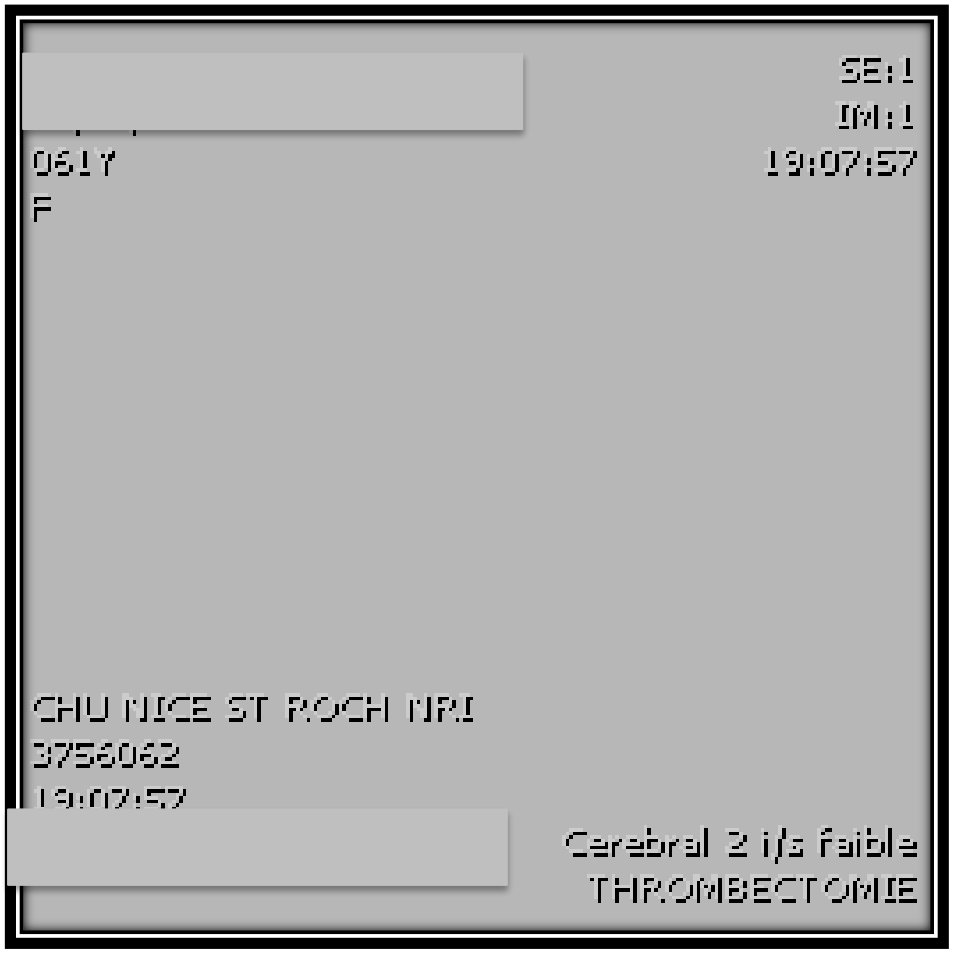
- DWI-FLAIR mismatch:
  - Positive DWI: Increased signal/ deep territory of the right midle cerebral artery
  - Negative FLAIR

Immediate Brain MRI

- Left internal carotid occluded
- Lack of flow in the midle cerebral artery

Angio Suite


DAG 93°
CRAN 0°
FD 27 cm
0:00
3:00
19:07:57
1
1-6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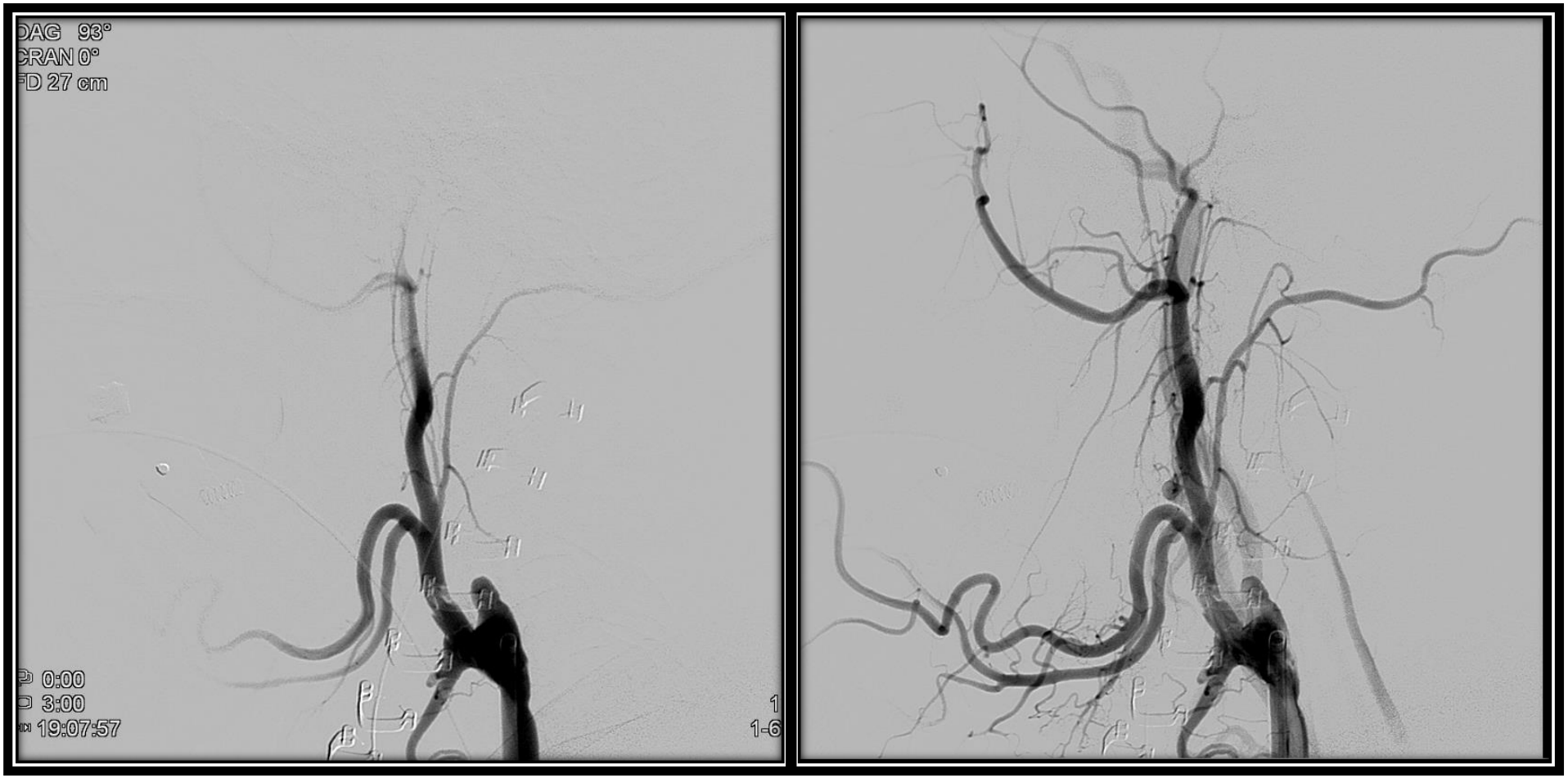
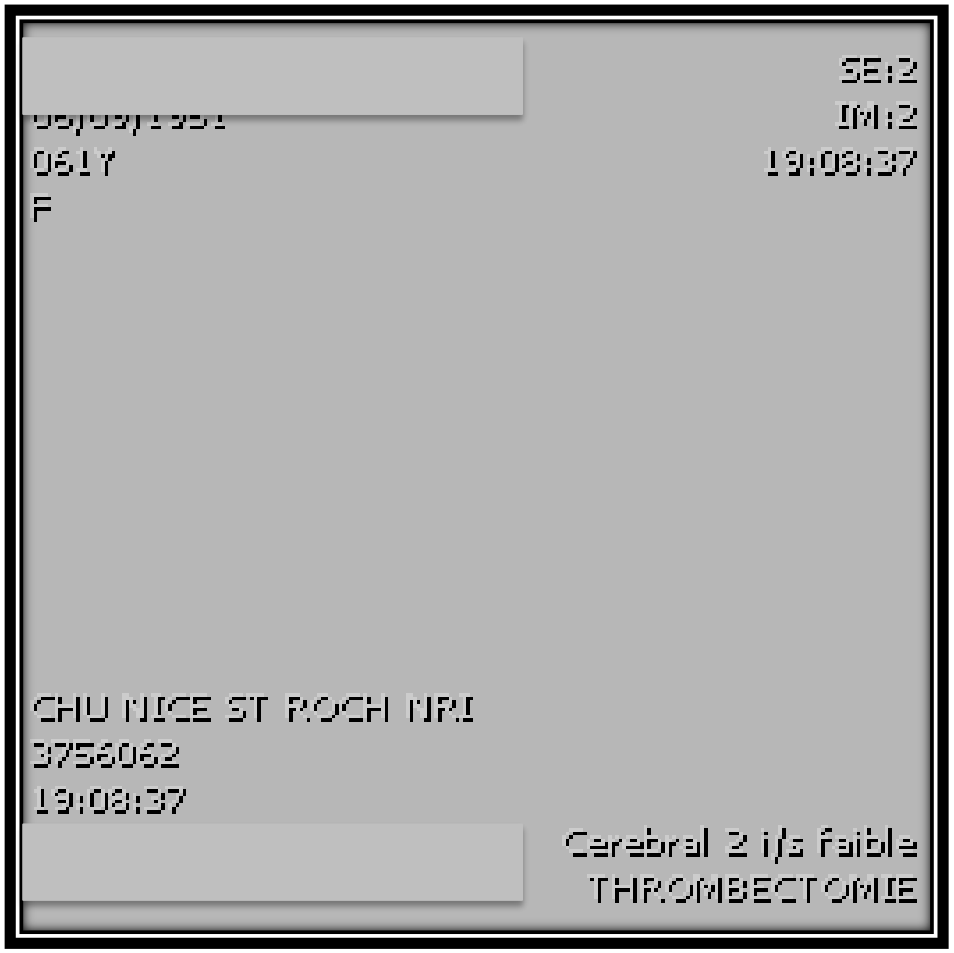
3756062
Cerebral 2 i/s faible
THROMBECTOMIE

Angio Suite



Angio Suite



- Missed A1 segment of the anterior cerebral artery!

Angio Suite

Angio Suite


SE:10
IM:10
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19:40:11
Cerebral 2 i/s faible
THROMBECTOMIE

Angio Suite


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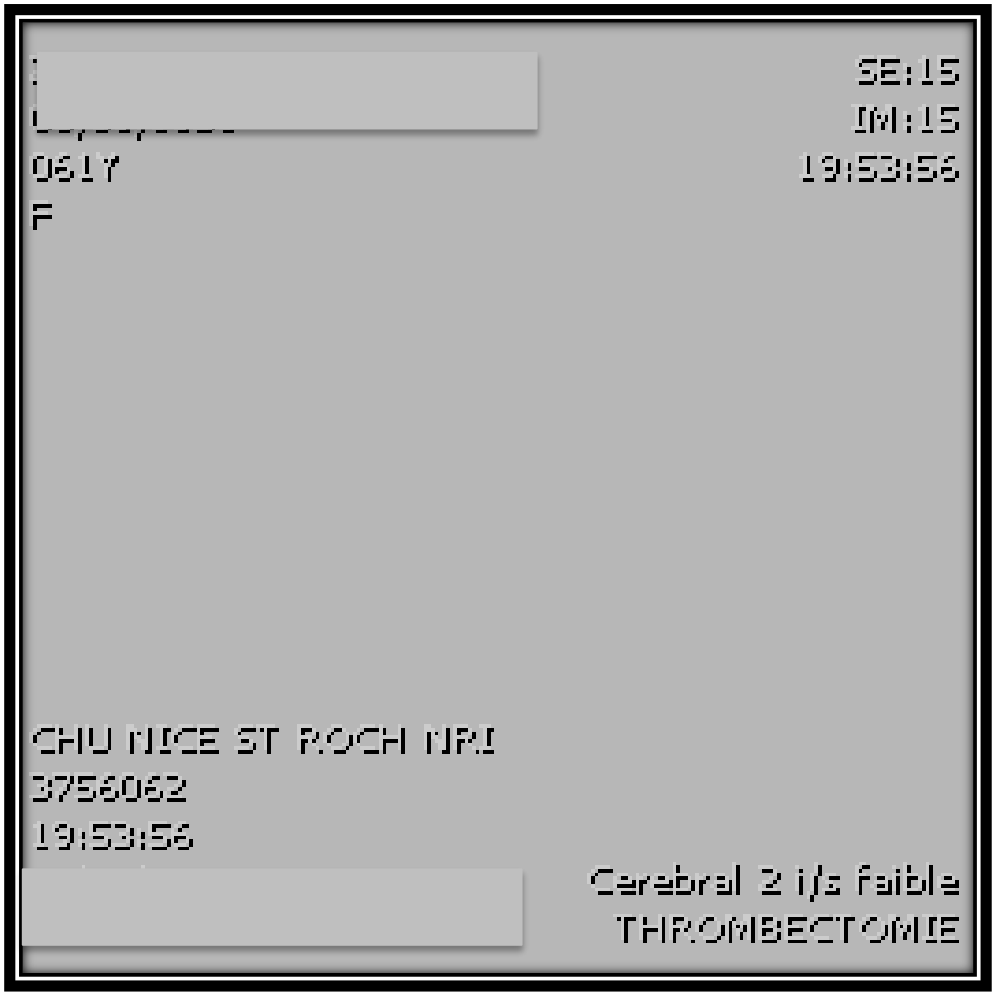
Cerebral 2 i/s faible
THROMBECTOMIE

Angio Suite



- Both anterior cerebral arteries come from the left
- 2 small peripheral emboli
- Satisfactory perfusion of the midle cerebral artery

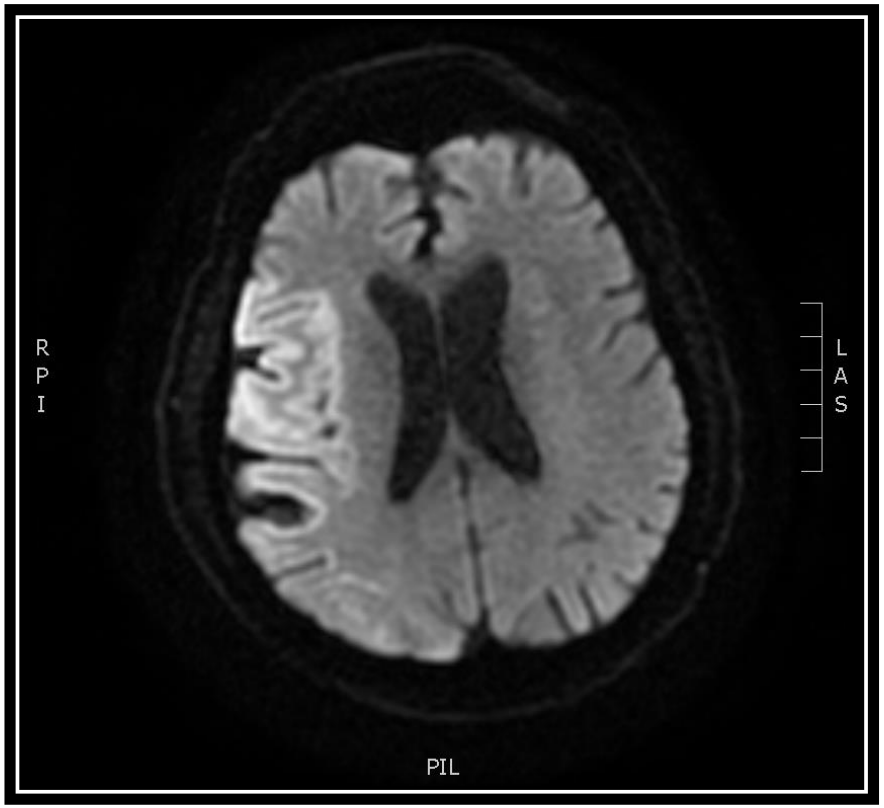
Outcome

- NIHSS before the rescue procedure: 22
  - Left hemiplegia, facial palsy, aphasia, left hemianopsia, conjugate eye deviation
- 24 hours later, NIHSS: 7
  - Mild facial palsy, aphasia
- 48 hours later, full recovery, NIHSS: 0
- Cplogidogrel + ASA

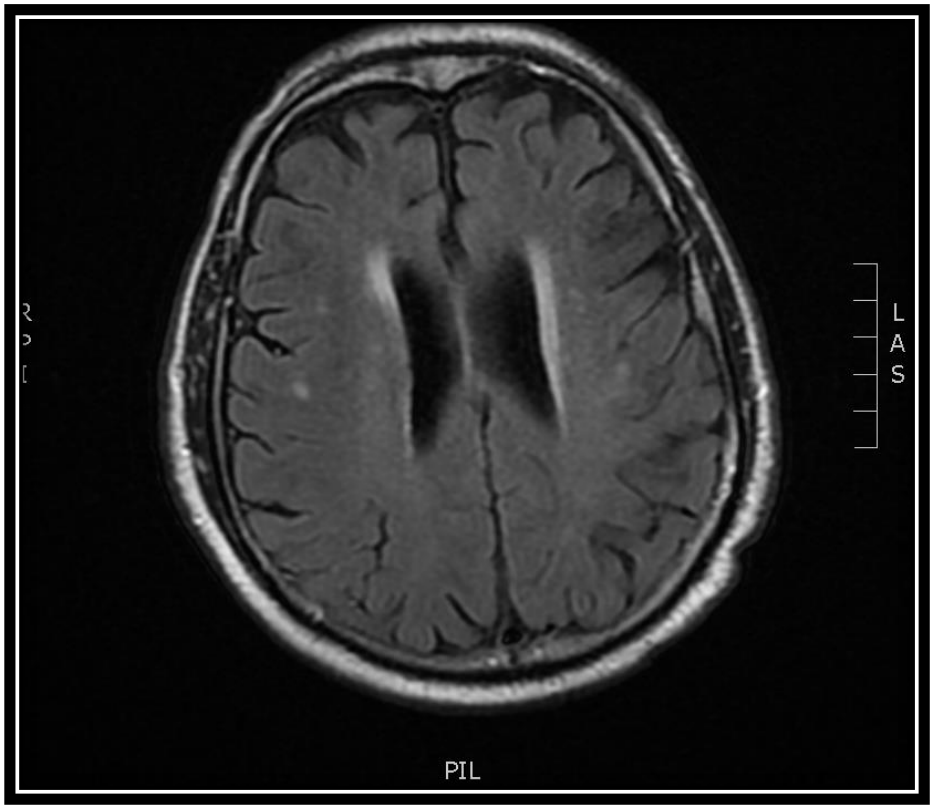
Case study (2)

- 82 year-old male patient
- 80% NASCET right ICA stenosis
- Past medical history
  - Coronary stenting // ischemic cardiopathy
  - LVF: 50%
  - Moderate chronic renal insufficiency
- TEA + Patch
- No shunt (NIRS ok)
- Left hemiplegia at emergence from anesthesia

Immediate Brain MRI



AX DWI



AX T2 FLAIR

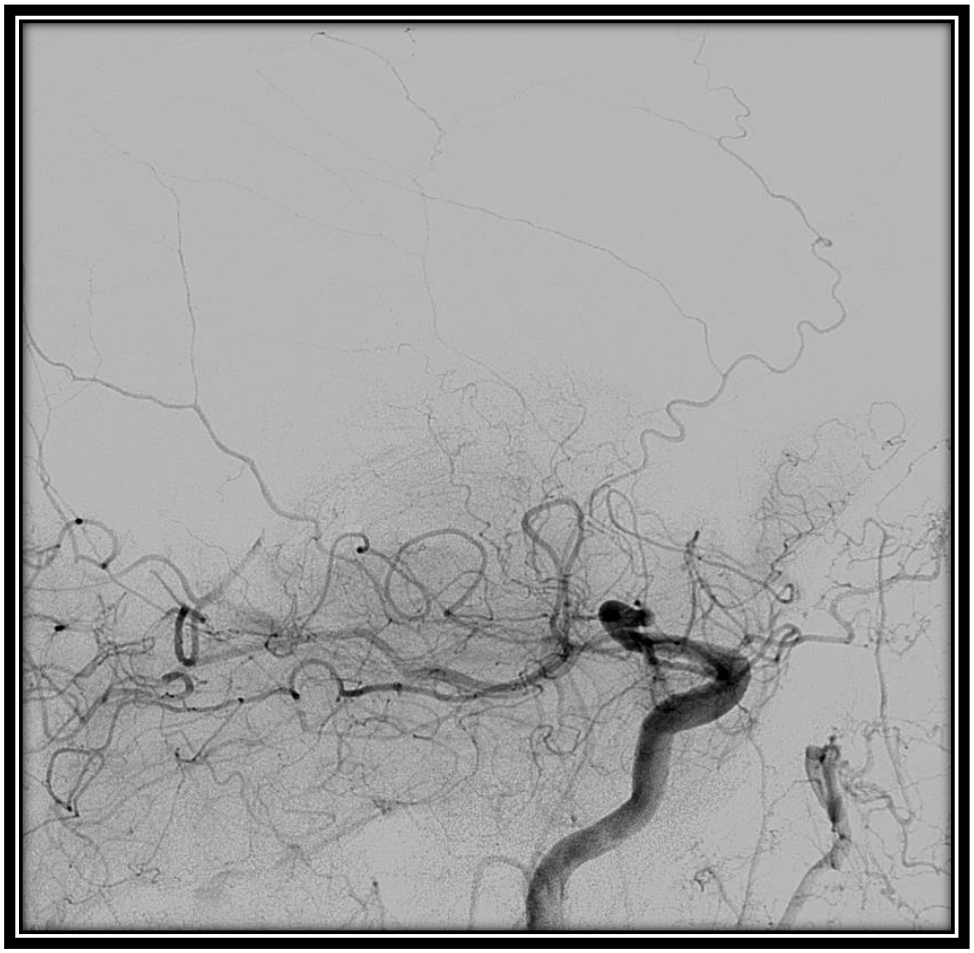
- DWI-FLAIR mismatch:
  - Positive DWI: Increased signal in the superficial territory of the midle cerebral artery
  - Negative FLAIR

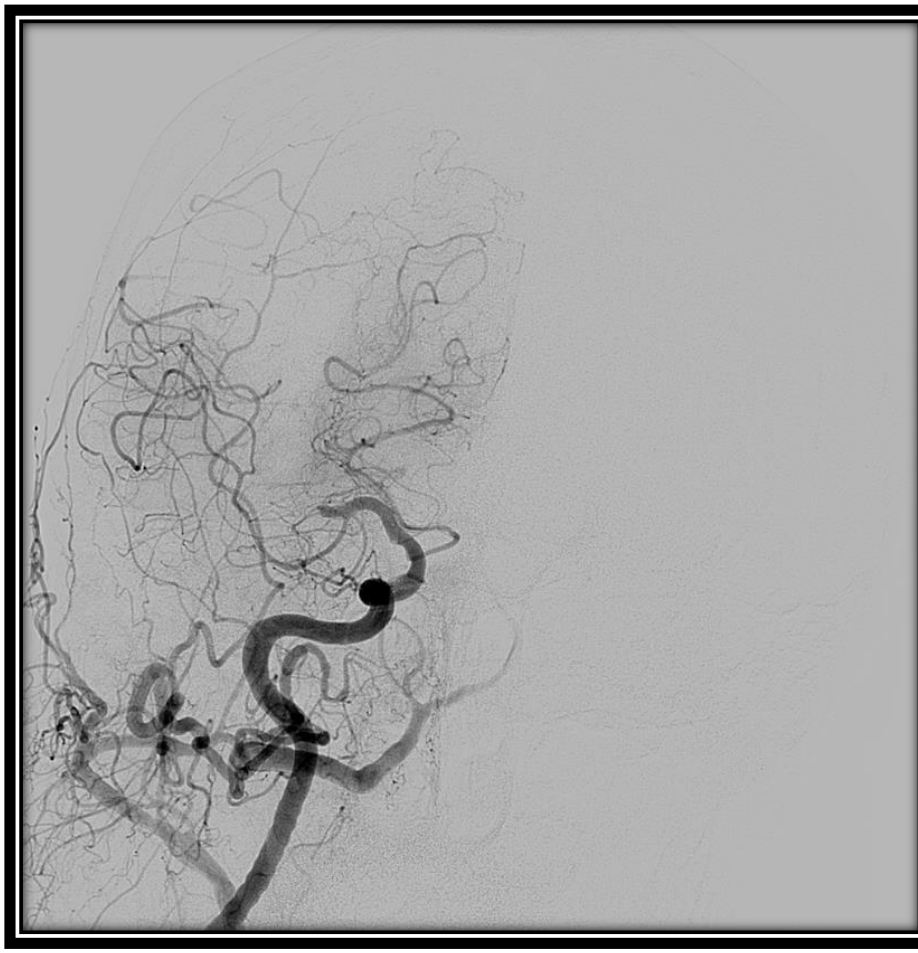
Immediate Brain MRI

3D TOF

- Lack of flow in the M1 segment of the midle cerebral artery

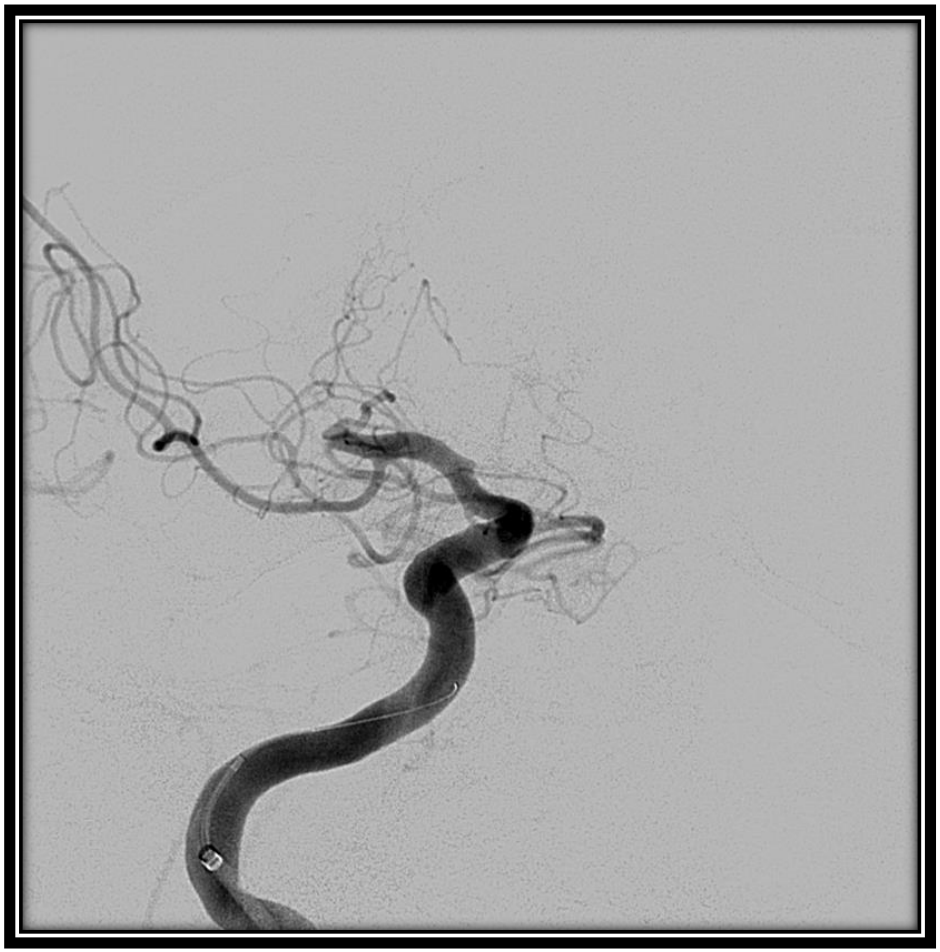
Angio Suite

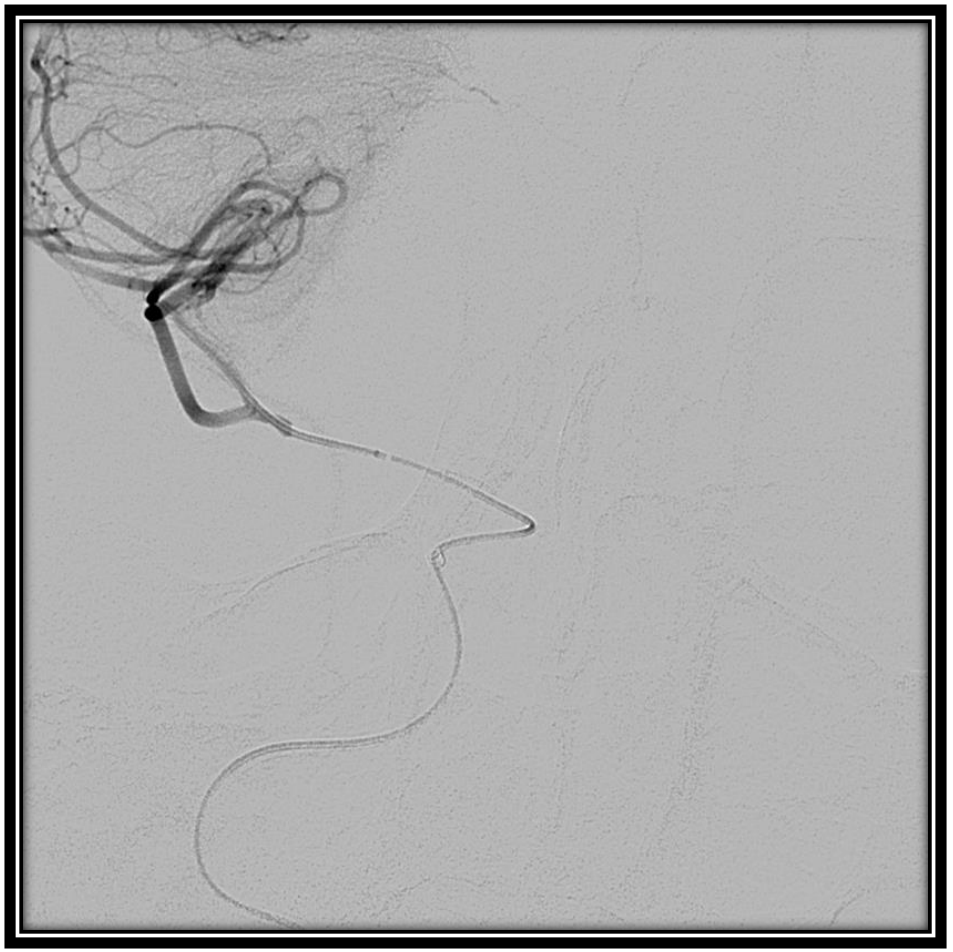




- Confirmation of occluded M1 // embolus

Angio Suite





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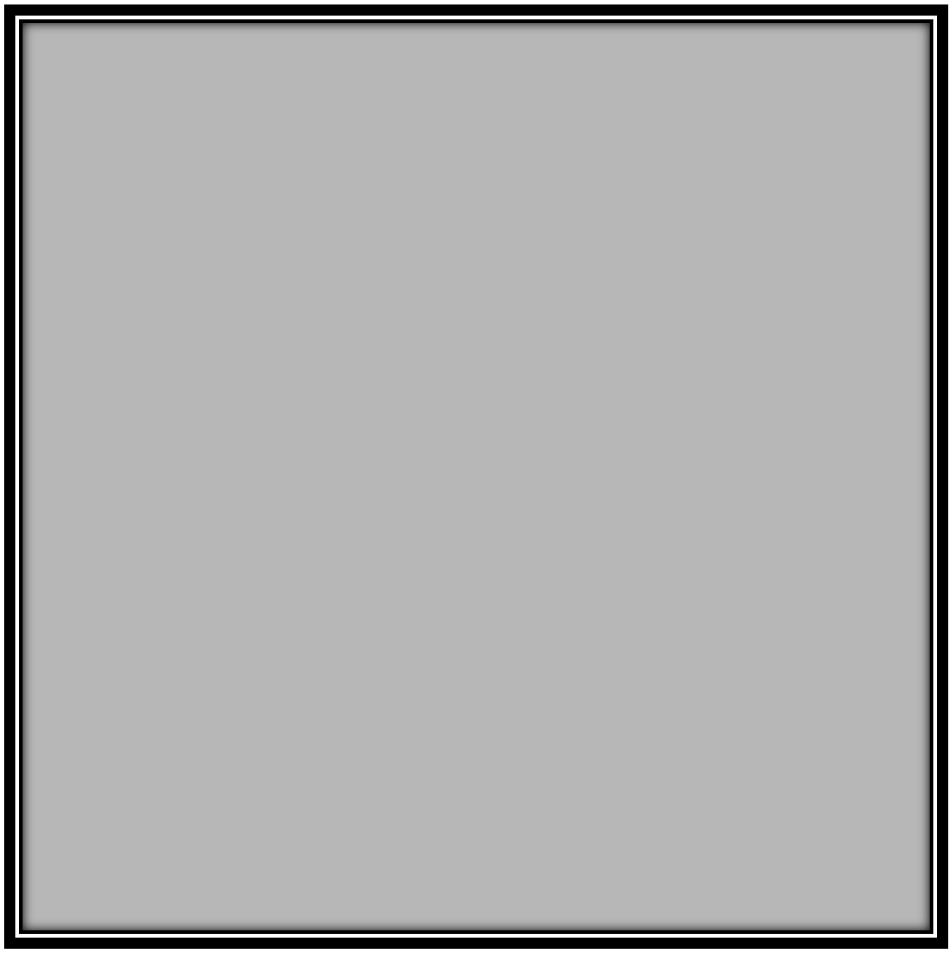
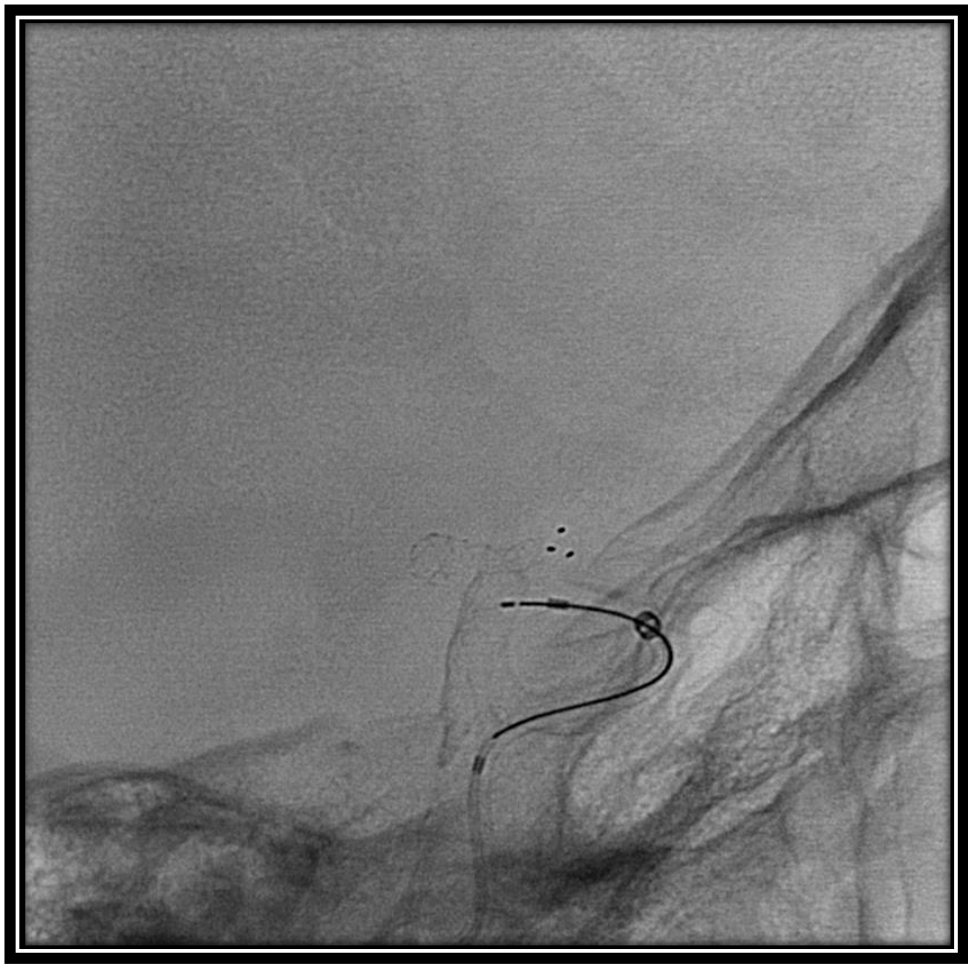
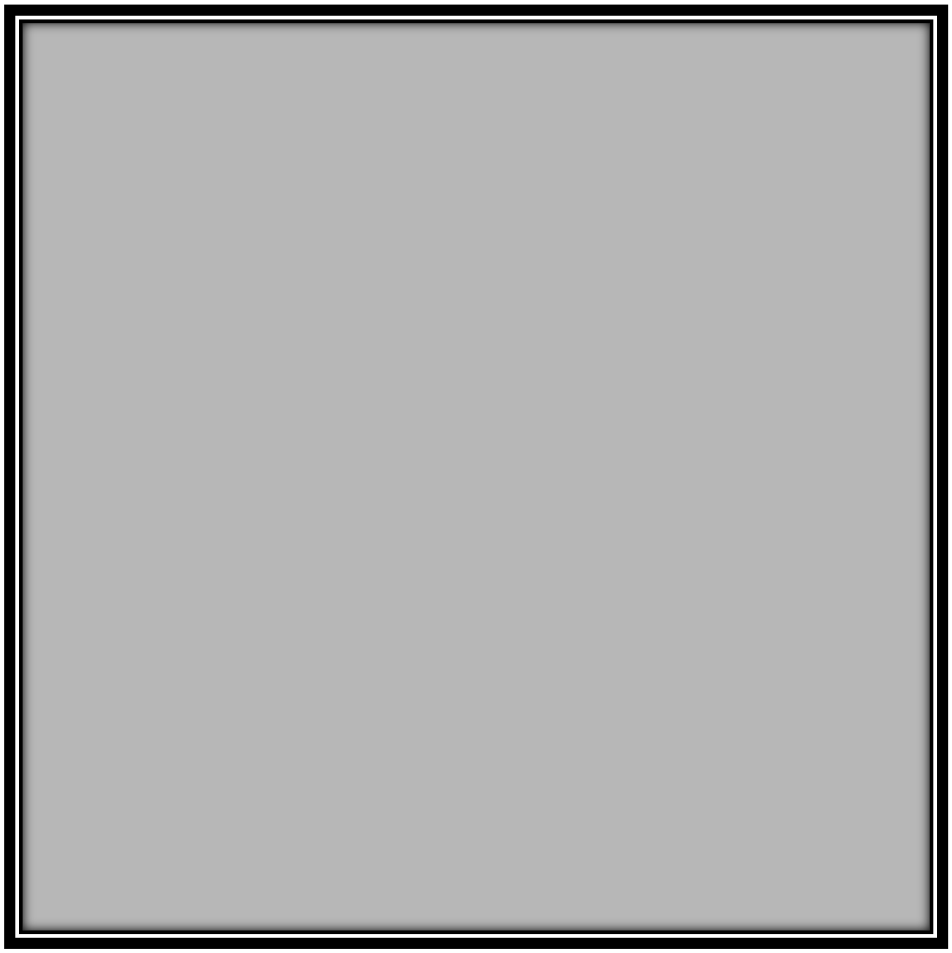
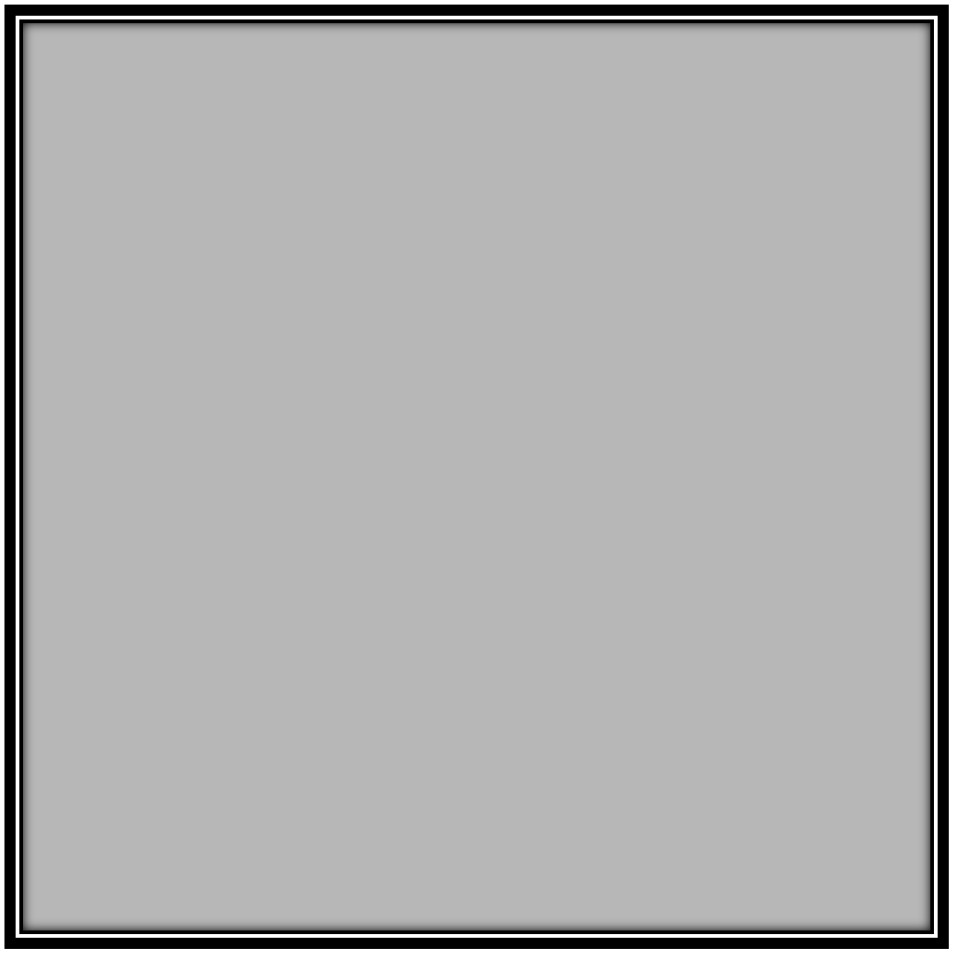




Angio Suite



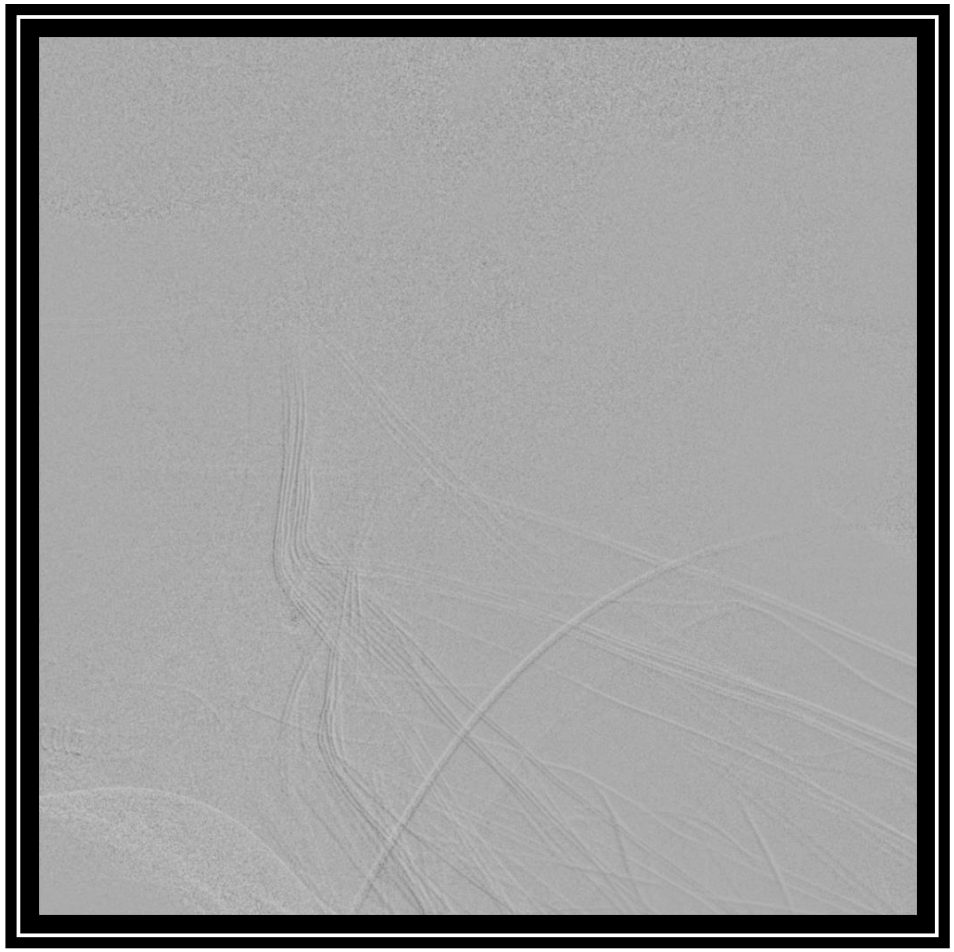


Outcome

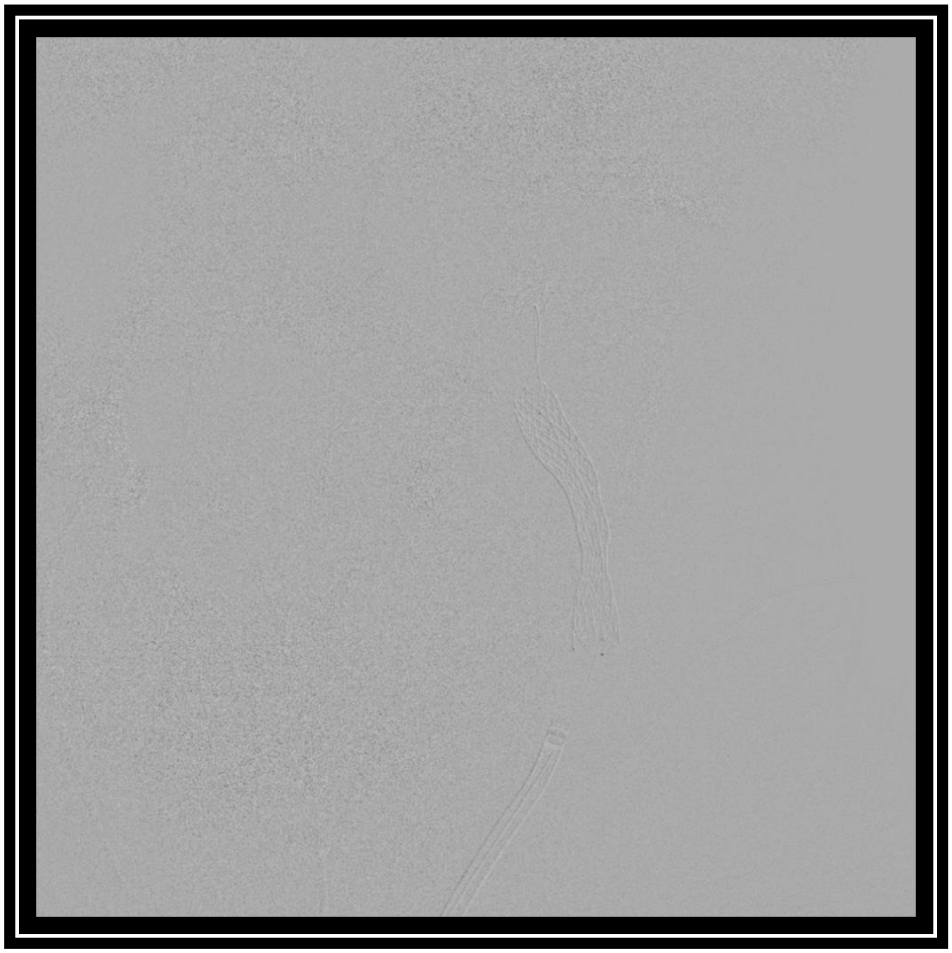
- NIHSS before the rescue procedure: 14
  - Left hemiplegia, facial palsy, anarthria,
- Few minutes later, NIHSS: 4
  - Mild facial palsy, mild dysarthria, upper limb paresis
- At discharge, full recovery, NIHSS: 0

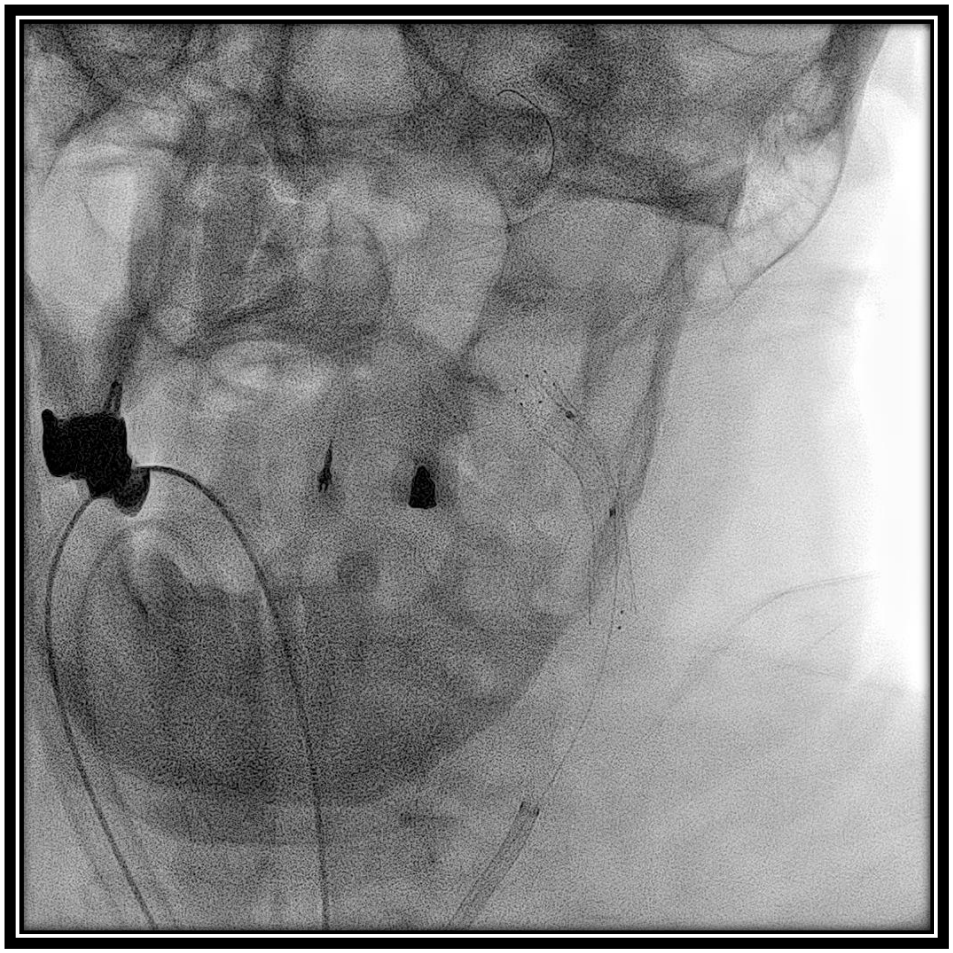
CASE study (3)

- 78 year-old female patient
- Right hemiplegia & aphasia
- MRI:
  - Increased signal in the superficial territory of the mid cerebral artery
  - ICA occluded
  - Mid cerebral art occluded
- Thrombolysis

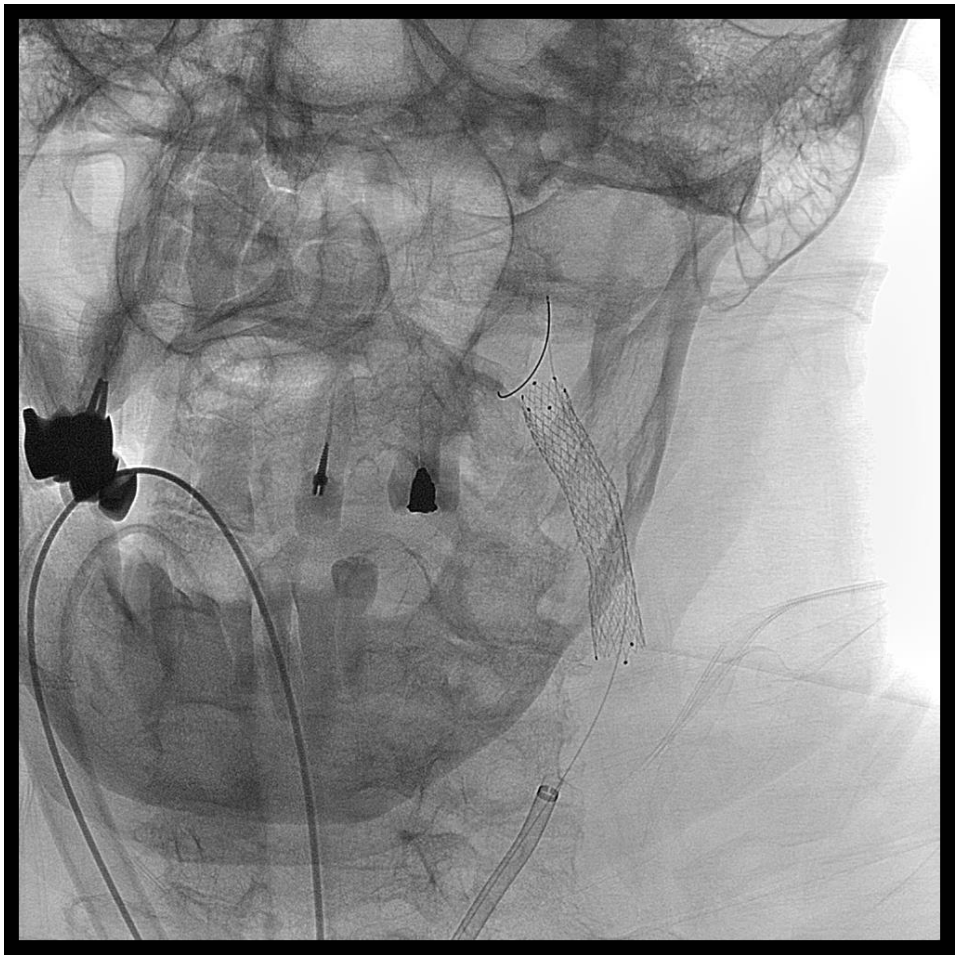


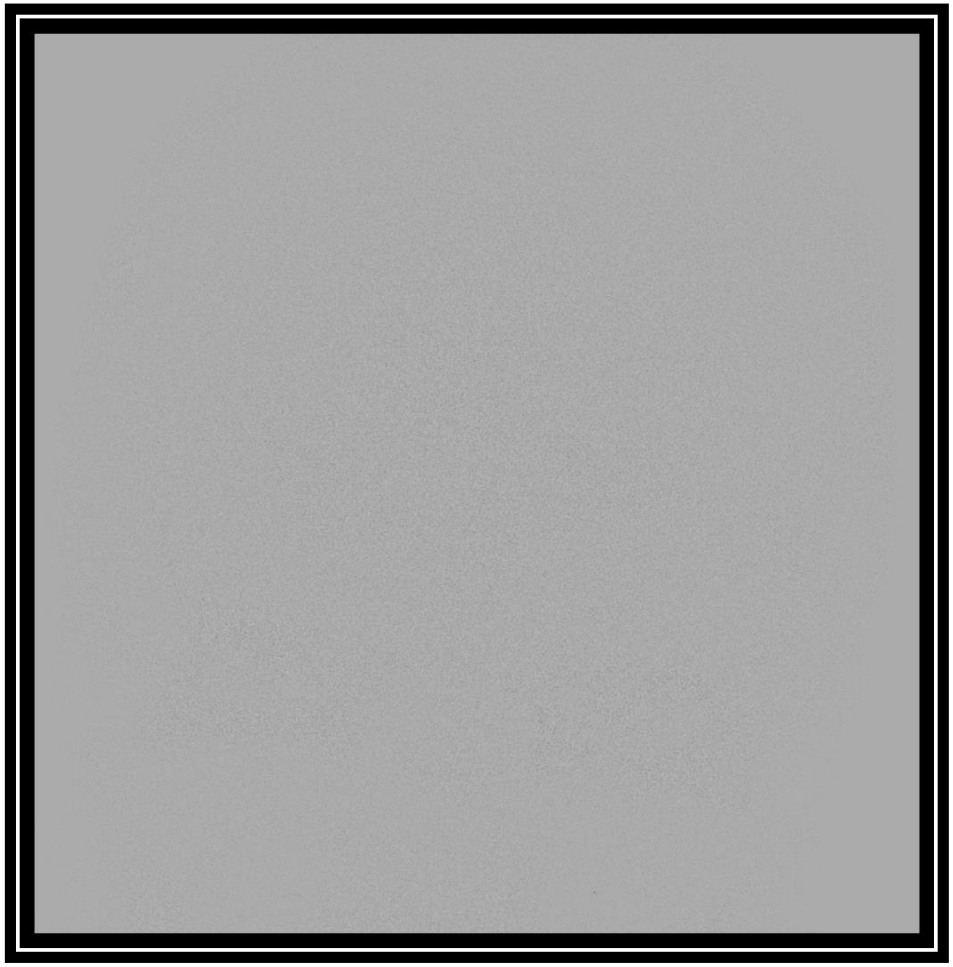
Carotid Artery Stenting





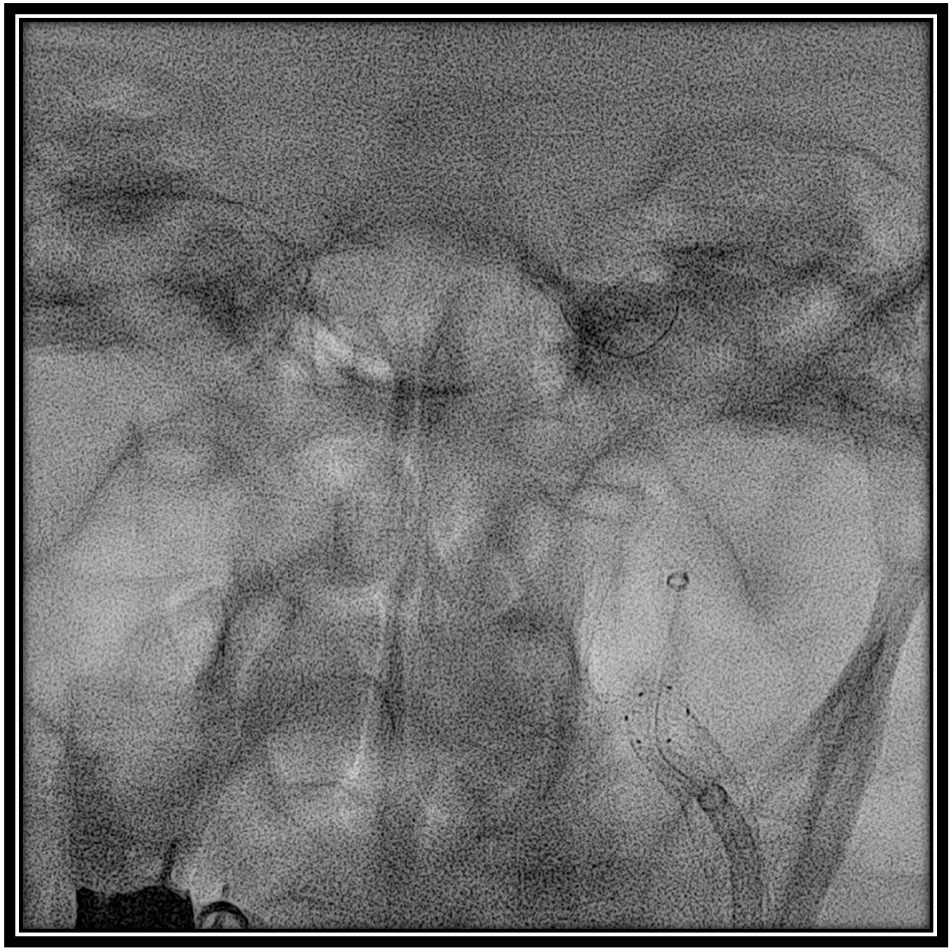
Carotid Artery Stenting





- M1 occlusion

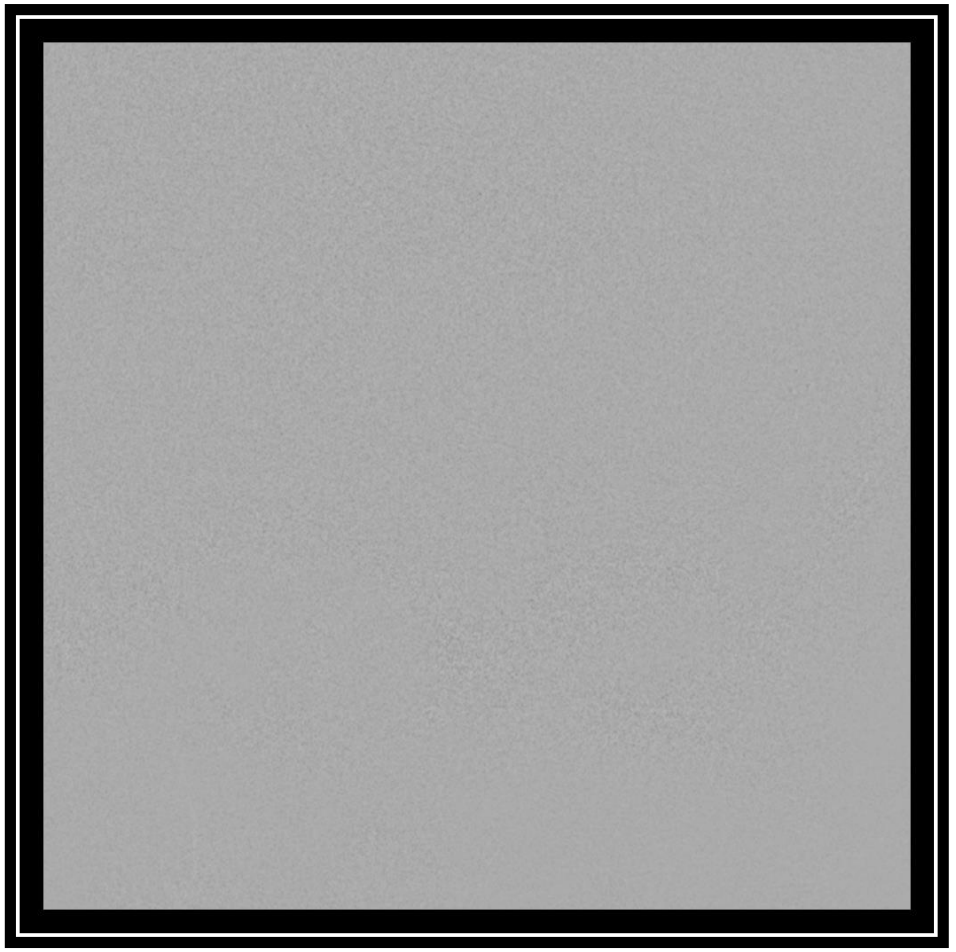
Endovascular thrombectomy



- SOFIA aspiration 6F KT (in the siphon)

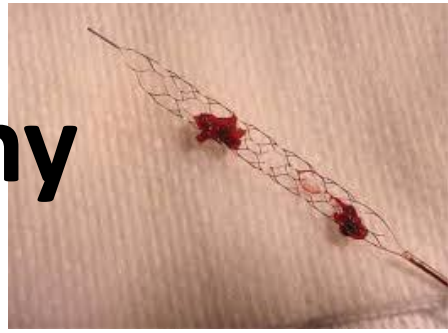
- Velocity micro KT (beyond the thrombus)

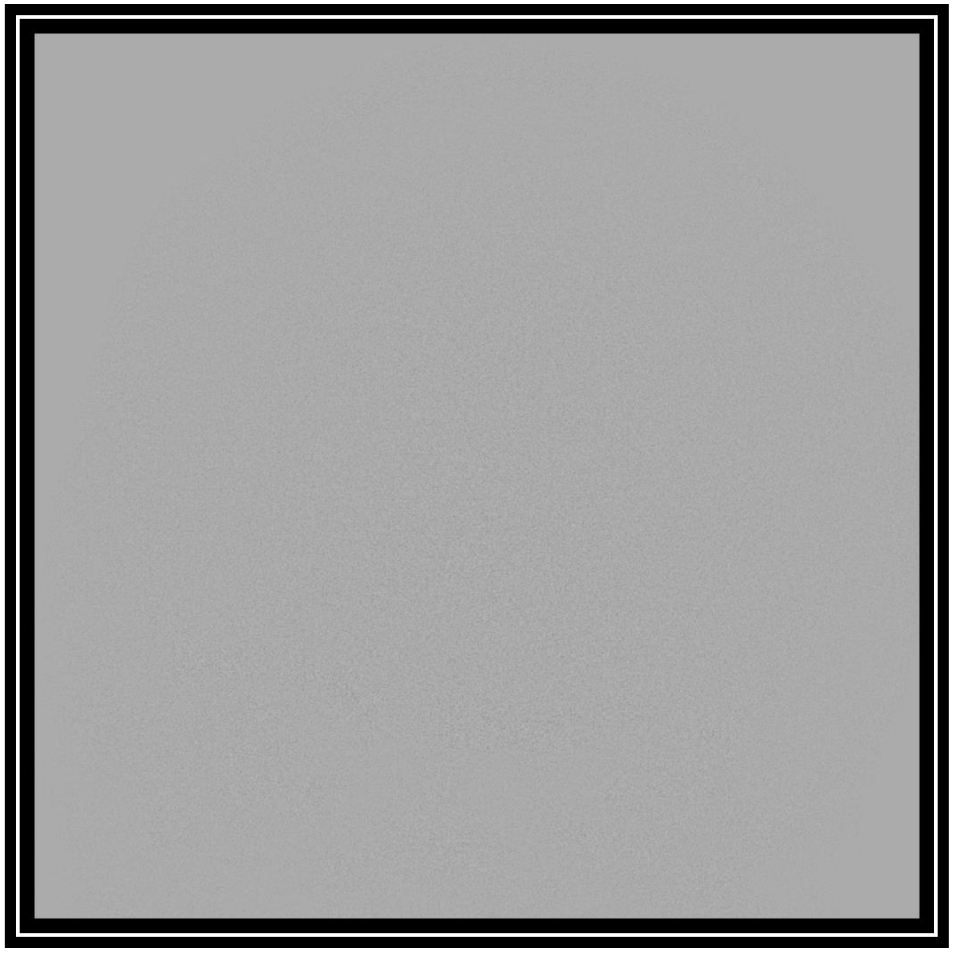
Endovascular thrombectomy



- Trevo Stent Retriever 4X20

Endovascular thrombectomy

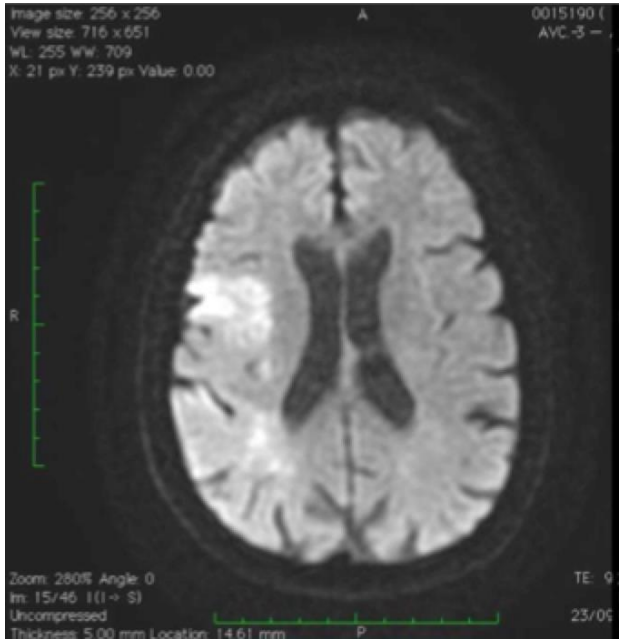


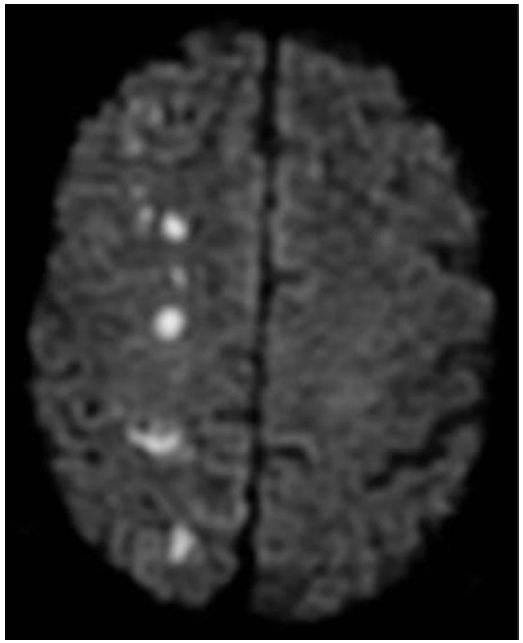


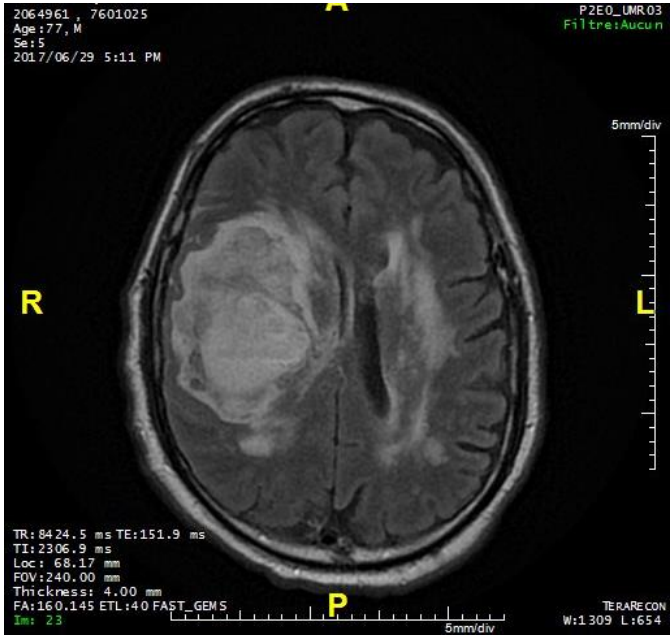
- TICI 3

Post TEA Strokes

- **Thromboembolic (≈ 55%)**
- **Hemodynamic (ICA clamping insult) (≈ 35%)**
- **Reperfusion (≈ 10%)**





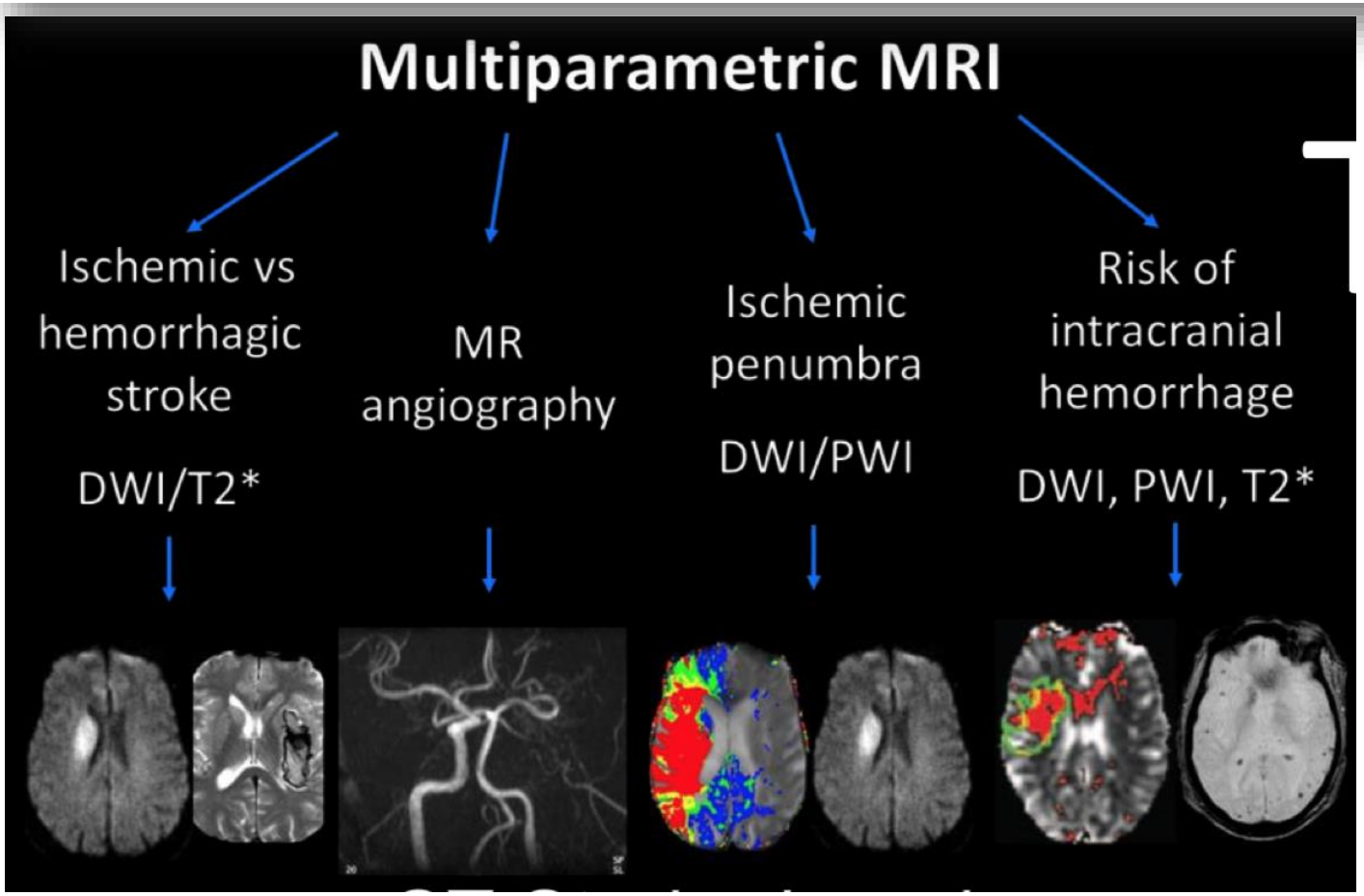


Post TEA Strokes

Vasc Endovascular Surg. 2017 Oct;51(7):485-490. doi: 10.1177/1538574417723482. Epub 2017 Aug 28.

Patterns of Acute Ischemic Strokes After Carotid Endarterectomy and Therapeutic Implications.

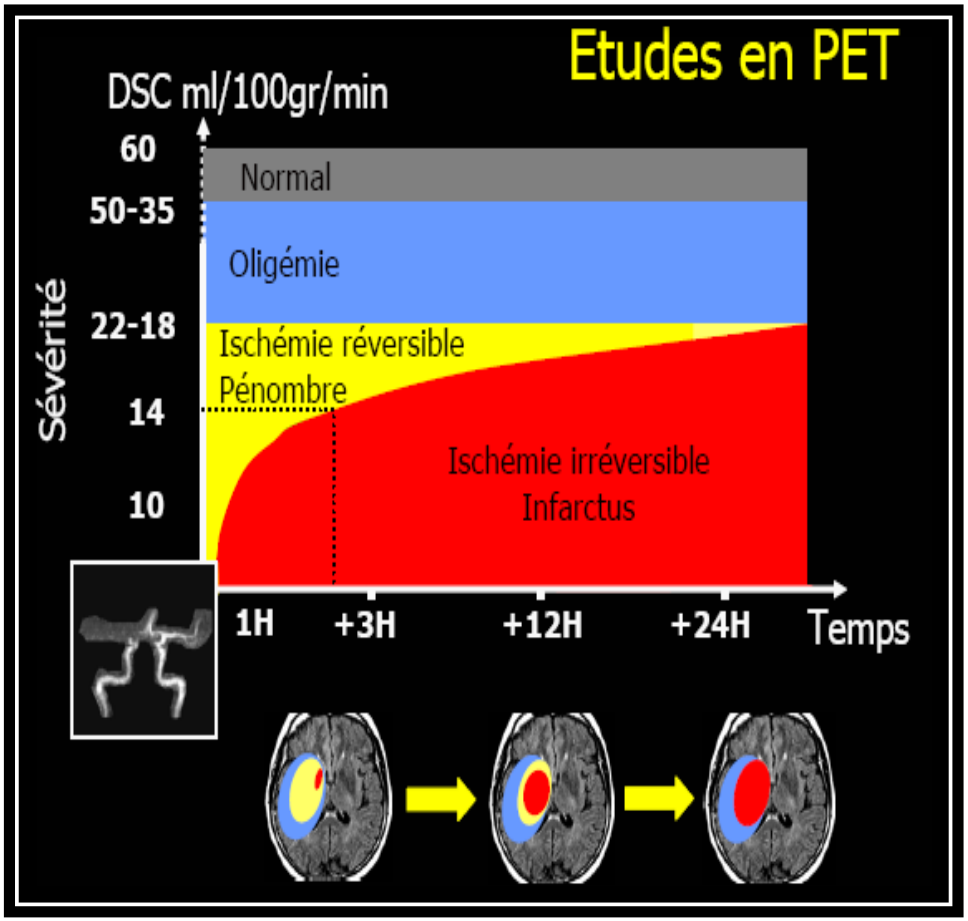
Lareyre F[1,2], Raffort J[2,3], Weill C[4], Marsé C[4], Suissa L[4], Chikande J[1], Hassen-Khodja R[1], Jean-Baptiste E[1].

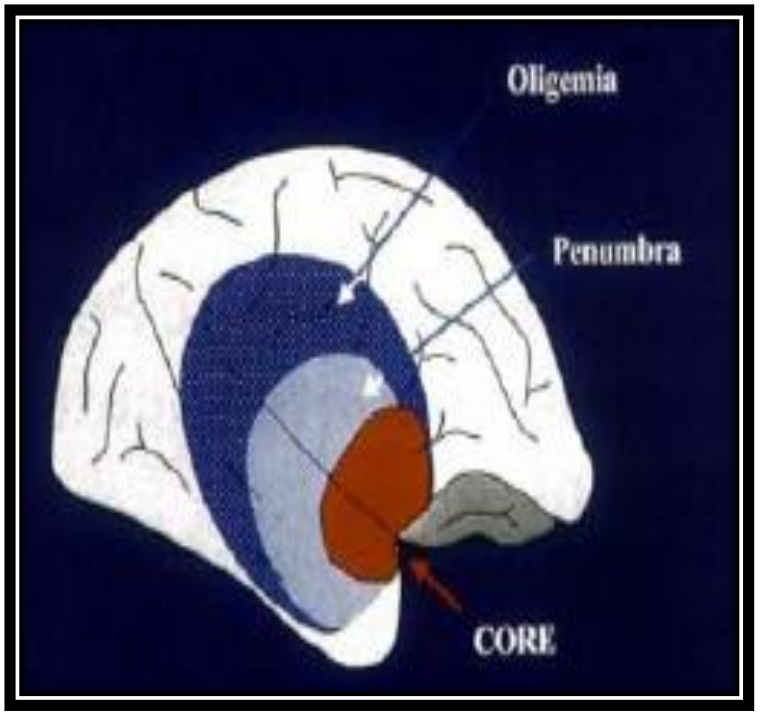


3dTOF

- Advantages of immediate MRI in constradiction with ESVS guidelines which votes for immediate redo surgery!

Post TEA Strokes





TIME IS BRAIN

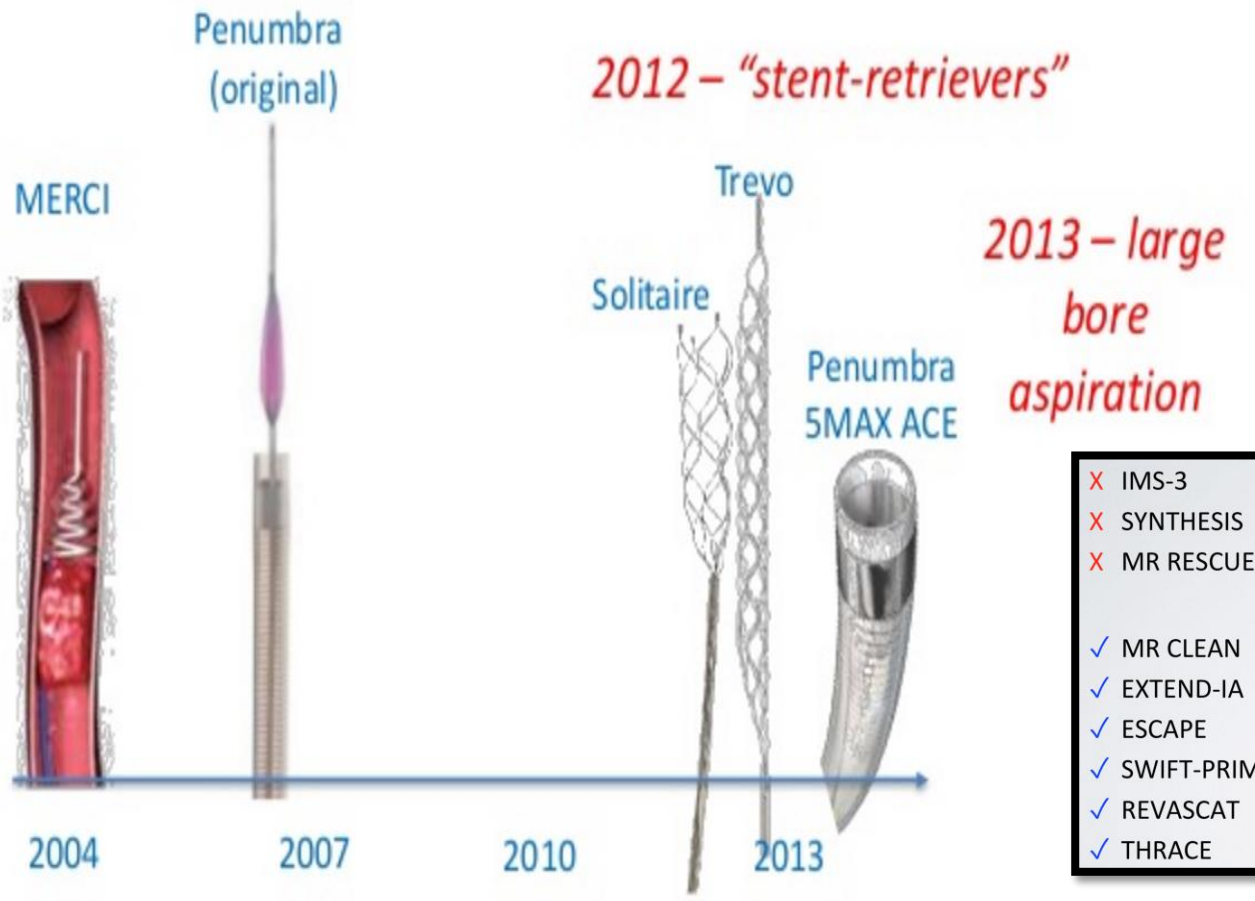
TIME LOST IS BRAIN LOST

➔**Restore the cerebral flow**

➔**« Rescue » the ischemic penumbra**

Post TEA Strokes

- **Thrombolysis contraindicated**
- **Significant material improvement → positive endovascular thrombectomy trials**



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X	SYNTHESIS	N Engl J Med. 2013; 368: 904-13.
X	MR RESCUE	N Engl J Med. 2013; 368: 914-23.
✓	MR CLEAN	N Engl J Med. 2015; 372: 11-20.
✓	EXTEND-IA	N Engl J Med. 2015; 372: 1009-18.
✓	ESCAPE	N Engl J Med. 2015; 372: 1019-30.
✓	SWIFT-PRIME	N Engl J Med. 2015; 372: 2285-95.
✓	REVASCAT	N Engl J Med. 2015; 372: 2296-306.
✓	THRACE	Lancet Neurol. 2016.

Post TEA Strokes

Neurological deficit post-TEA <4h30

NO TIME TO LOOSE

↓

Stroke Center with Neuro-Radiologist available

↓

Same logistic for « Acute Strokes »

Neurological Evaluation by Expert Neurologist

Multi-parametric MRI

(If not CT- & angioCT SAOT)

↓

Ischemic Stroke // cerebral occlusion- macro embolus

↓

Yes

Transfert to NRI angio suite

↓

Optimal medical management in Stroke Unit

URGENCES NEUROVASCULAIRES NICE

06 88 46 48 89

NEURORADIOLOGIE INTERVENTIONNELLE

06 50 05 37 29