Carotid stenting in ICA dissection

Technique, indications and debates at Lariboisière

Dr Marc-Antoine Labeyrie
for Pr Emmanuel Houdart

Department of Neuroradiology
Hôpital Lariboisière, Paris, France

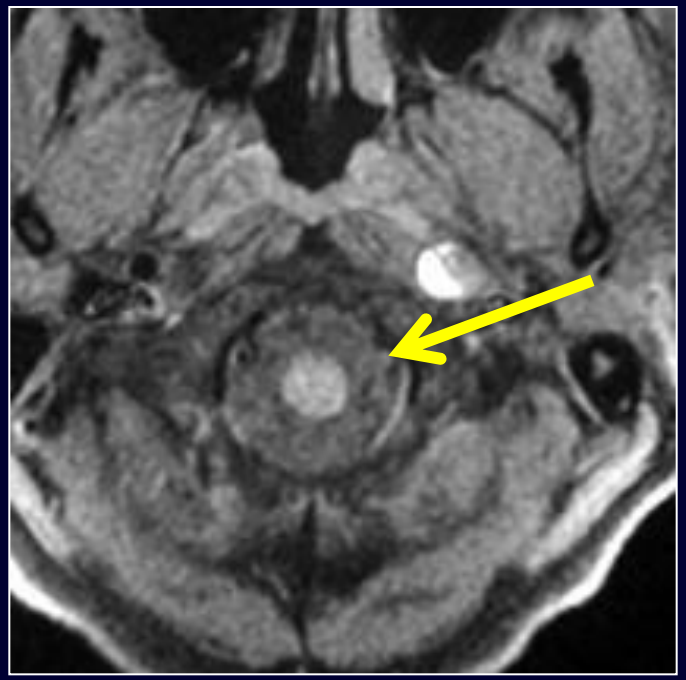
Disclosure

Speaker name: LABEYRIE

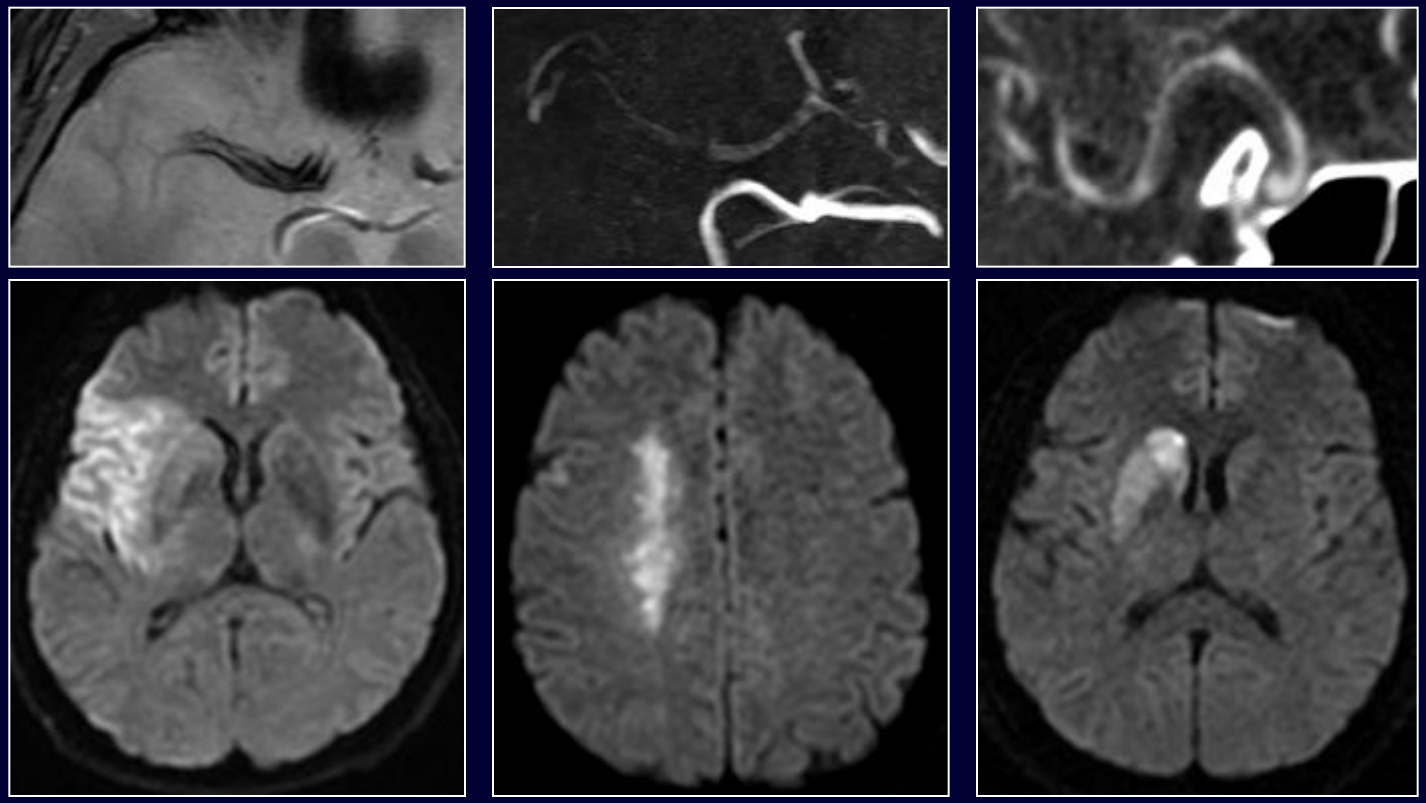
- ☐ I have the following potential conflicts of interest to report:
- ☐ Consulting
- ☐ Employment in industry
- ☐ Shareholder in a healthcare company
- ☐ Owner of a healthcare company
- ☐ Other(s)
- ☒ I do not have any potential conflict of interest

Spontaneous ICA dissections (ICAD)

- Different from traumatic ICAD
- Before 60 yrs
- Multiple dissection = 15%
- Local symptoms +/- stroke



Mecanisms of stroke



Embolism

85–95 %

Hemodynamic

5-10%

Intracranial extention

0-5%

Lariboisière 2012 ; Naggara et al. 2012

Treatment of ICAD

- Current treatment is medical
  - Antithrombotic (fibrinolytic when eligible)
  - Hemodynamic : bed rest, vascular filling, catecholamine...
- Stenting in that situation is rather easy and safe
- Surgical treatment of ICAD is disappointing and far more difficult than for atherosclerosis because of anatomical limitations (extension up to skull base)

Indications of stenting ?

- Acute phase
  - Hemodynamic occlusion ?
  - Non-hemodynamic occlusion ?
  - Carotido-sylvian tandem occlusion ?
  - Intracranial extension ?

Iatrogenic risk is maximal at this phase as we cross with the stent a fresh thrombus

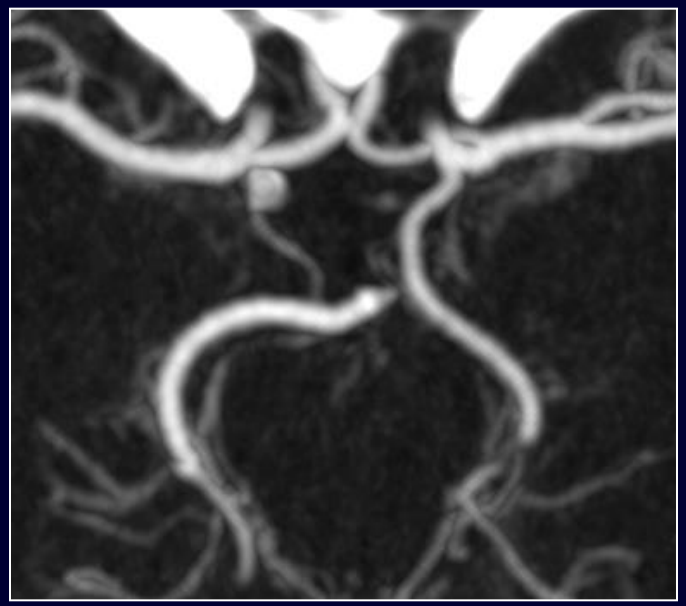
- Chronic phase
  - Cervical carotid aneurysm ?
  - Severe stenosis ?

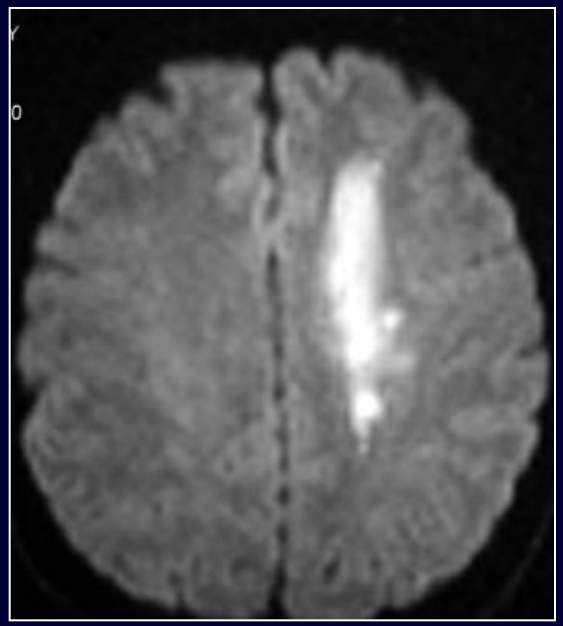
Technique of stenting

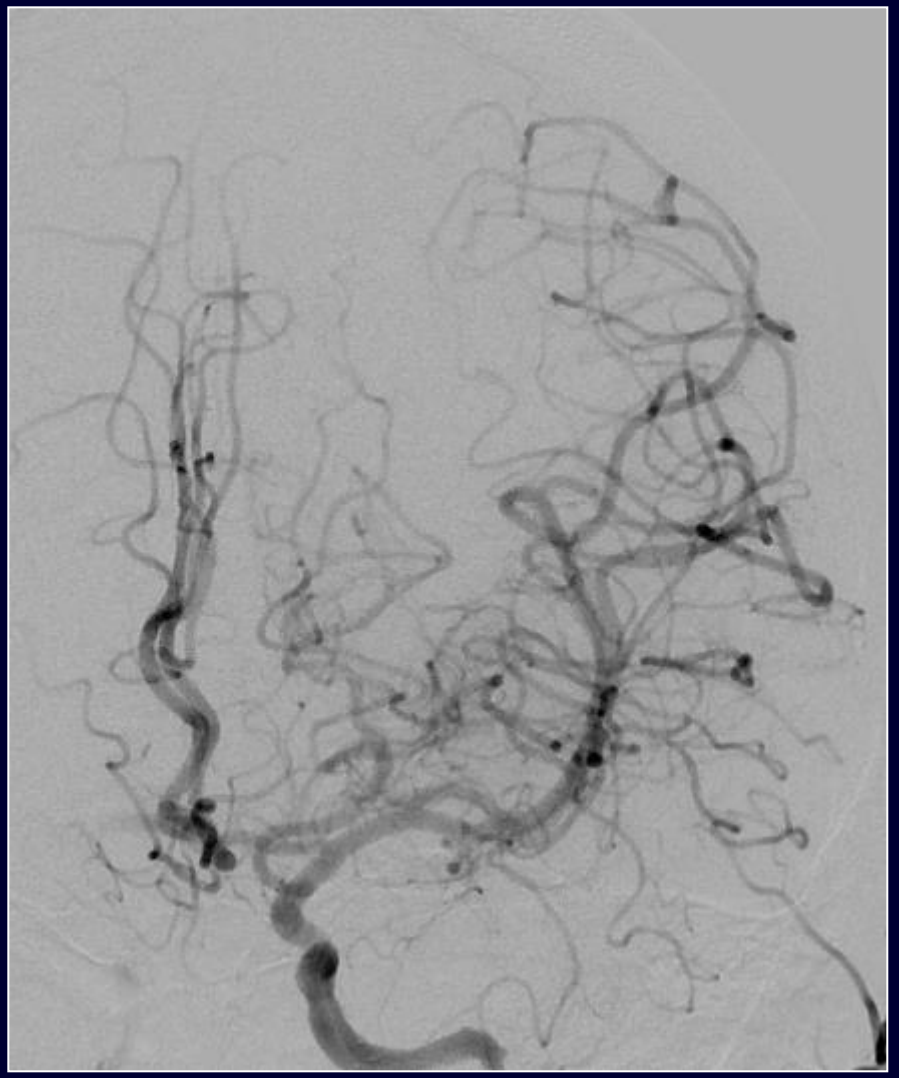
- Condition : to stent a straight dissected arterial segment (not in a curve with excess length)
- Local anesthesia
- First navigation with a microcatheter to get into the normal channel / curve guide
- Exchange manoeuver with 300 cm 0.014
- Long closed-cell stent (Carotid wall stent 7-40)
- Open-cell stent in intrapetrous junction ?
- Balloon occlusion catheter in acute phase ?

1- *Hemodynamic* ICAD

- Persistant/recurrent symptoms despite hemodynamic treatment
- Severe hemodynamic impairment in transcranial doppler
- Bilateral carotid occlusion / Incompetent circle of Willis
- → Risk of growing infarct = ? (> 10% in our experience)
- → Risk of stenting ? (<< 10% in our experience)







2- *Non hemodynamic* ICAD

- Primary / recurrent stroke with antithrombotic treatment = 2%
- Risk of ICA stenting ???

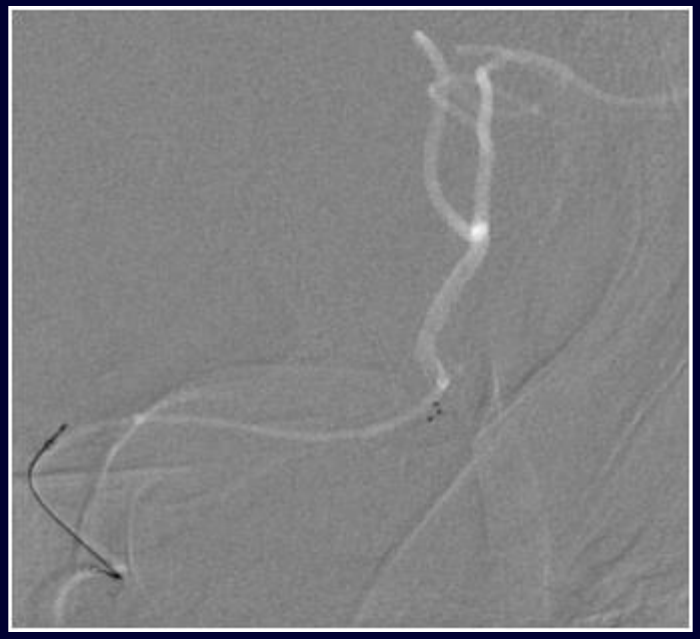
Debette et al. Lancet Neurology 2009

3- *Sylvian embolism*

- As for any kind of acute cerebral arterial occlusion, the crucial point here is the onset of revascularization (before 6 hours) that is now performed with “stentriever”
- Stenting of the dissection is performed either to give access to intracranial arteries or to prevent recurrent embolism at the end of the intervention or to prevent a hemodynamic situation

Right hemiplegia & aphasia seen at 4 hours after onset

Stenting to get access to cerebral arteries

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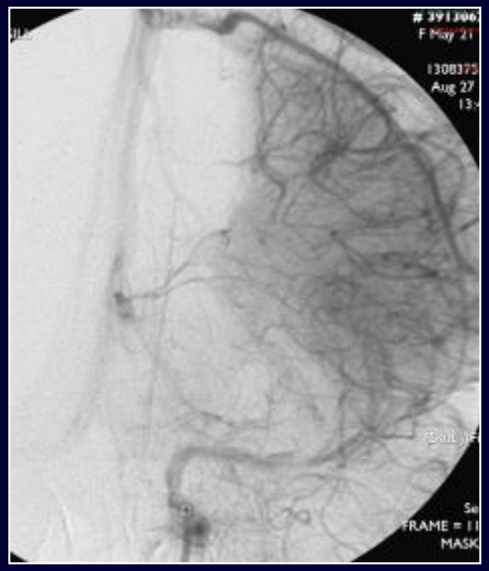
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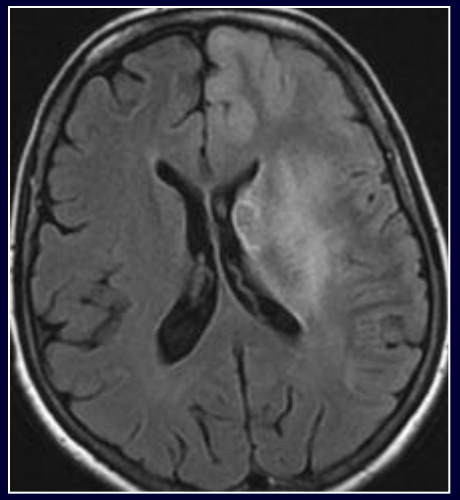
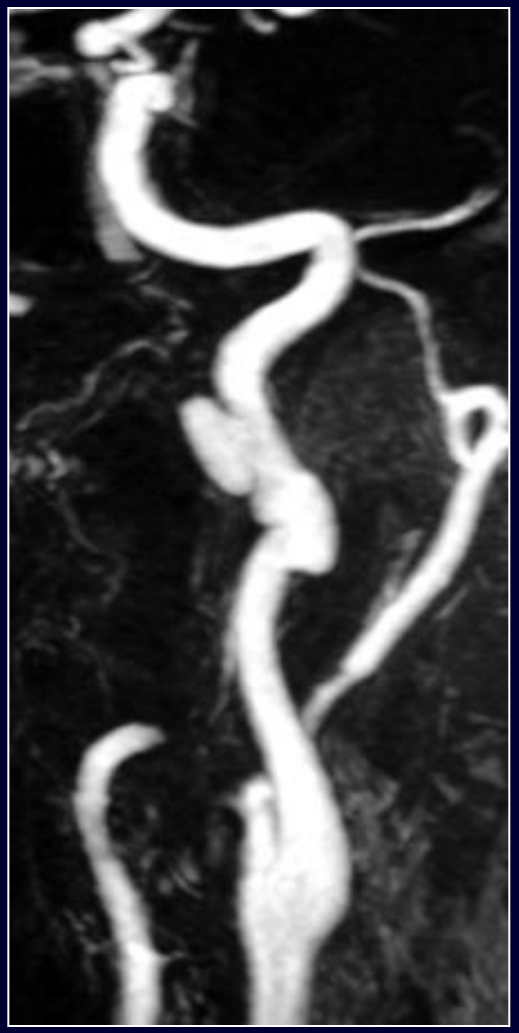


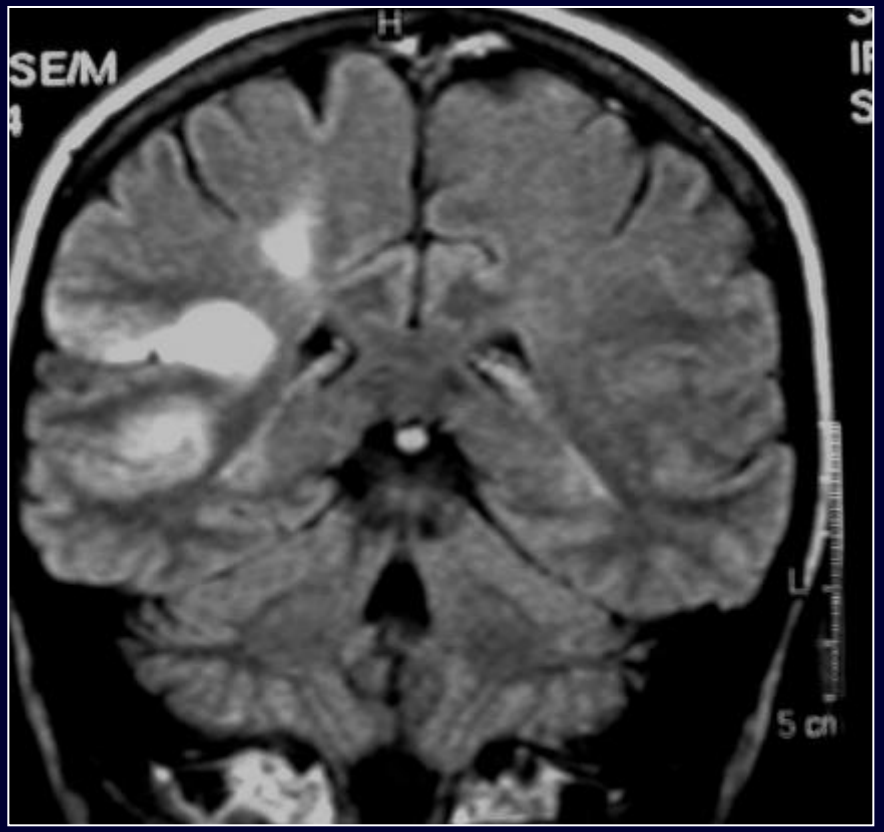
4. Chronic ICAD

- Benign in the vast majority of cases
- Stroke risk is negligible when compared to the acute phase because lesion are scared
- Stenting has a preventive purpose in very selected cases of persisting cervical aneurysm or tight stenosis

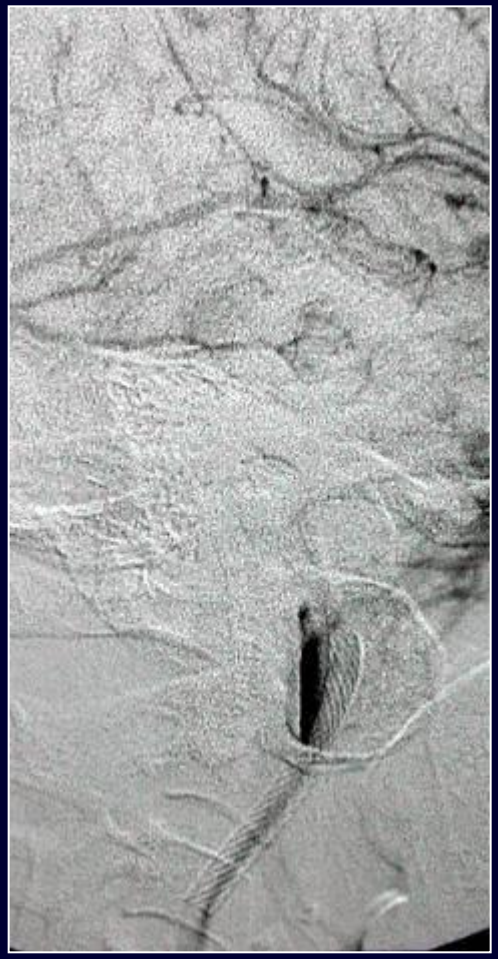


Touzé et al. *Stroke* 2001

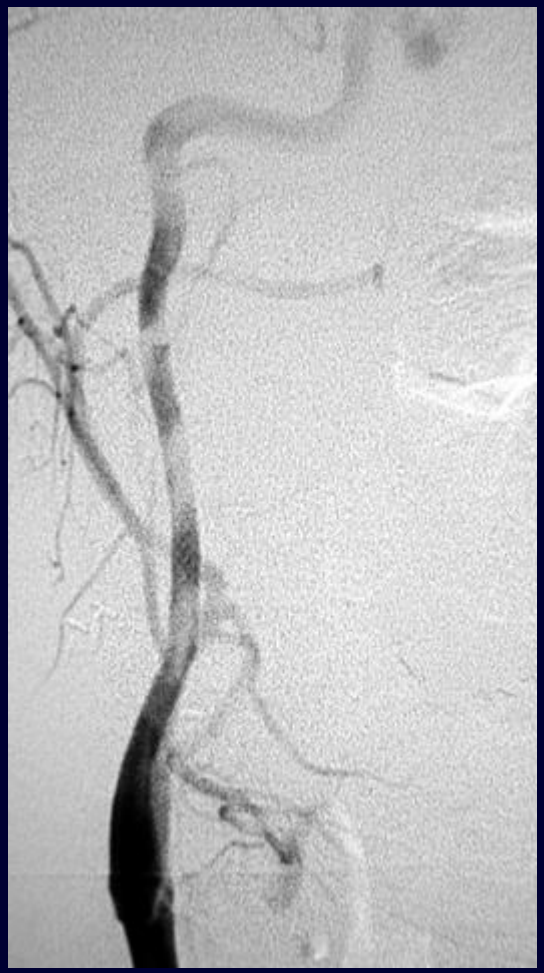
However, large aneurysm can embolize to brain



Simple stenting can solve the embolic risk by covering the neck

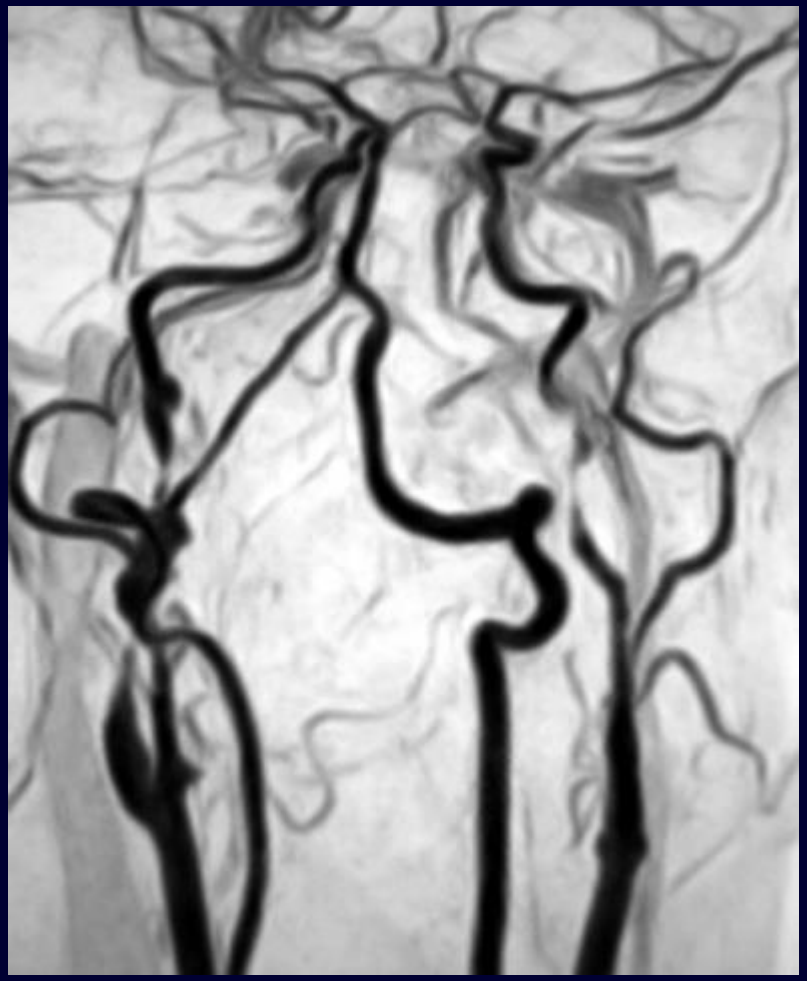


One year control angio : complete repair of the artery



Same when the two ICA are dissected…

- Purpose stenting : to fix one of the two ICA in this young woman



To summarize

- No evidence of benefit of stenting
- Stenting is safely performed
  - 16/10 patients at the acute/chronic phase at Lariboisiere hospital (no embolism / no stent occlusion / no puncture complication)
  - Feasibility studies in literature ++
- Eligible patients should be considered :
  - In high risk of stroke despite the medical treatment
  - In low risk of complication (clinical/anatomical aspect)