Unusual ICAD Case

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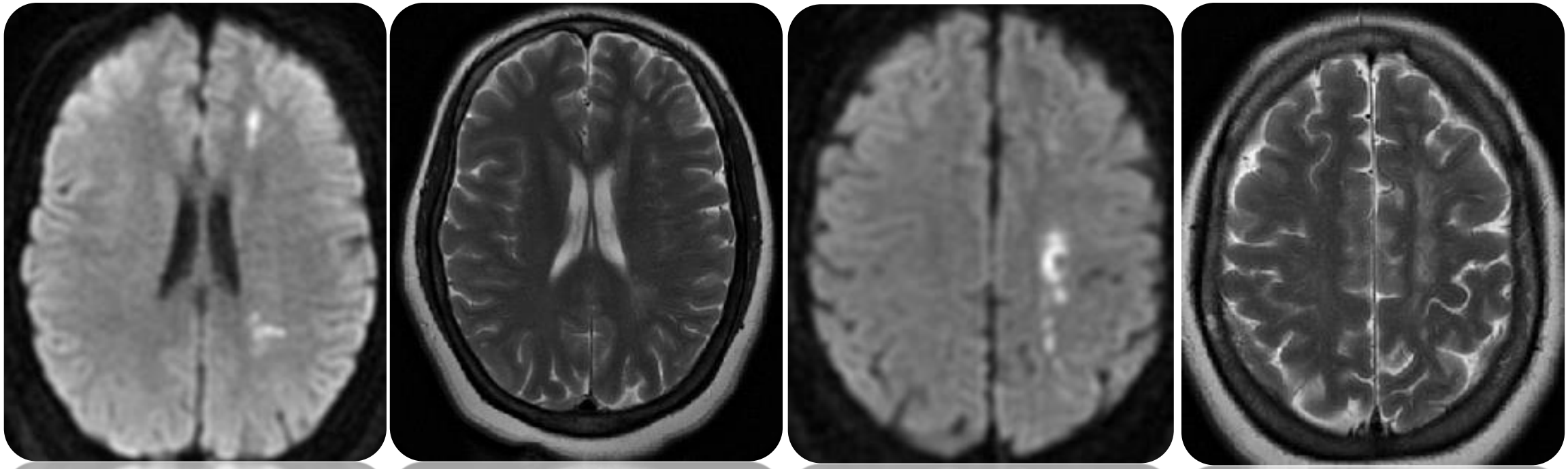
Disclosures

- **Co-Chair of the Endovascular Committee:** StrokeNet NIH/NINDs Research Consortium
- **Steering Committee:** NIH/NINDs Defuse 3 Acute Ischemic Stroke RCT
- **Overall International PI:** ARISE II EMBOTRAP stent-retriever acute stroke study.
- **Overall International PI:** ATLAS Brain Aneurysm Stent Embolization Prospective Study
- **Past president:** Society of Vascular and Interventional Neurology (SVIN) and Endovascular Neuro Section AAN
- **Consultant:** Stryker, Penumbra, Medtronic, and Neuravi, ThrombxMedical
- **Co-Founder:** Galaxy Therapeutics LLC

Case Presentation

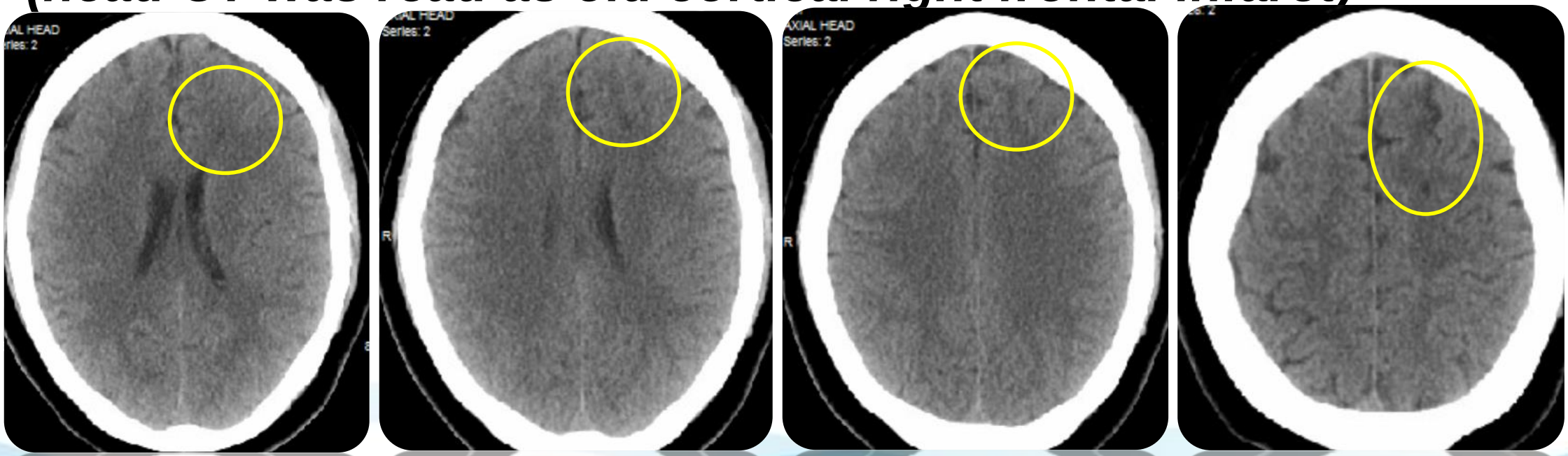
- ✓ 47 yo AA, R handed woman with hx of HTN, Hrlipi, obesity, who presented on ***March 15, 2017*** w:
  - ✓ Right hand weakness
  - ✓ No aphasia
  - ✓ Positive cortical findings with loss of two points discrimination
  - ✓ Pseudo-radiculopathy

Work Up: MRI on March 15, 2017



Work Up: one month prior 2/25/2017 CT head

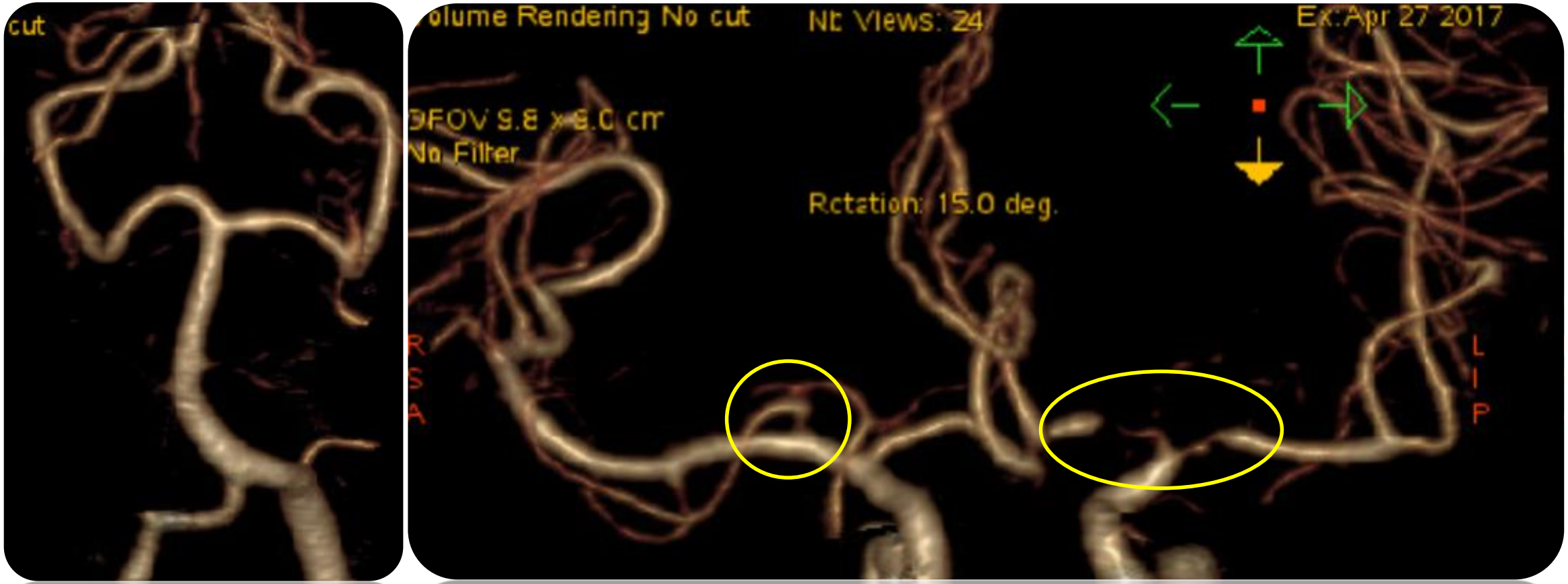
- ✓ ***She was seen in outside ED with HTN, HA, R Hand numbness intermittent x one week and persistent since the day before***
- ✓ ***Dxed with cervical radic, and treated with Dexa and OP PT (head CT was read as old cortical right frontal infarct)***



Work Up

- ✓ Cardiac Echo both trans-throacic and TEE normal
- ✓ Tele was normal with no cardiac arrhythmia
- ✓ Hypercoag work up is negative, homocysteine level 13.6
- ✓ CTA showed multiple areas of intracranial stenosis
- ✓ Underwent diagnostic conventional angiogram

Work Up: CTA results



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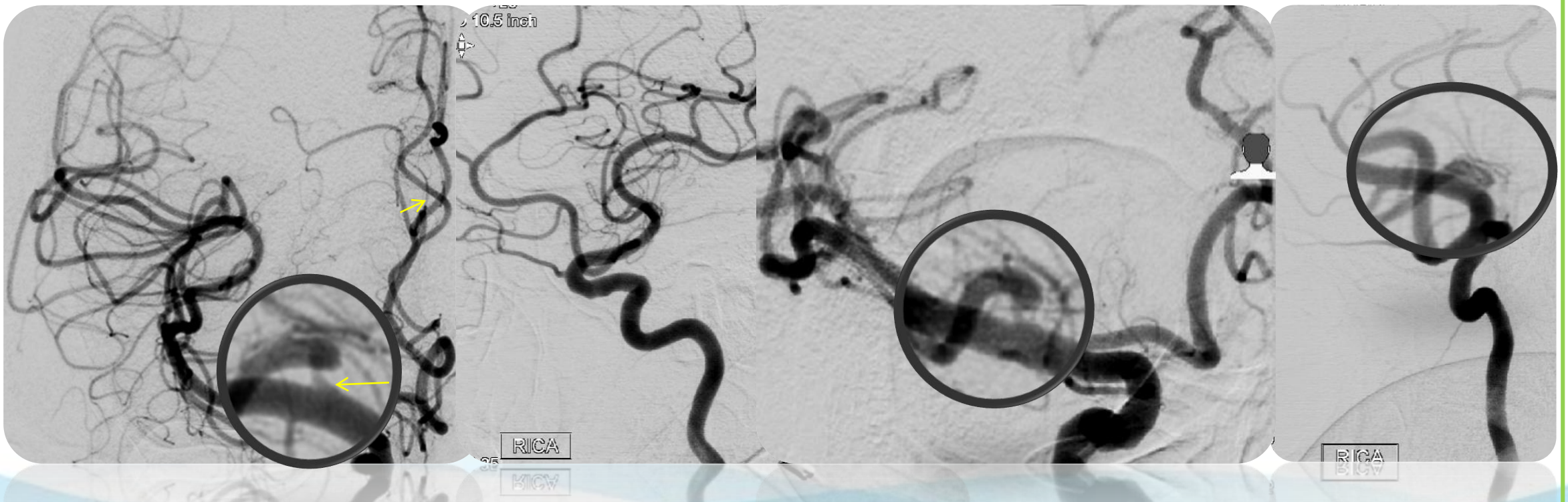
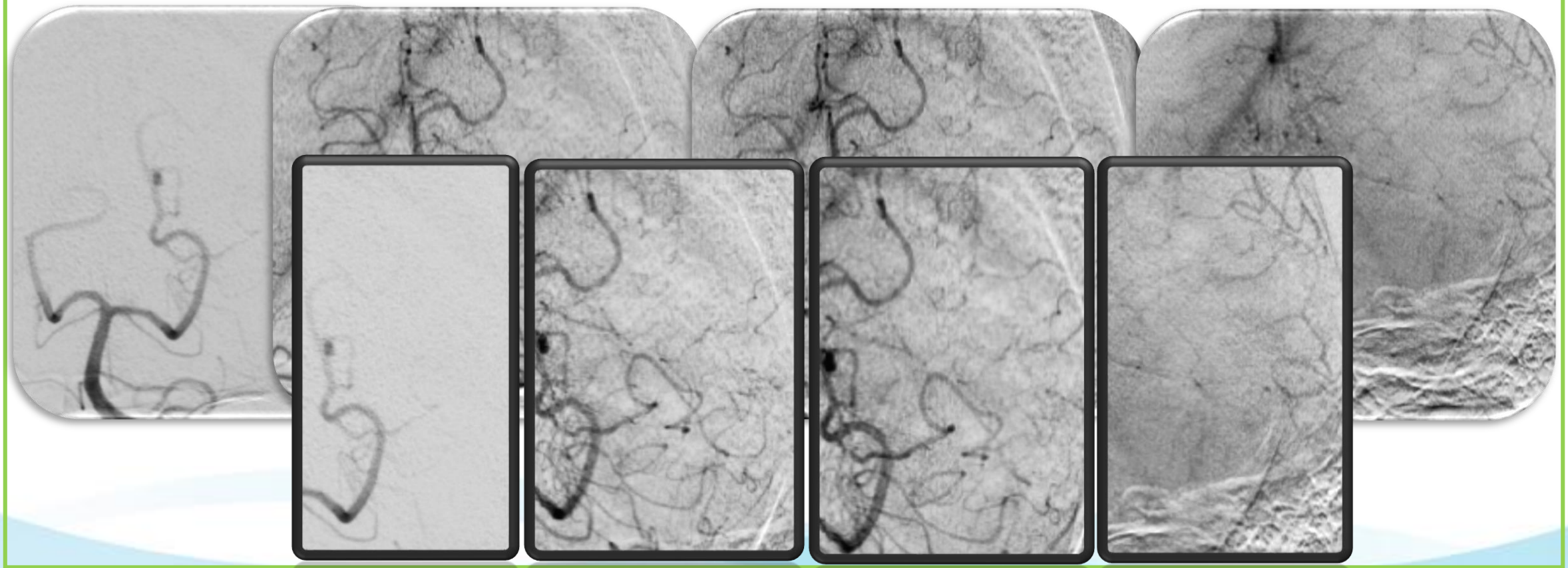
Work Up: DSA

- ***Right ICA Run: Note the asymptomatic areas of stenosis (R M2 Origin and mild proximal severe distal R A2, no significant***



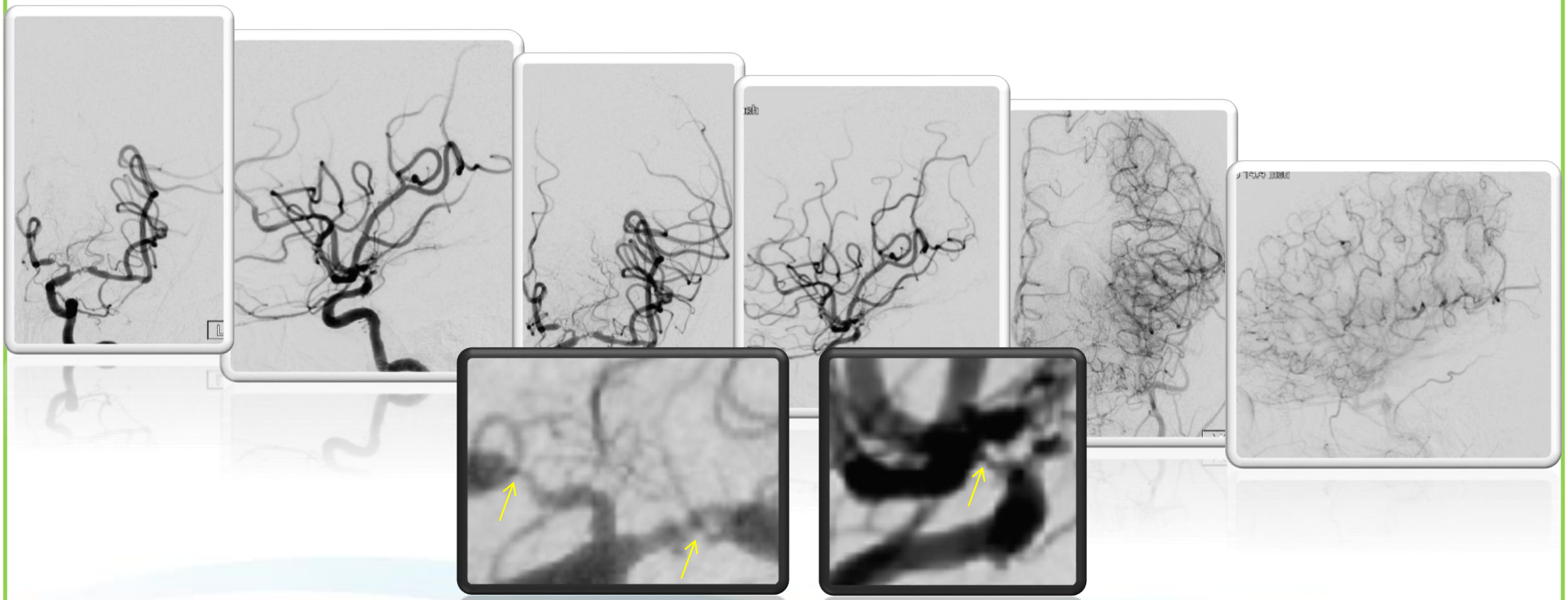
Work Up: DSA

- ***Left VA Run: Notice the collateral***



Work Up: DSA

- ***Left symptomatic ICA Run: Hemodynamic (ACA>MCA)***



Initial Treatment Approach

- ✓ **Given the multiple risk factors and the additional findings, with negative work up; diagnosed as:**
  - ❑ **Symptomatic left ACA/MCA stenoses secondary to ICAD**
- ✓ **Treatment:**
  - ❑ **Optimal medical therapy:**
    - ❑ **DAP: Aspirin 325 mg daily and Clopidopgrel 75 mg daily**
    - ❑ **High Dose Statin 80 mg Simvastatin and folic acid daily**
    - ❑ **RF Modifications: LDL < 70, HbA1C < 6.5, SBP 120-140 mm Hg, Exercise**
- ✓ **Recovery: She made a good recovery with minimal right hand weakness**

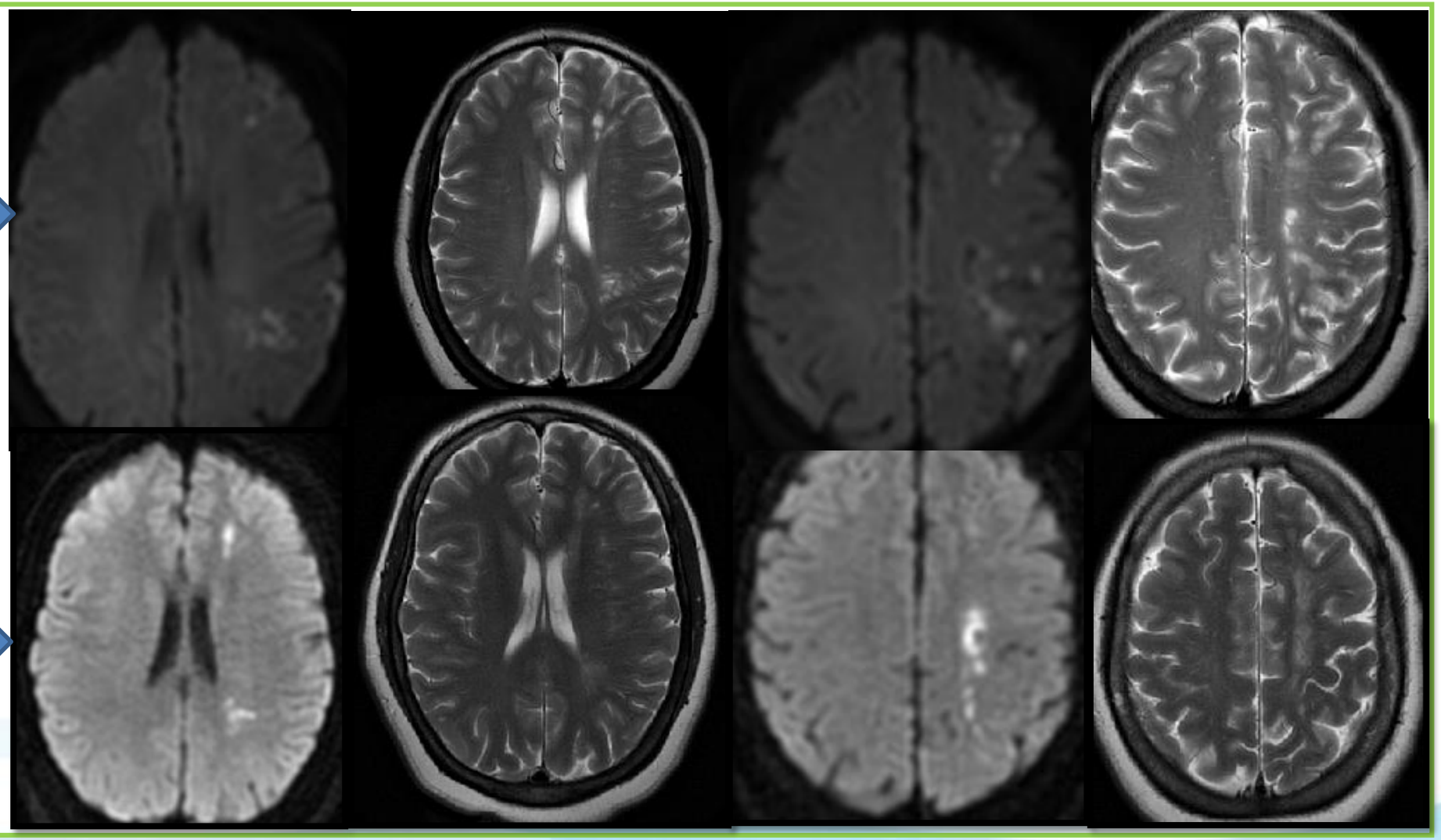
Second stroke in spite of maximal medical thx

- ✓ 6 weeks later she returns to the ED on May 1, with worsening right hand weakness to complete wrist drop (0/5) and words finding difficulty
- ✓ She has no use of her right hand
- ✓ Right upper extremity cortical sensory findings

Work Up: MRI on May 1, 2017

Recurrent Strokes MRI May 1, 2017

First Strokes MRI March 15, 2017



Endovascular Therapy

- ✓ **Refractory to medical therapy, intractable symptomatic ICAD**
- ✓ ***FDA criteria for intracranial stenting:***
  1. ***Age: 22 and 80 yrs old AND who meet ALL of the following criteria:***
  2. ***2 or more strokes despite aggressive medical management;***
  3. ***whose most recent stroke occurred more than 7 days prior to ICAS***
  4. ***who have 70-99% stenosis due to atherosclerosis of the intracranial artery related to the recurrent strokes; and***
  5. ***who have made good recovery with mRS of 3 or less***

Endovascular Technique Question and Planning

- ✓ ***Fixing Rt ACA and MCA/ or MCA only? What if ACA is jailed and already stenosed?***
- ✓ ***Balloon Angioplasty only or both***
- ✓ ***Intracranial bare metal stent or drug eluting stenting***
- ✓ ***Balloon mounted versus self expanding***
- ✓ ***DAP PFA-100 Coll/Epi > 300 (85-172) and Coll/Adp 106 (67-112)***

Endovascular Technique: Tools

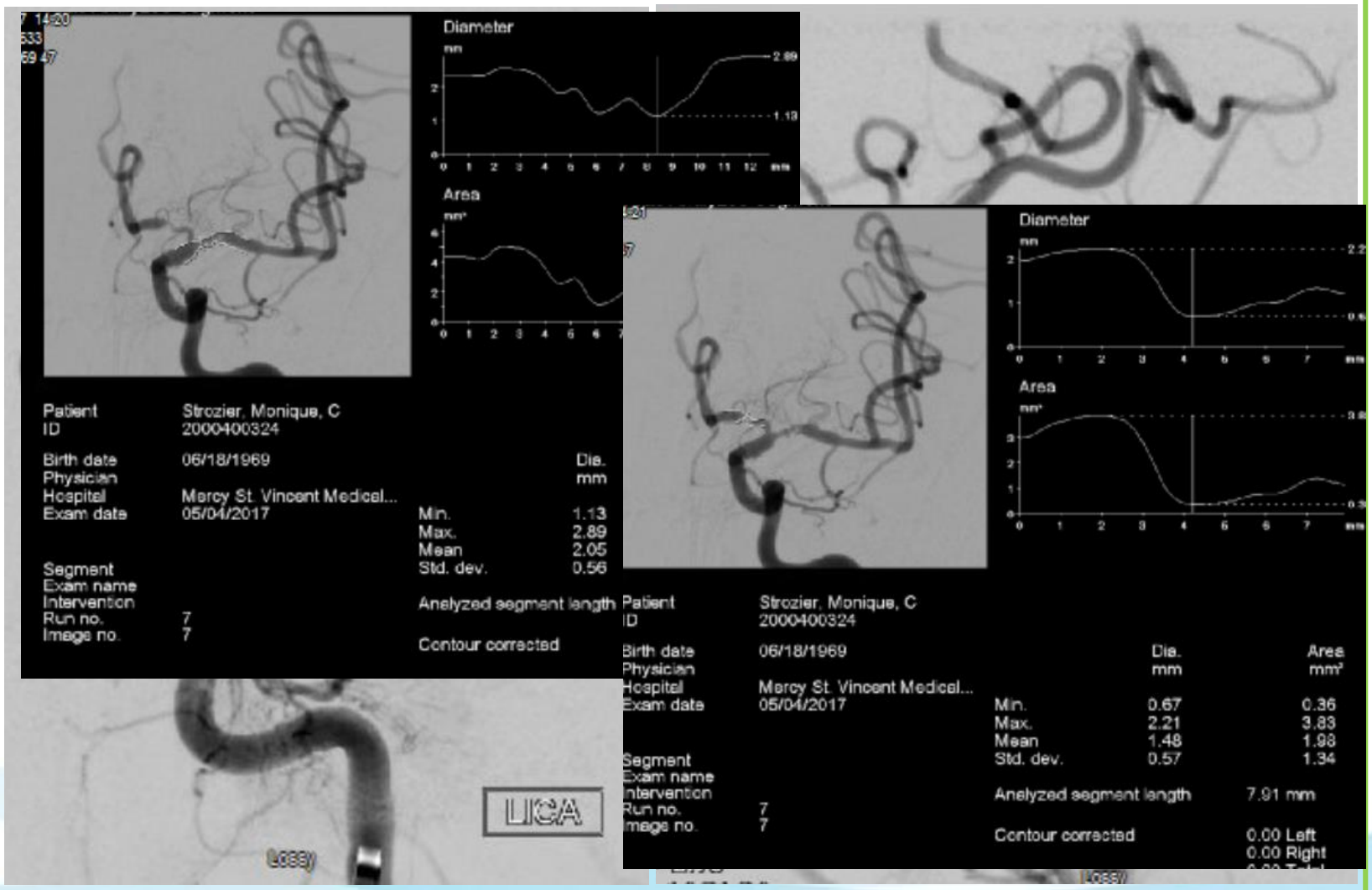
- ✓ Femoral sheath 6Fx 55 cm
- ✓ Neuron 070, MPD pre-shaped
- ✓ Sl-10 Microcatheter
- ✓ Synchro 014 preshaped standard microwire/Traxcess
- ✓ Transend 300 floppy tip exchange length microwire

Endovascular Technique

Step I: ICA Access and working projection, heparin bolus 70 u/kg

Step II: Measurement

Step III: Devices, Gateway 2.5x9mm plasty only first attempt



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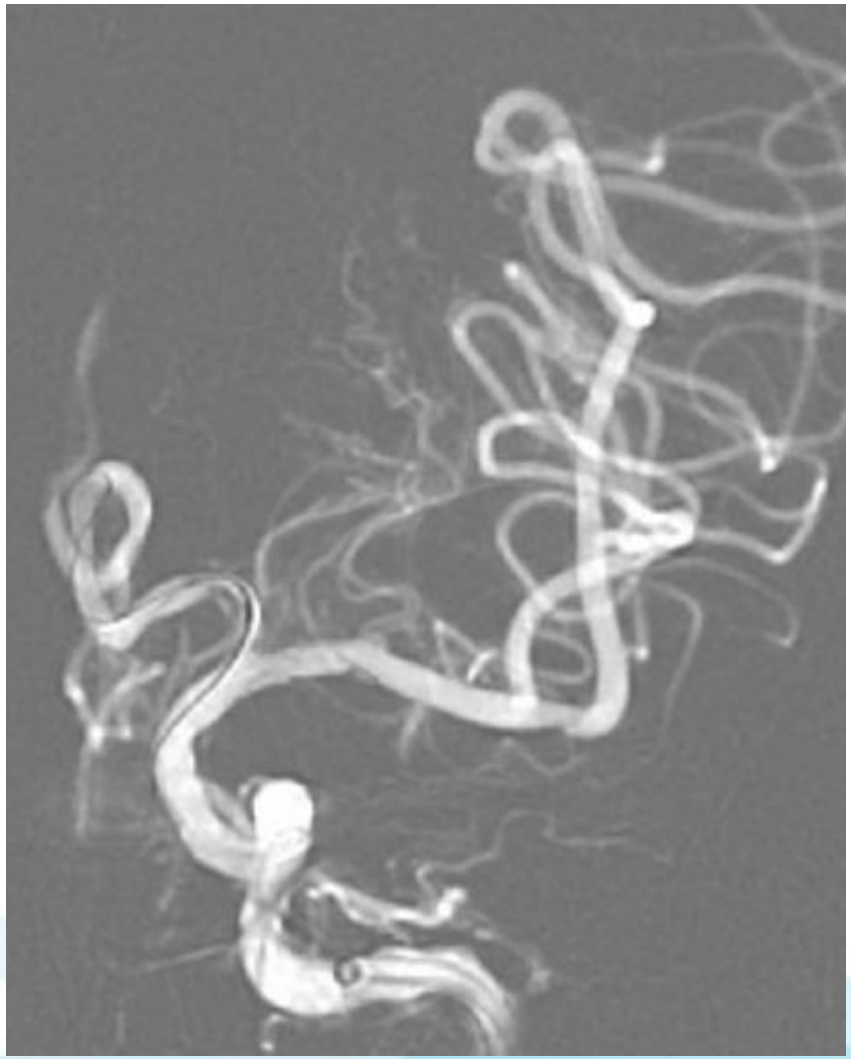
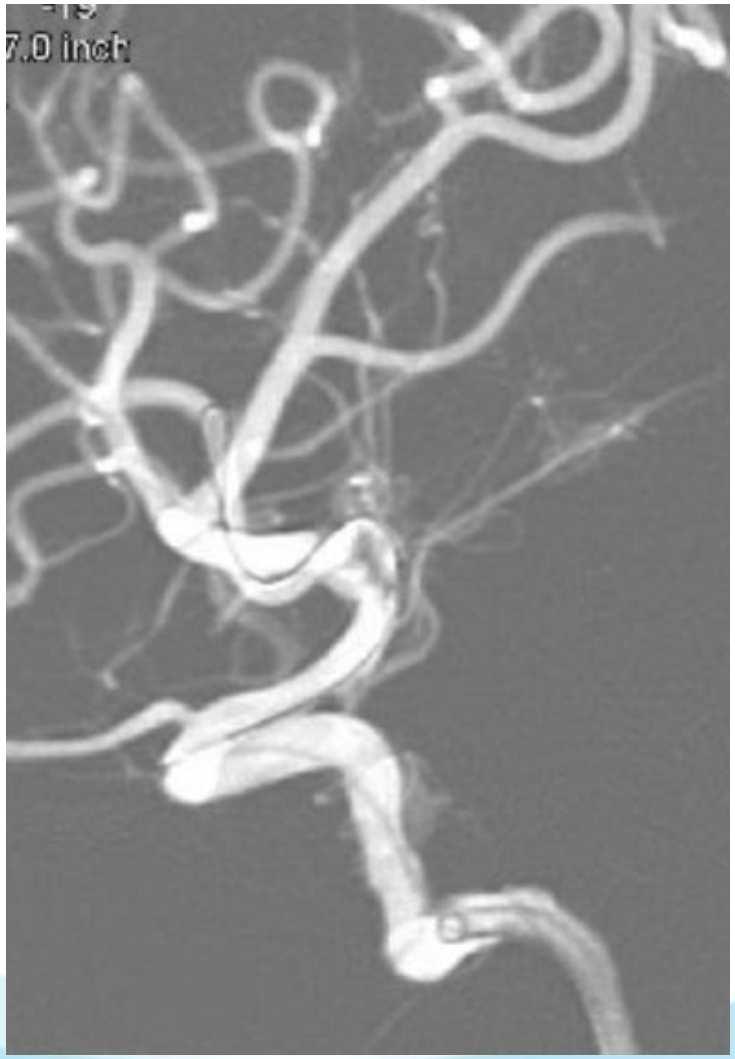
Endovascular Technique

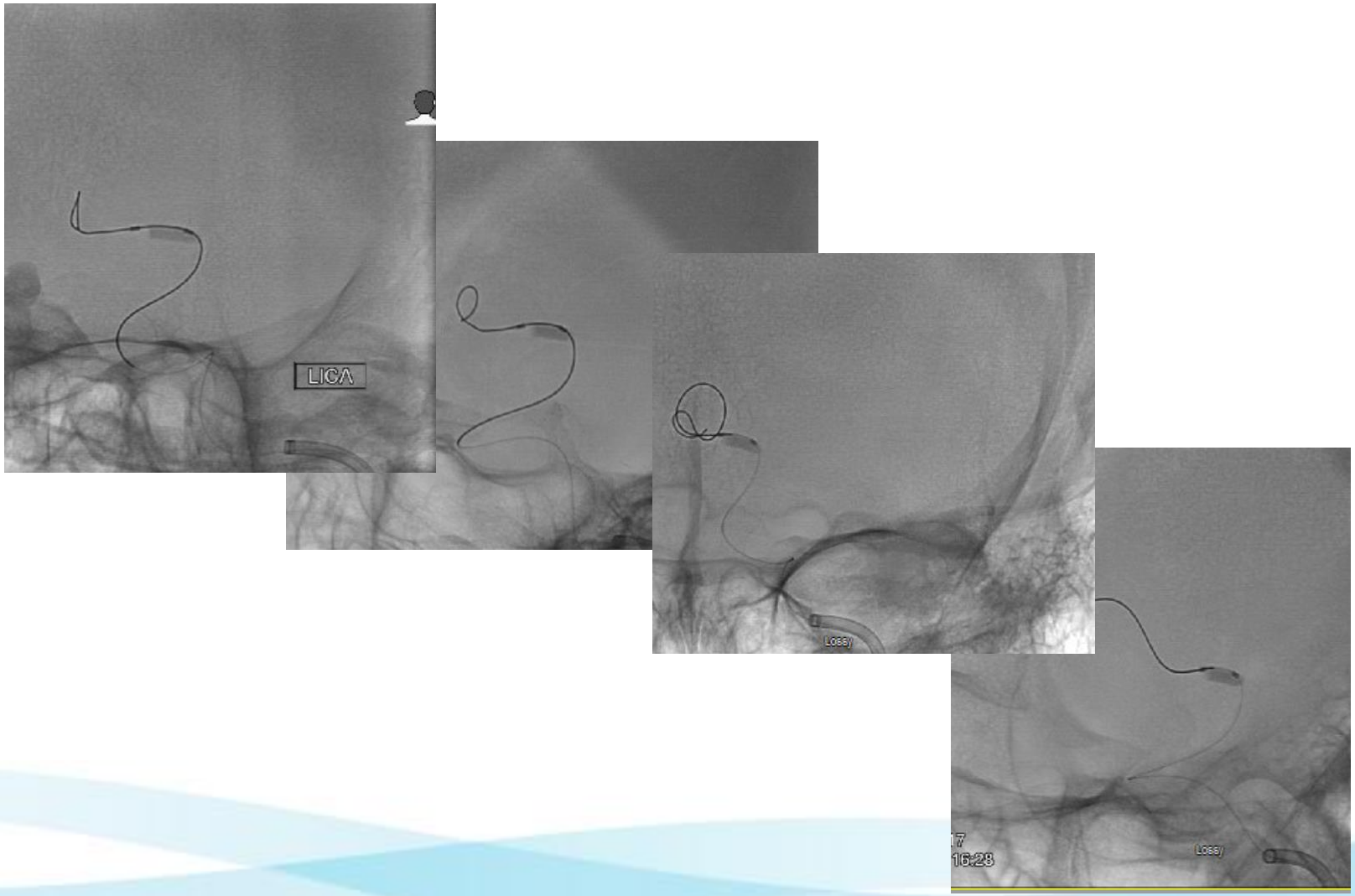
Step IV: Crossing the ACA lesion
Trial I: direct with exchange length: No success
Trial 2: Traxcess and SL-10: No success
Trial 3: Synchro and Sl-10 Crossed the lesion and exchanged





Endovascular Technique

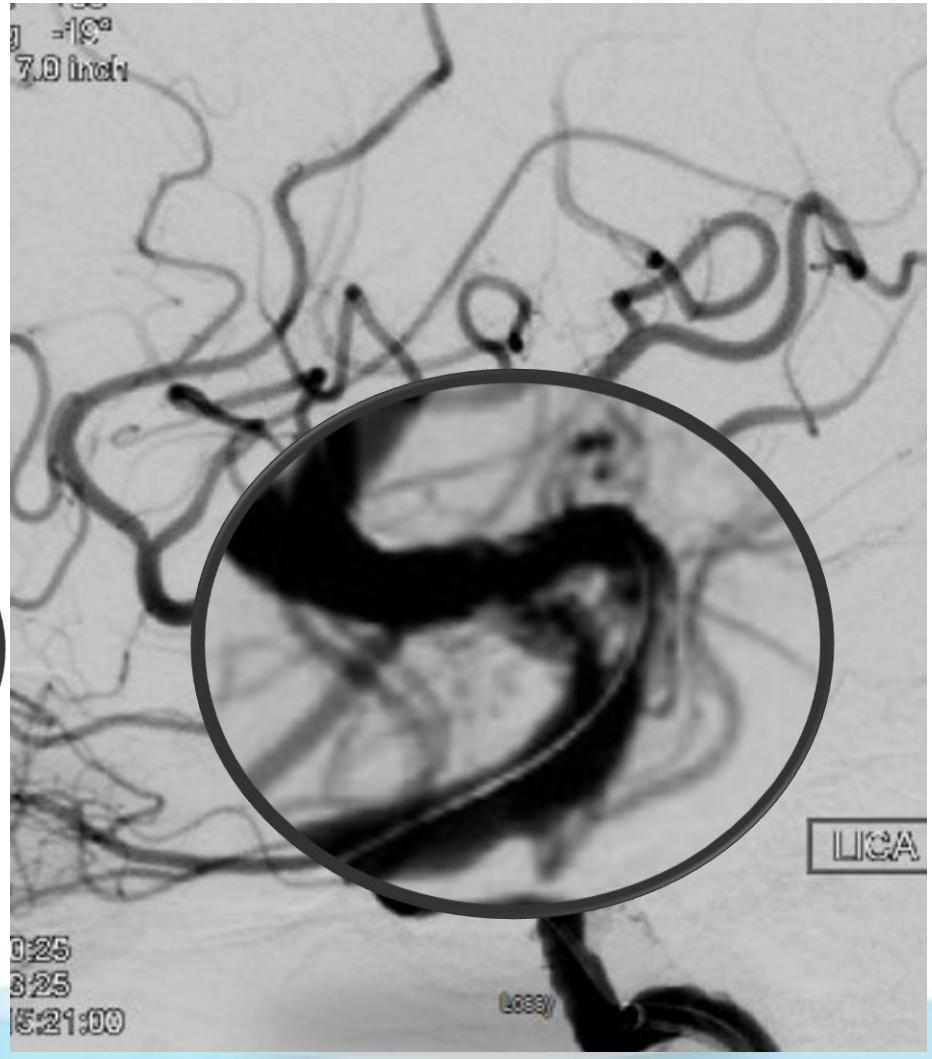
Step IV: Multiple ACA lesion very slow (2 min up and 2 min down) inflations to 4 ATM about 1.9 mm balloon diameter



Endovascular Technique: post A1 plasty run

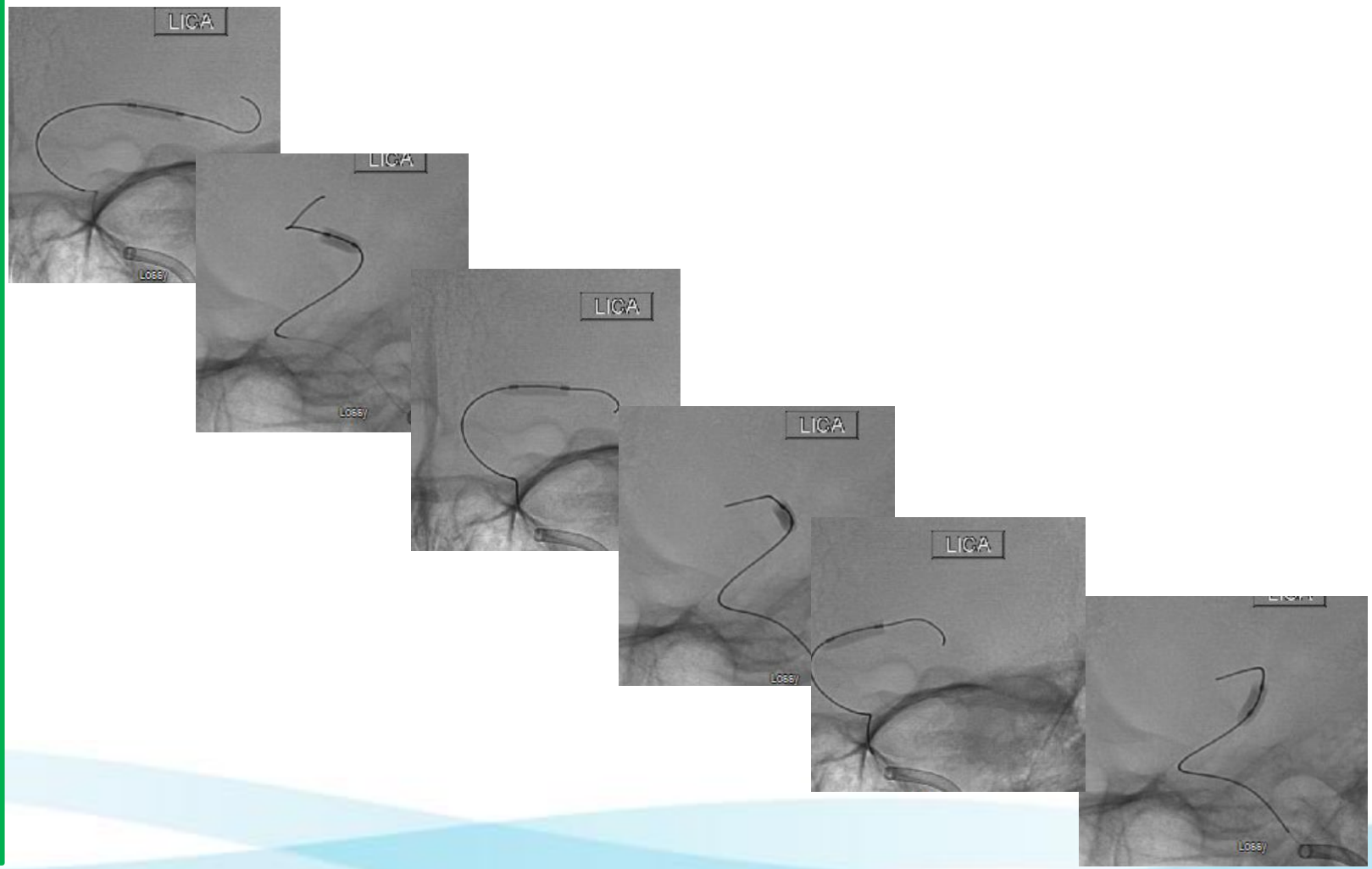
Post ACA plasty run:

- ✓Acceptable results
- ✓No extravasations
- ✓No Clear dissection
- ✓No clot
- ✓The MCA is granular? Clot
- ✓More heparin and attention to MCA



Endovascular Technique: MCA plasty

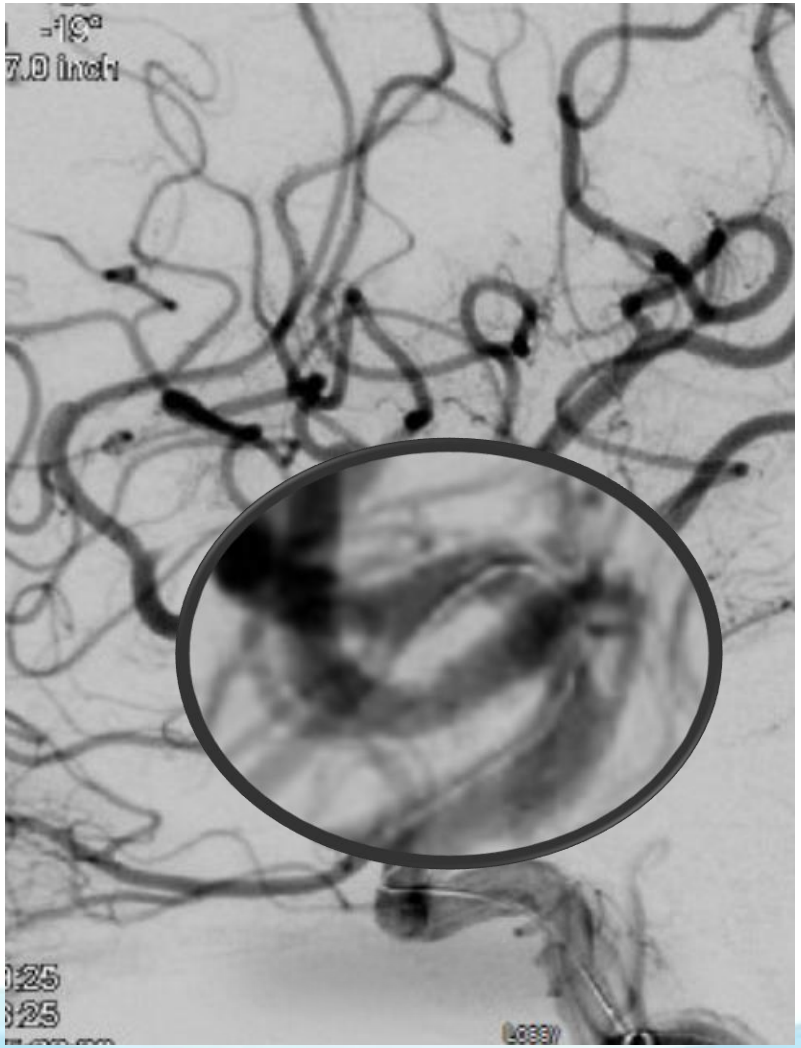
Step V: Crossing the MCA lesion with exchange length. Multiple MCA lesion very slow (2 min up and 2 min down) inflations to 5 ATM distal and 6 ATM proximal
(2.5 mm x9 mm Gateway balloon)



Endovascular Technique: post M1 plasty run

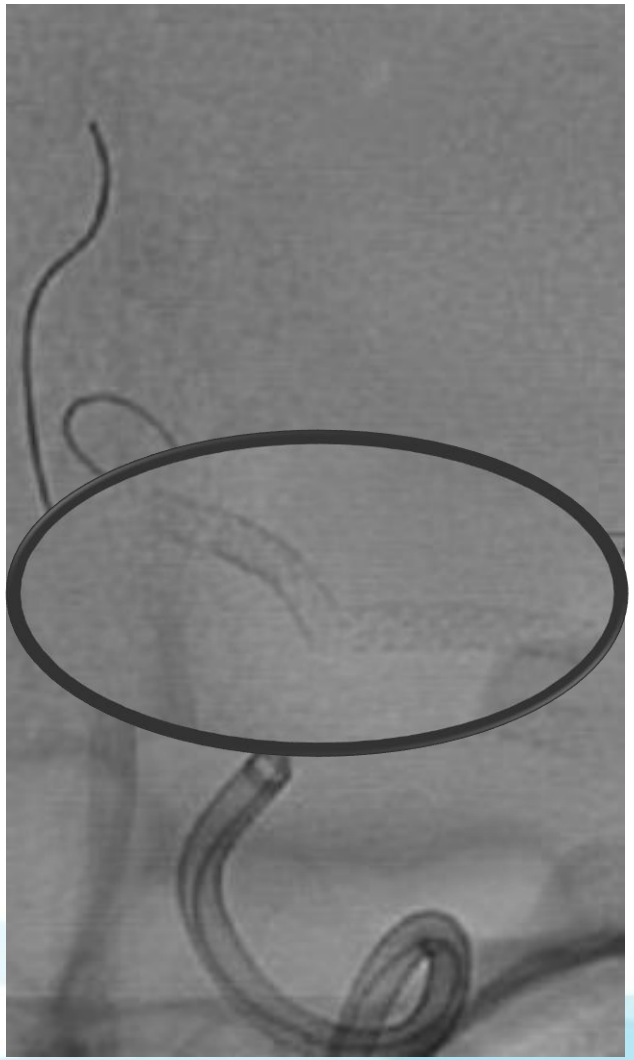
Post MCA plasty run:

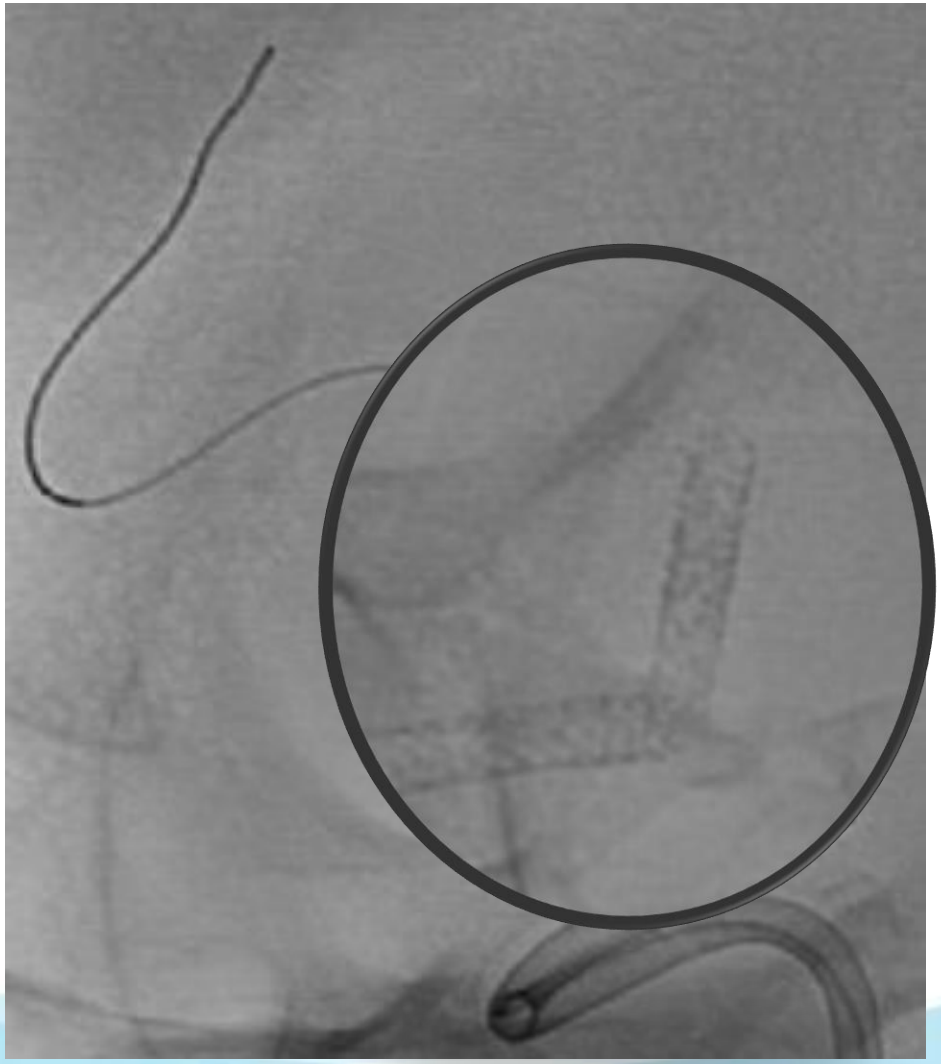
- ✓Improved MCA stenosis
- ✓BUT; ? MCA dissection and now wither ACA filling defect or also dissection?
- ✓More heparin and ? More stenting vs replasty



Endovascular Technique

Step VI:
Decision to stent both
VI.a: Xpert Head CT performed, no blood
VI.b: Abciximab (Reopro) 10 mg IV bolus given and stenting performed
Two telescoping stents in the A1, Xience Alpine 2.25x 8 each and 2.25 x 15 mm in MCA





Endovascular Technique

Final Run with Pre and and Vaso CT

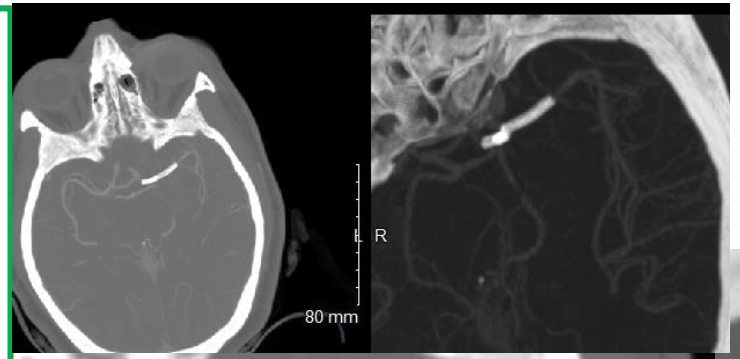
Follow up

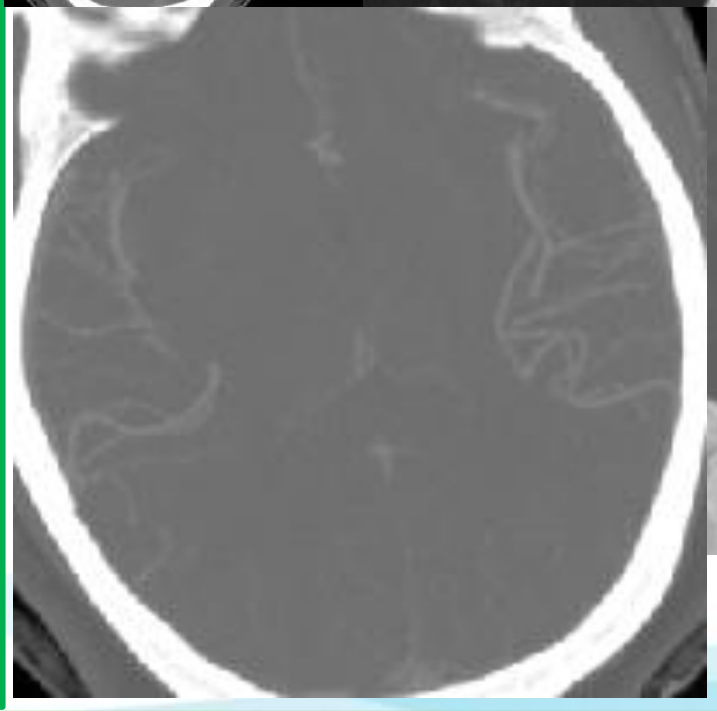
She did very well and no complication

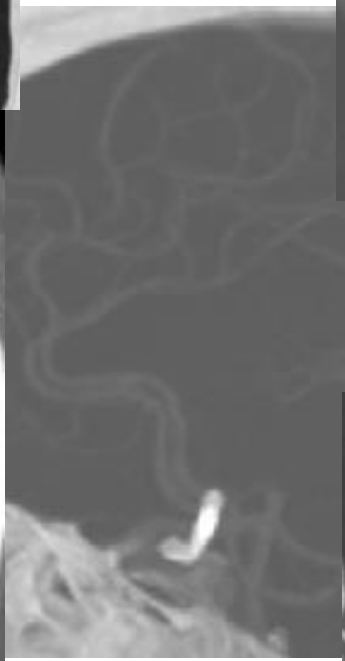
Good Clinical recovery

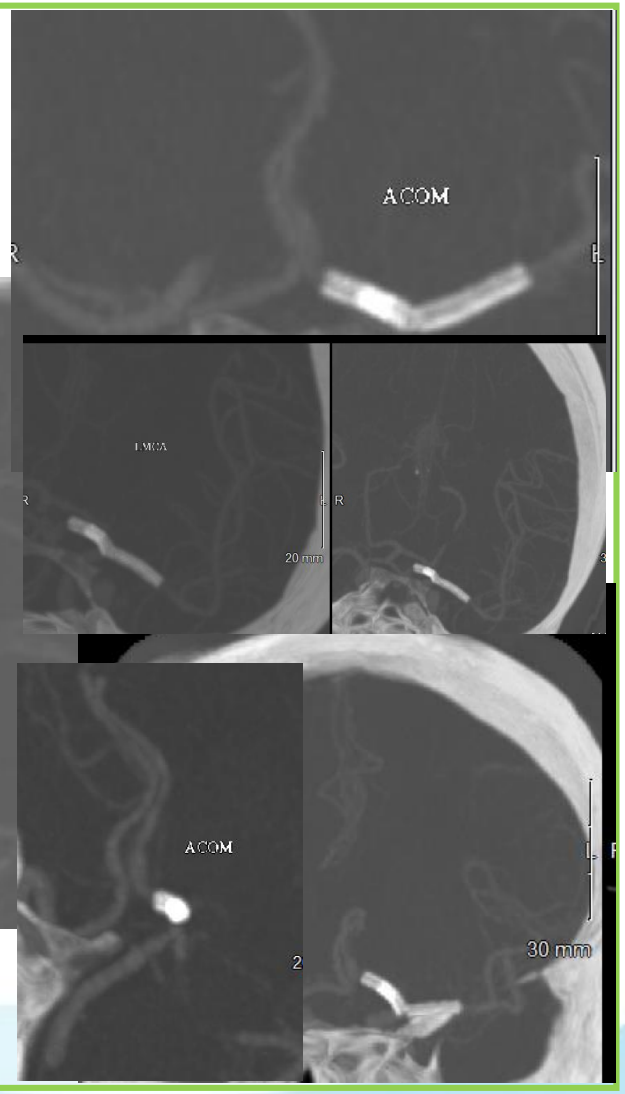
Plavix BID x 48 hrs

CTA before DC in two days (See images)







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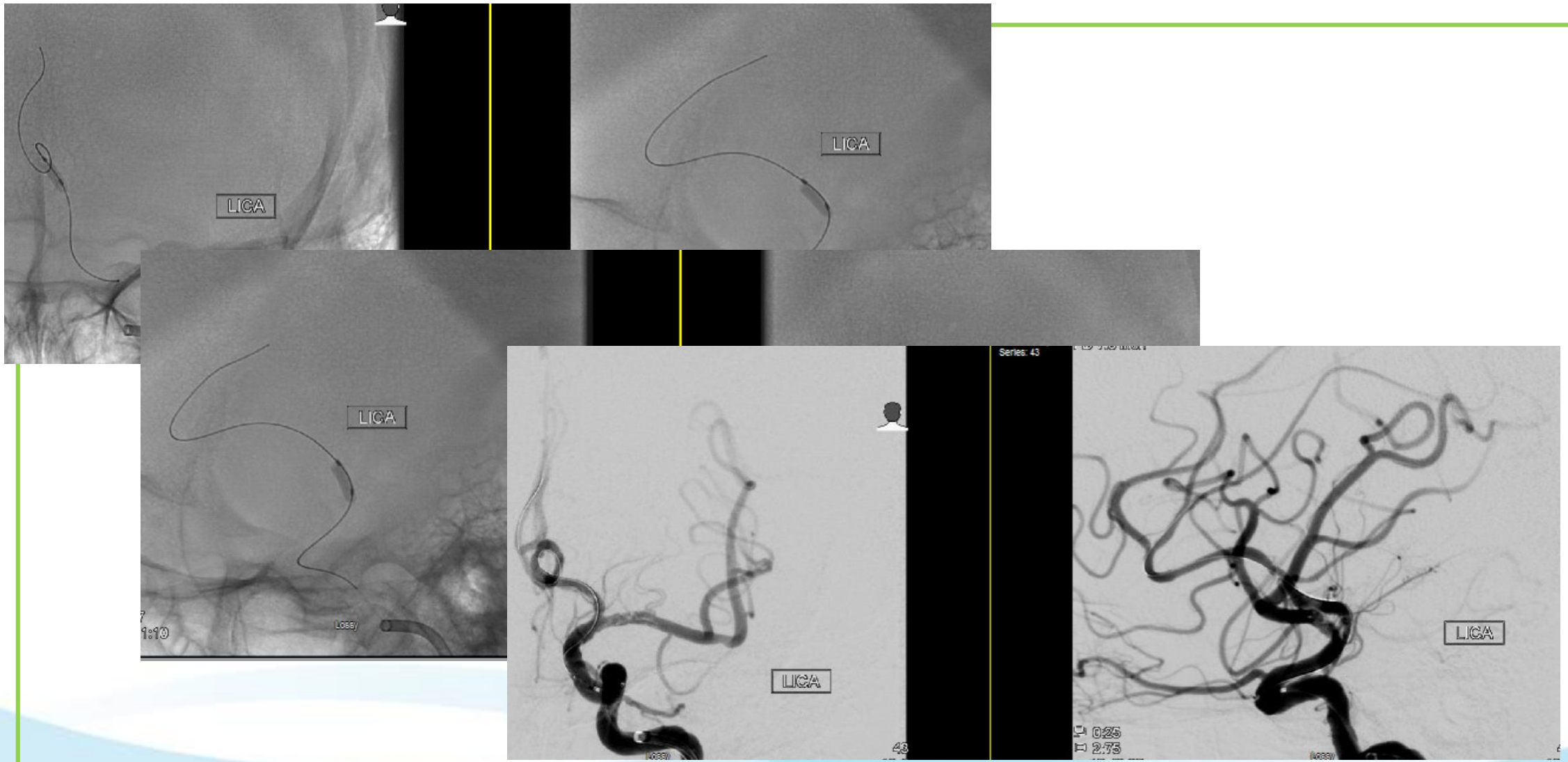
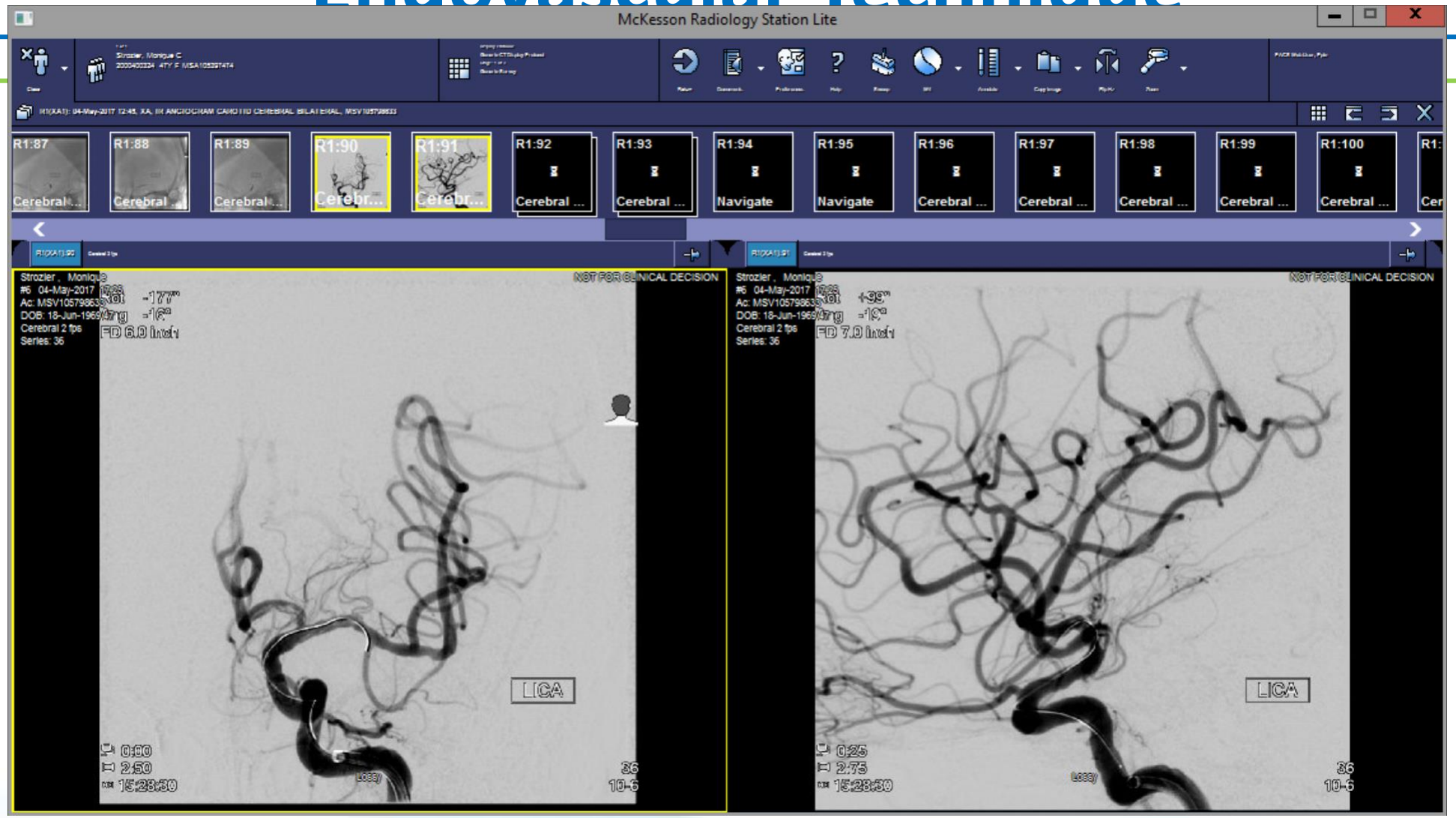


Endovascular Technique



Endovascular Technique