

Basic Neurovascular Anatomy

**What the cardiologist needs to know
Before becoming stroke interventionalists**

Disclosures

- Consultant Oscor, Medrad, Abbott-Vascular, Lake Region
- Royalties Metronic
- Co-Founder Setagon, NMD, Northwind, Linolsite

Procedure

Carotid & Vertebral Angiography

1. Classify aortic arch – 1,2,or 3

15-25 cc/15cc/sec (5Fr pig tail)

2. Choosing the Catheter

JR4 or HN1 or Vertebral (5 Fr) (Type 1 arch)

Type III Arch; may need Simmons II, I, HN5, AR2

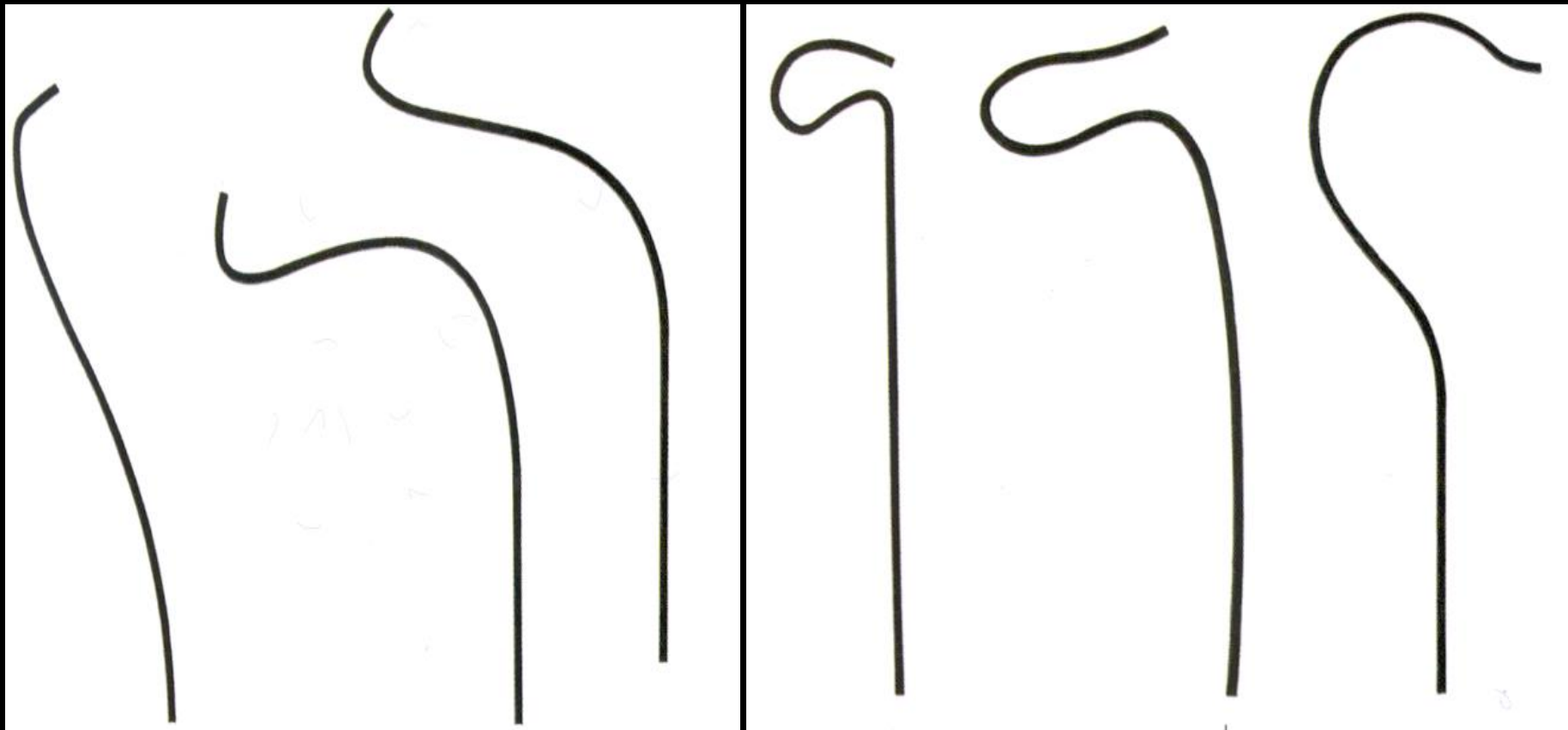
3. Catheterize prox common carotid

(avoid manipulation in the aortic arch)

4. Vertebral - selective vs non-selective

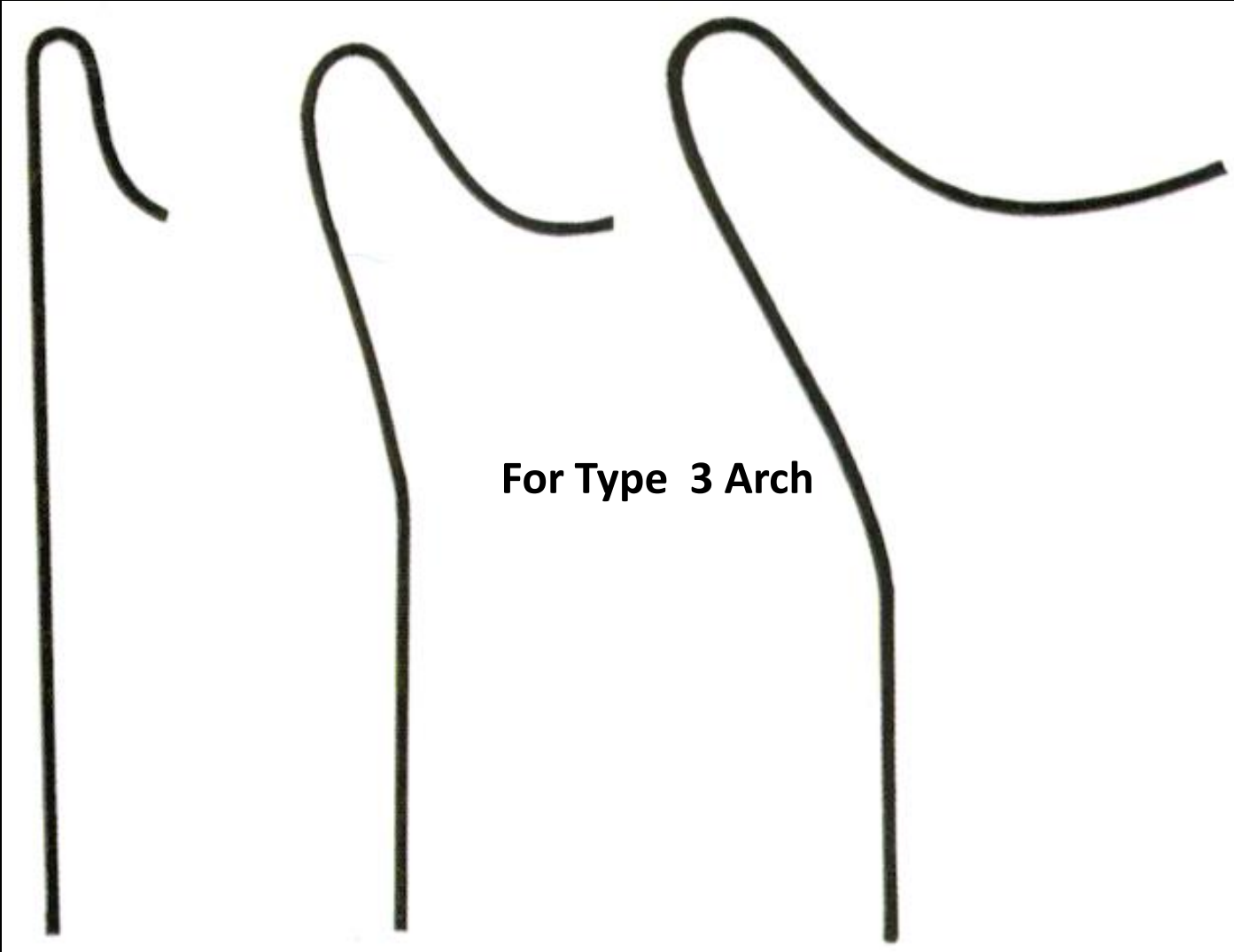
(if selective, keep cath proximal)

Catheter configuration - anterior-superior designs



Simmons catheter - complex curves

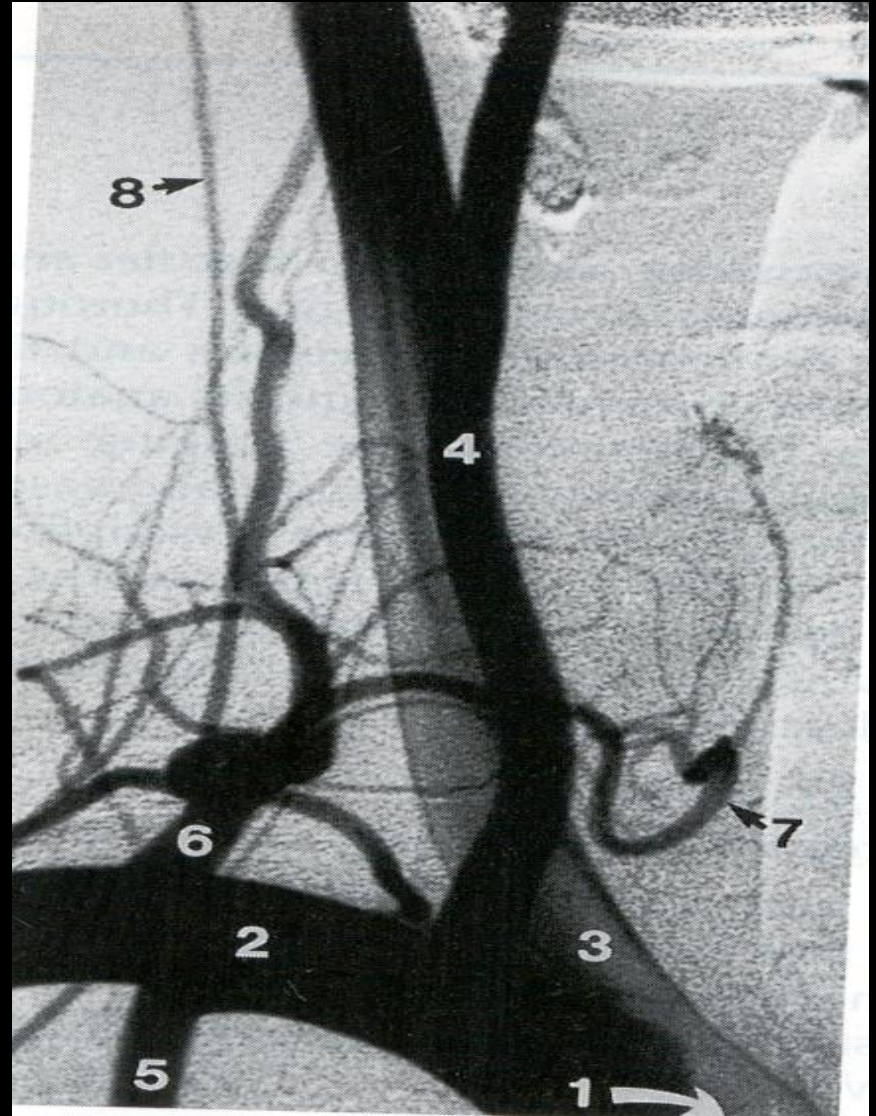
careful when reforming

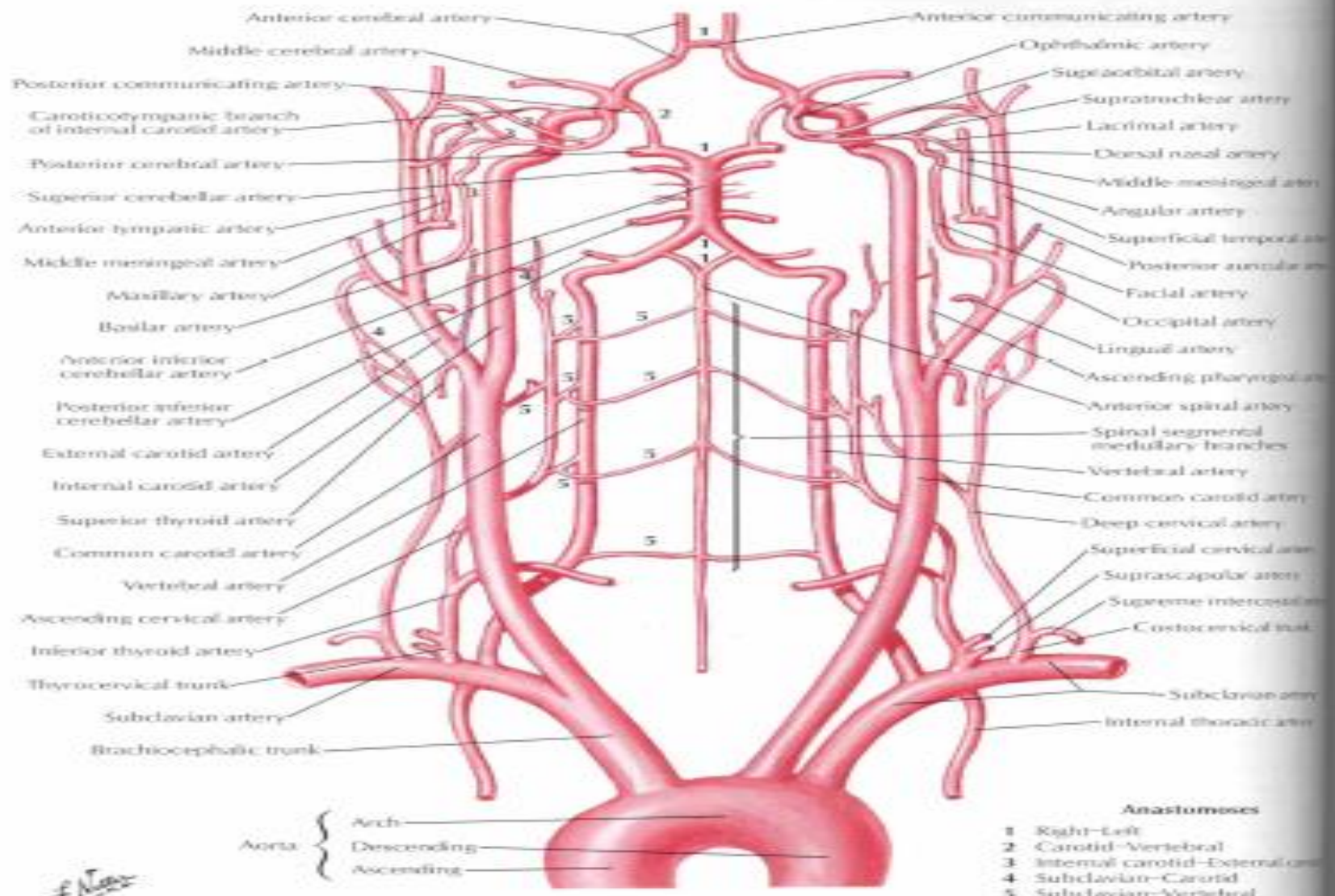


For Type 3 Arch

Thyrocervical Trunk

Note inferior thyroid branch
(C5 ant spinal art collateral)





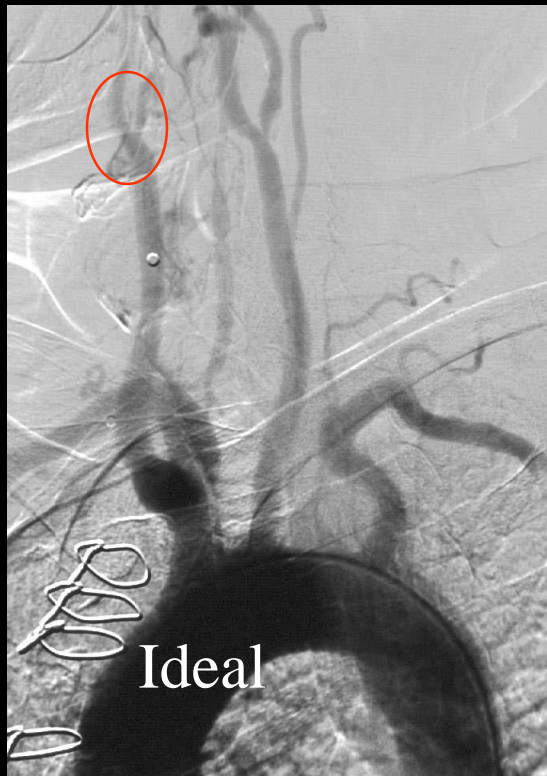
F. Netter

**Note calcified Vertebrae
and extensive collaterals in
Vascular Malformation**



PROBLEMS of the aortic arch

Complexities of the aortic arch are responsible for almost all technical failures

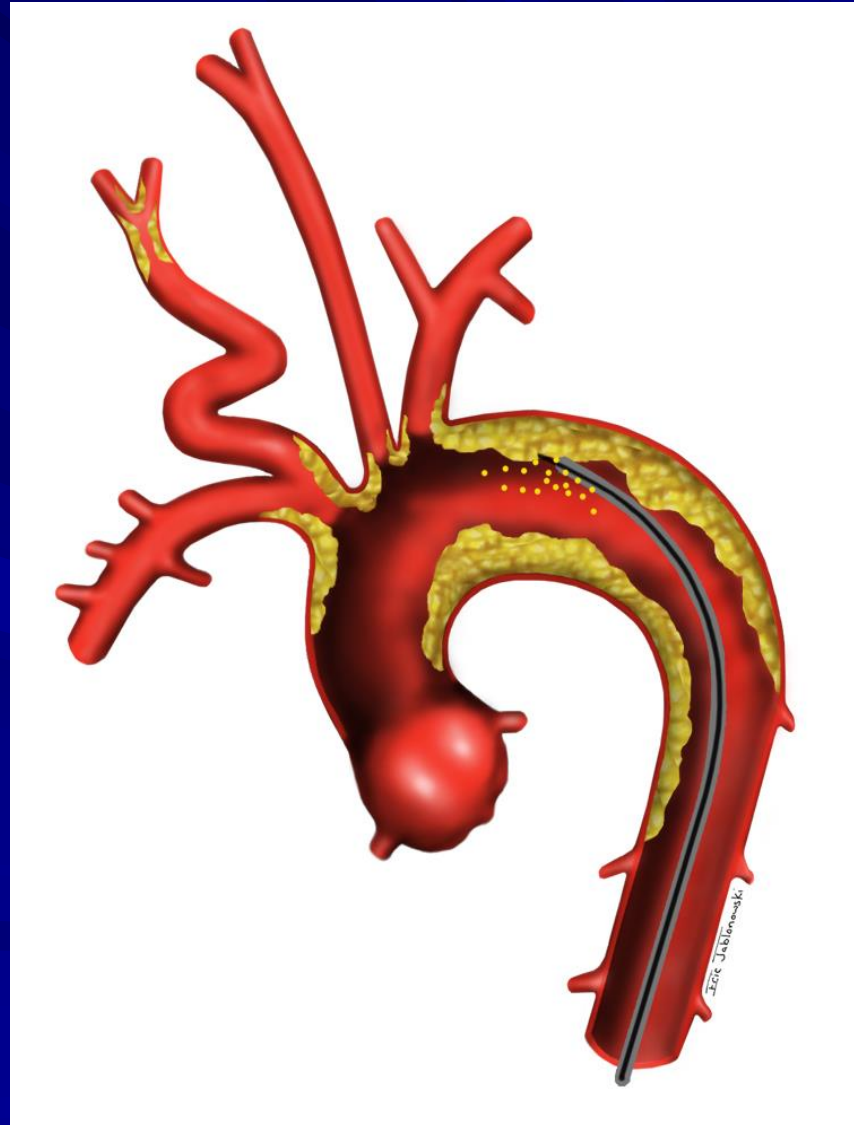


OCTOGENARIAN TYPE 3 ARCH

More than 20' in
aortic arch with
out success-----
QUIT

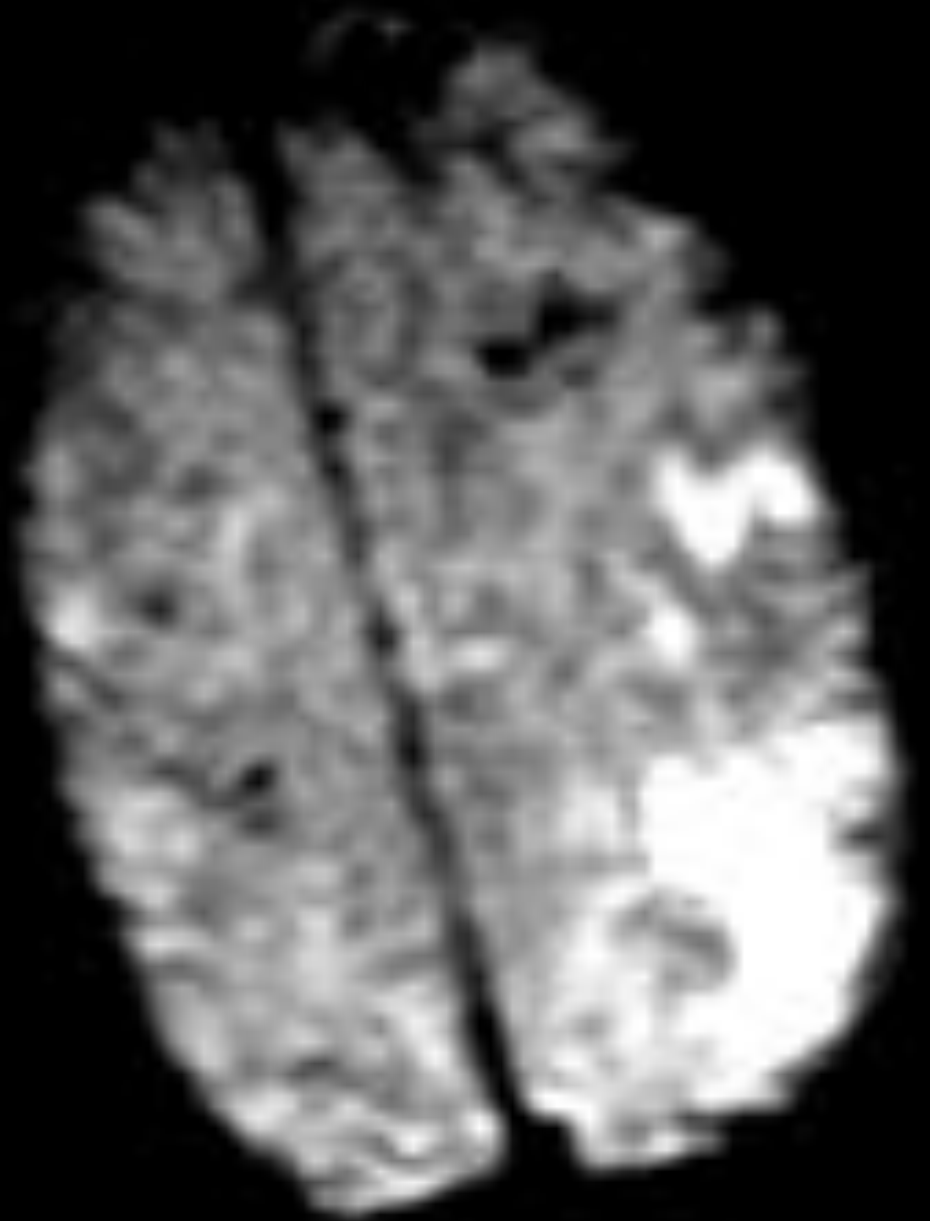
Avoid excess manipulation!

EMBOLIC SOURCE



Showers Emboli

Diffusion weighted MRI



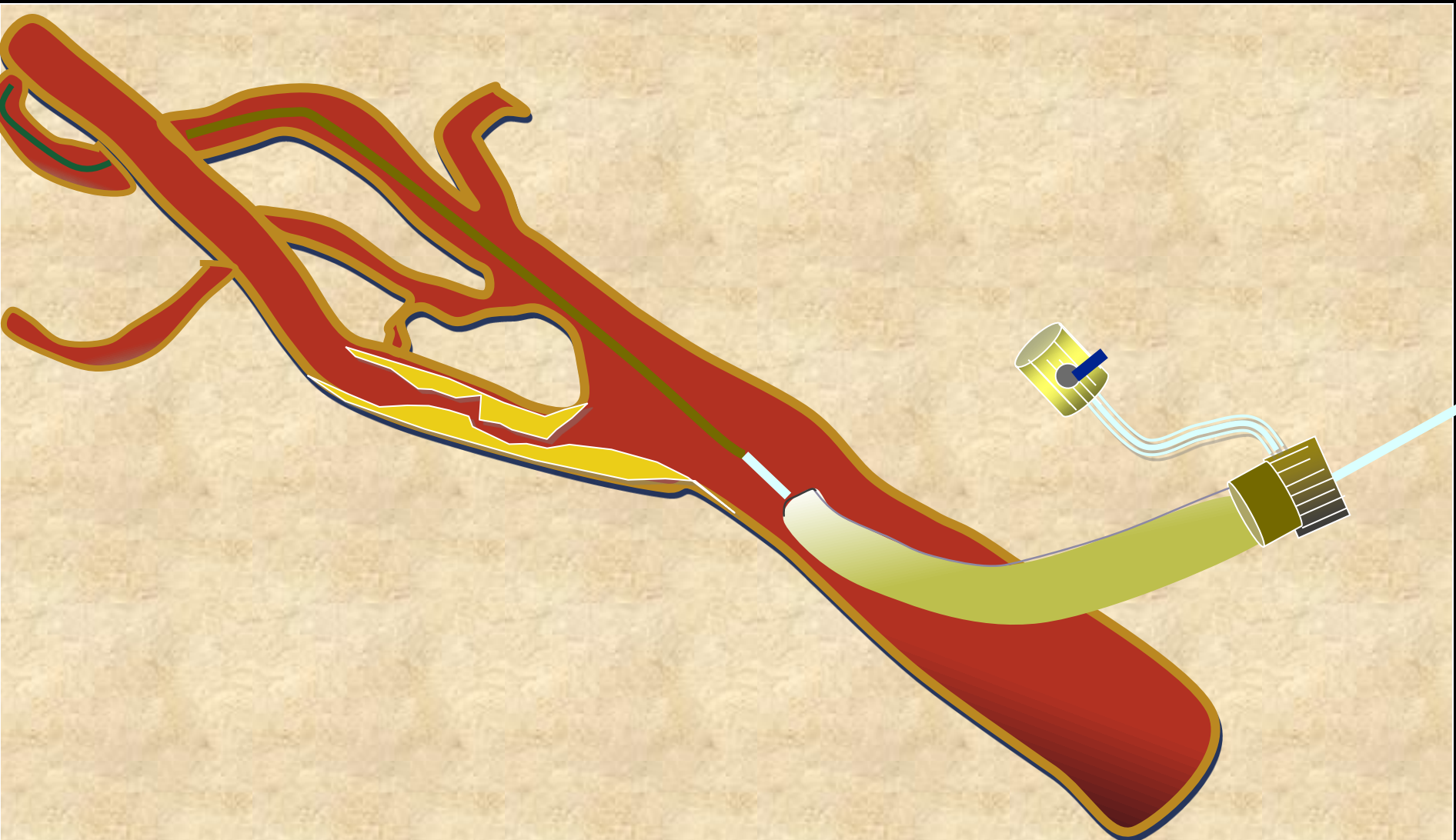
Percutaneous cervical approach and closure for carotid artery intervention including stenting and acute stroke

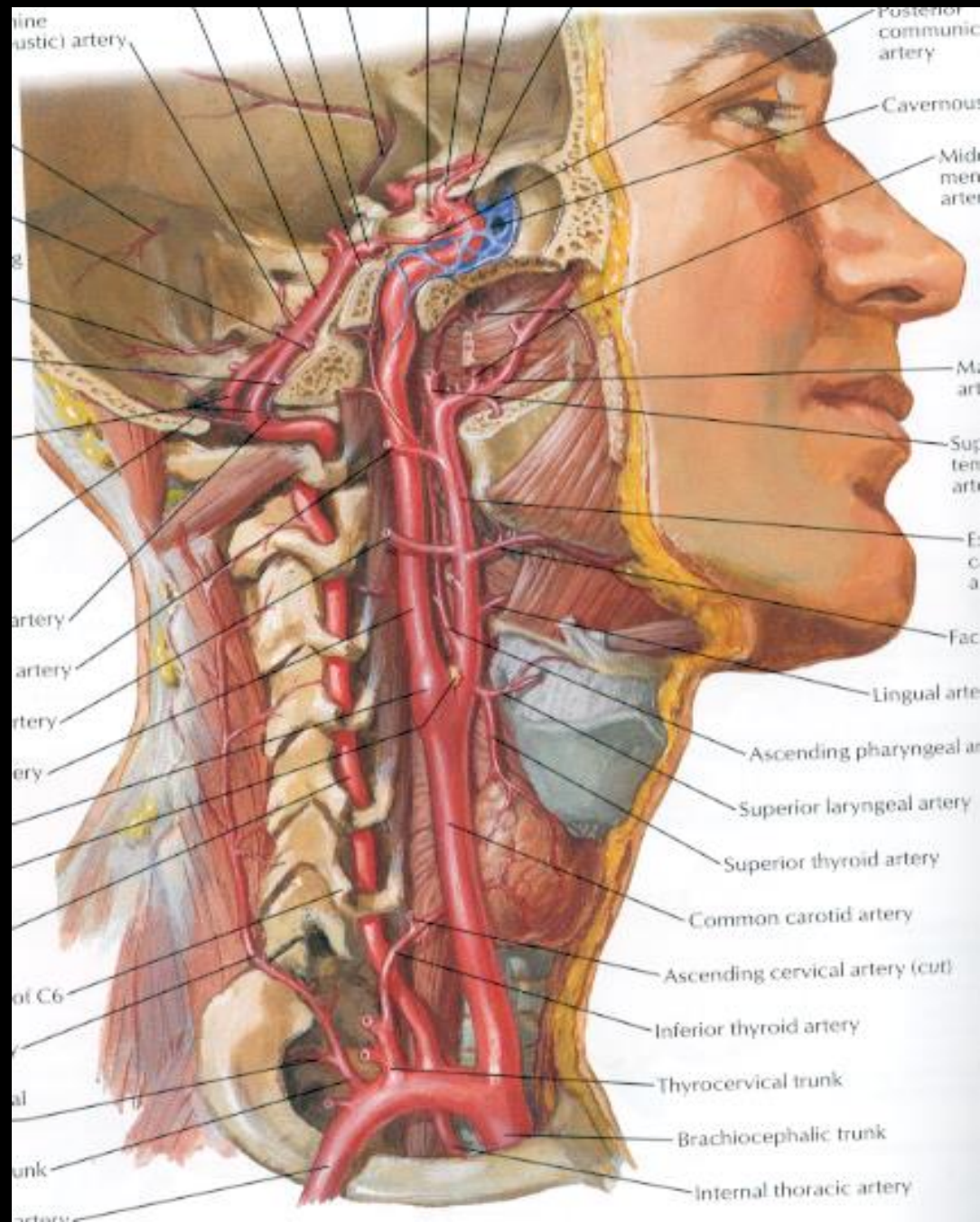
N = 191



Markatis et al 2009

Micro puncture 5 or 6 fr. Sheath. Access at C 5 under US and Fluoro guidance





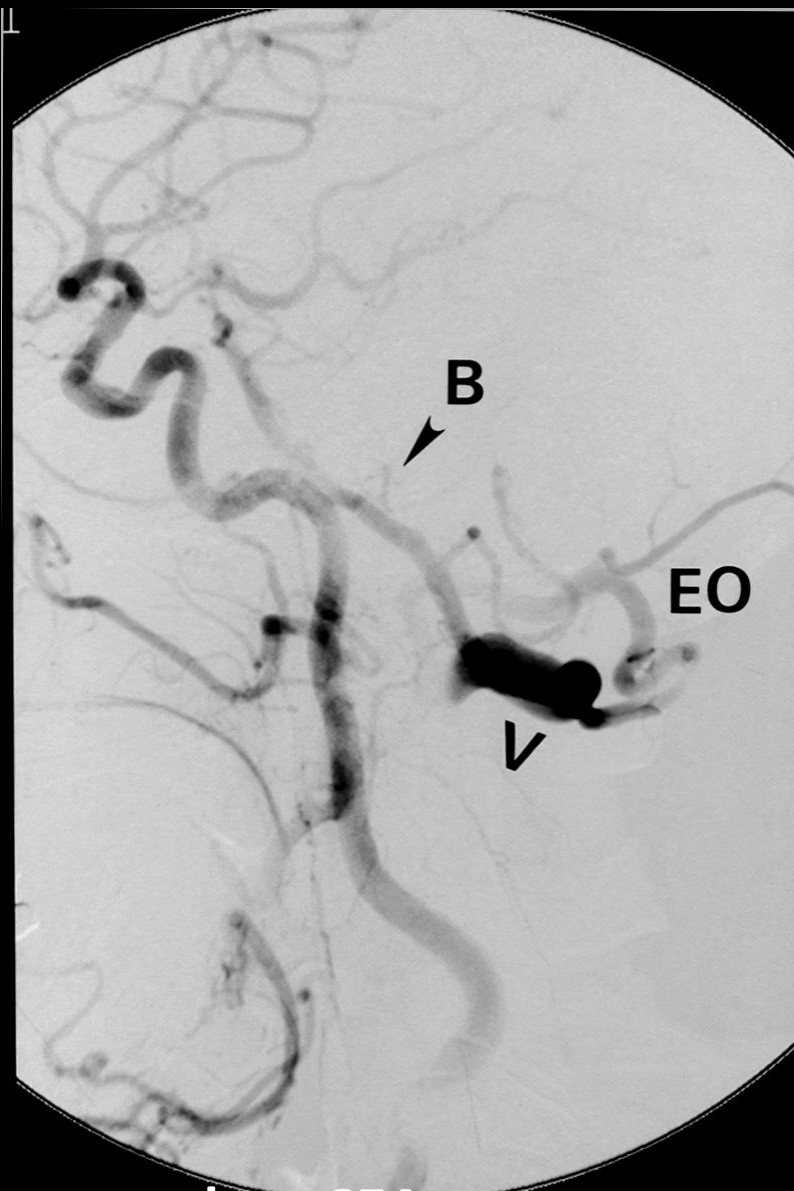
How important is the External Carotid ?



**Plaque Shift with
occlusion of the
External Carotid**



External Occipital is only supply for Vertebral Basilar flow



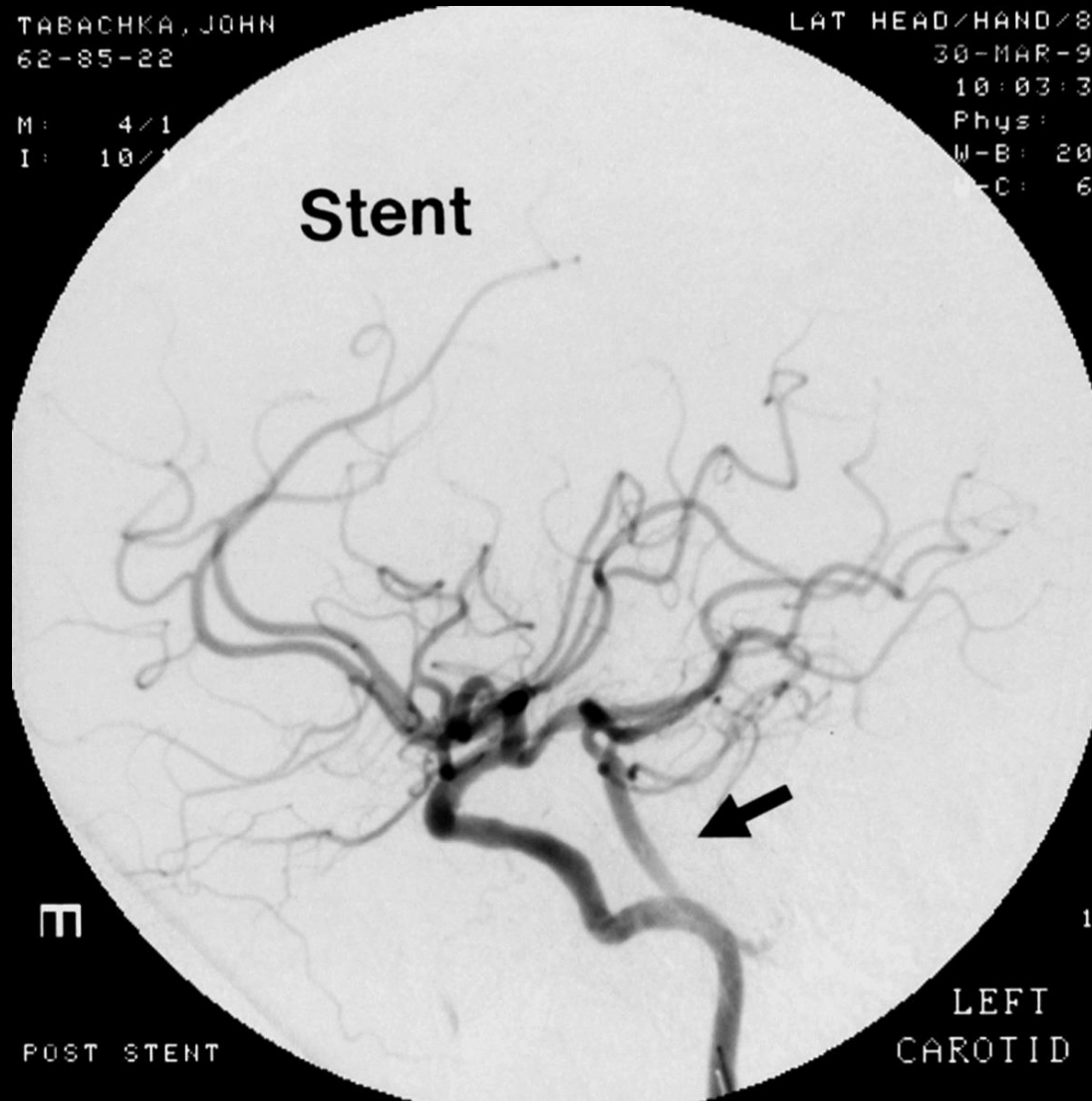
Basilar Infarct post procedure CEA

TABACHKA, JOHN
62-85-22

M: 4/1
I: 10/1

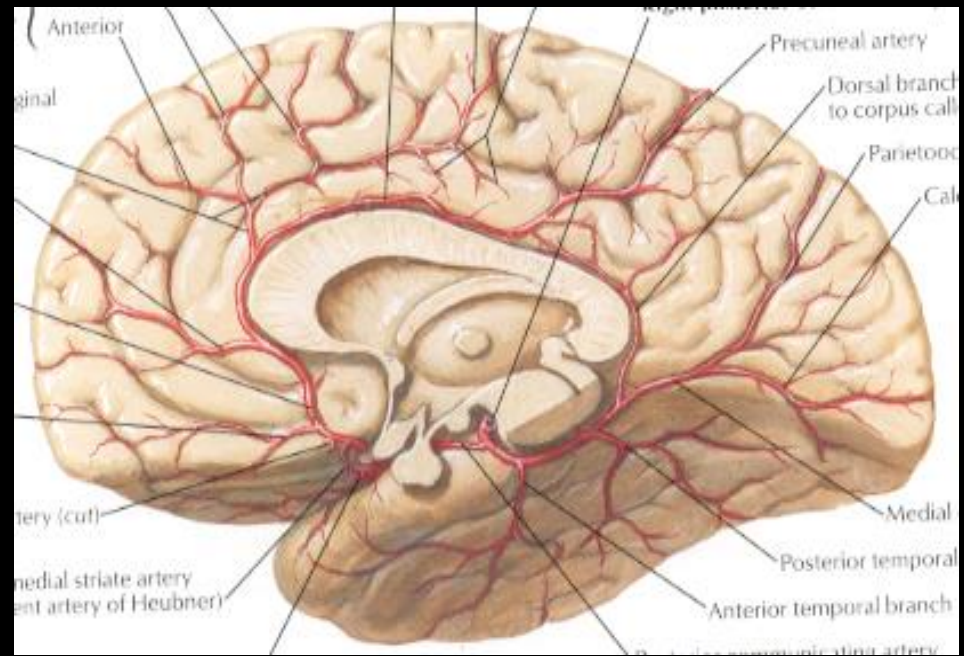
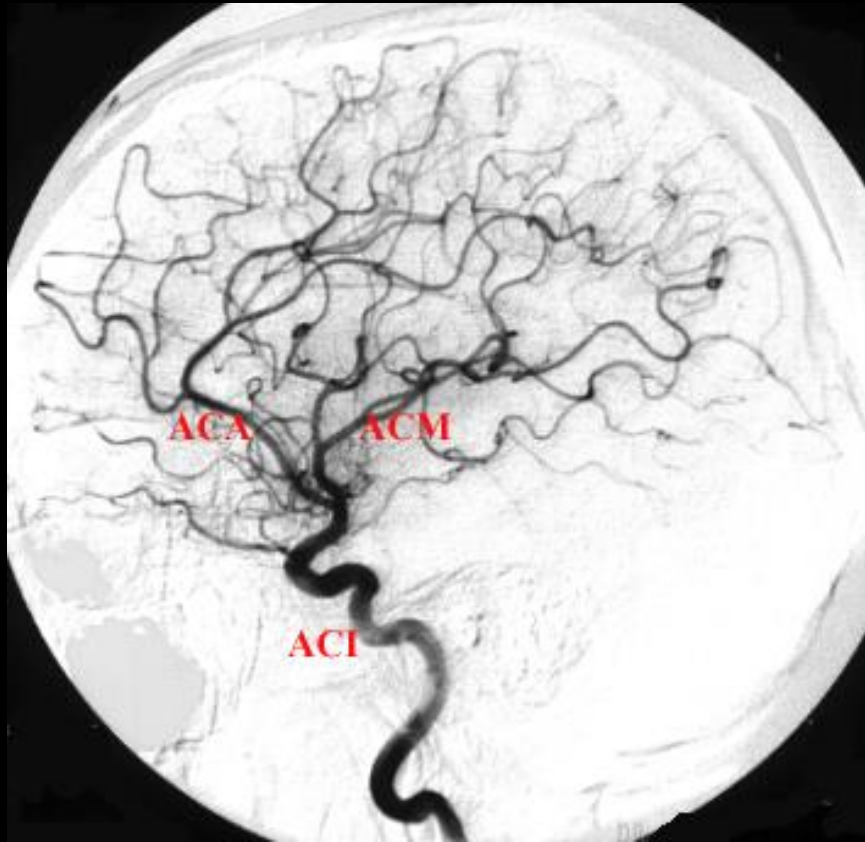
LAT HEAD/HAND/8
30-MAR-9
10:03:3
Phys:
M-B: 20
-C: 6

Stent with CAS has territorial increased risk. Vertebral occlusive disease



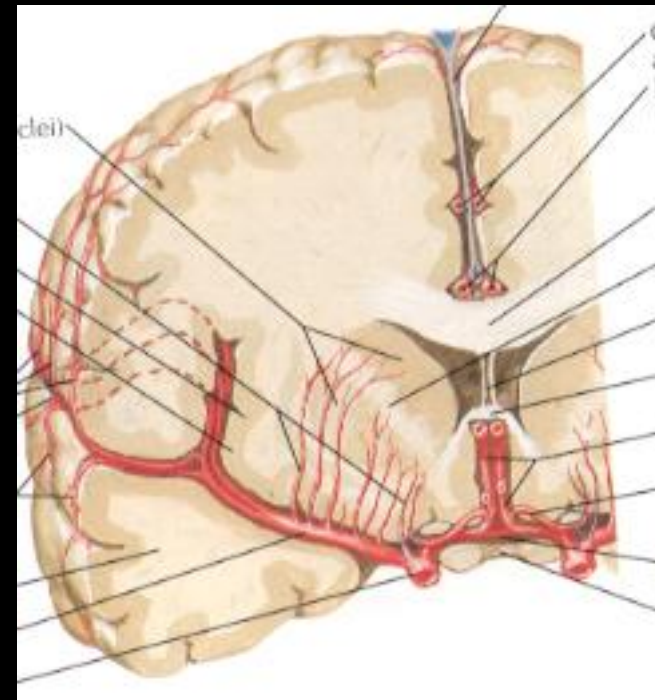
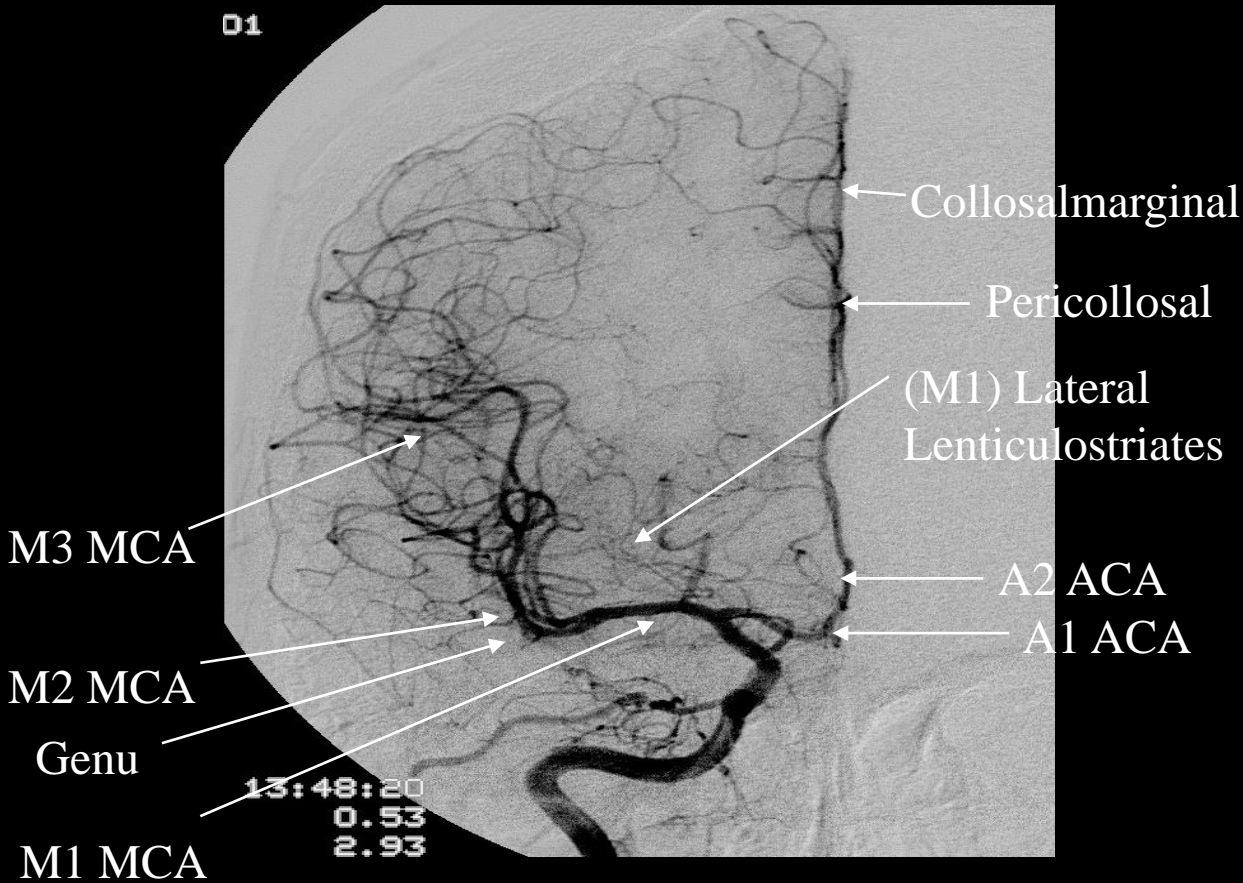
Anterior Cerebral Circulation

Lateral View



Middle Cerebral Artery

Anterior - MCA



CTA with post-processing rotation



SHERRY DONALD R

73887628
Jun 05 2014
10:15:24

RT

(Filt. 3)

Seq: 7
FRAME = 34 / 47
MASK = 1

WW: 4096WL: 2048



SHERRY DONALD R

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Jun 05 2014
10:40:44



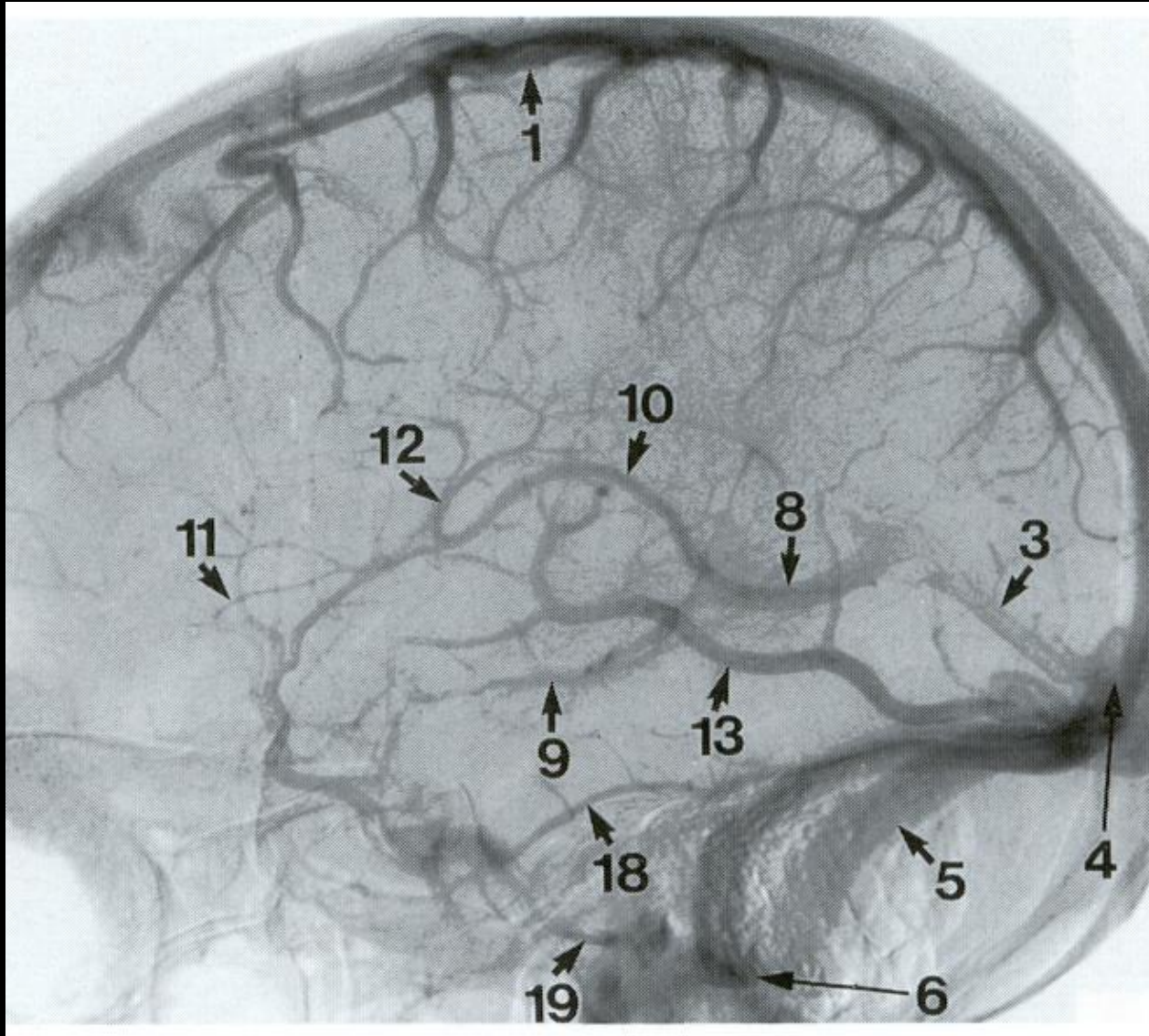
LT

(Filt. 3)
(Shut.)

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MASK = 1

WW: 4096 WL: 2048

Venous Anatomy



Segmental diffuse atherosclerotic change

Note PICA occlusions



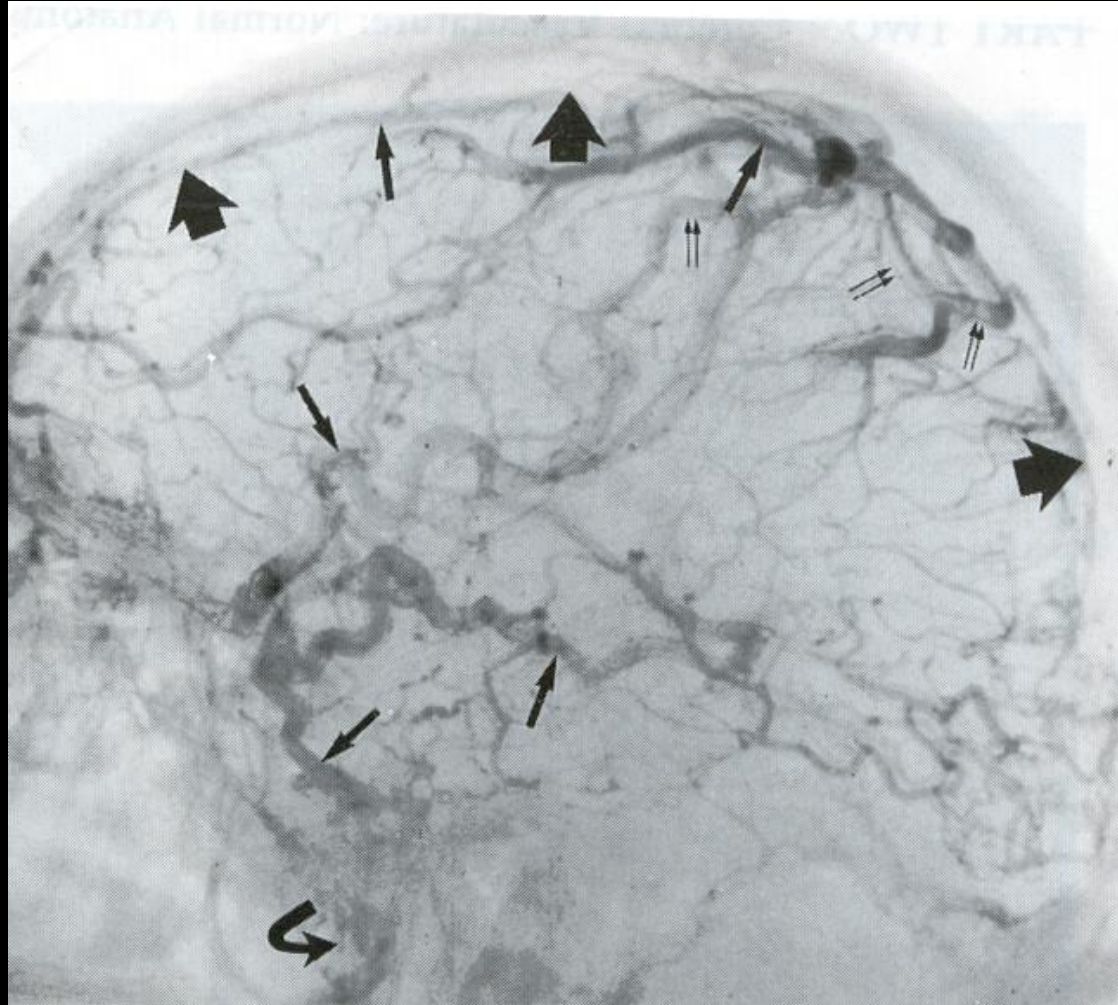
Segmental diffuse atherosclerotic change

Note PICA occlusions



Sagittal sinus thrombosis

Collateralizing venous pattern



The End

