ISNVD

ISNVD
International Society for Neurovascular Disease

INTERNATIONAL SOCIETY OF NEUROVASCULAR DISEASE

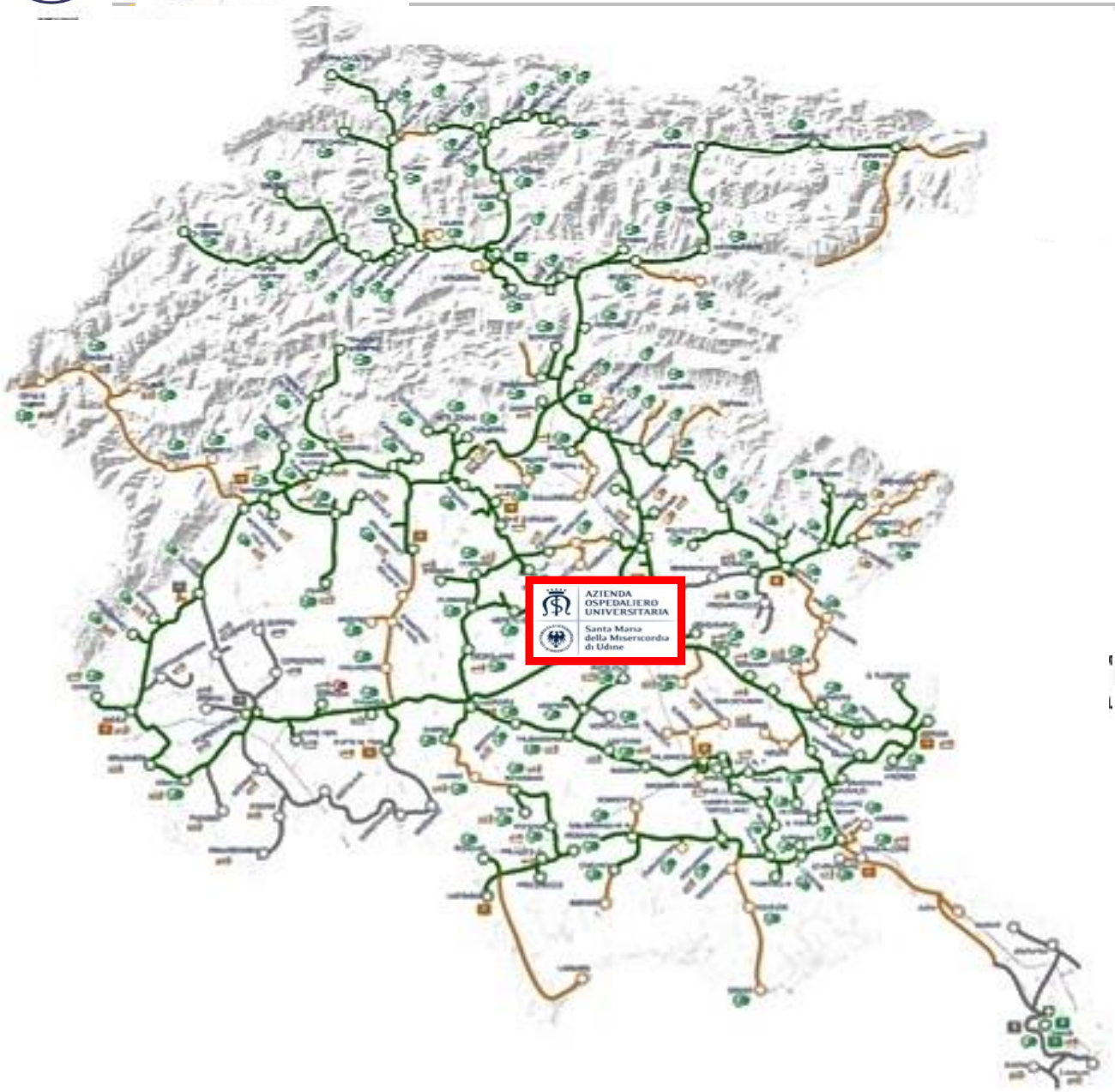
9th annual meeting

May 30-31, 2019, University of Ferrara - Italy

AULA MAGNA - S. ANNA UNIVERSITY-HOSPITAL, CONA VIA ALDO MORO 8

Techniques in urgent carotid surgery

P Frigatti



REGIONE AUTONOMA FRIULI VENEZIA GIULIA
Giunta Regionale

Delibera n° 2198

Estratto del processo verbale della seduta del
20 novembre 2014

oggetto:
LR 17/2014 ART 39 COMMA 4. ATTIVAZIONE DELLA RETE REGIONALE PER LA GESTIONE DEL PAZIENTE CON ICTUS.

Debora SERRACCHIANI	*Presidente*	*presente*	
Sergio BOLZONELLO	*Vice Presidente*		*assente*
Loredana PANARITI	*Assessore*		*assente*
Paolo PANONTIN	*Assessore*		*assente*
Francesco PERONI	*Assessore*	*presente*	
Mariagrazia SANTORO	*Assessore*	*presente*	
Maria Sandra TELESCA	*Assessore*	*presente*	
Gianni TORRENTI	*Assessore*	*presente*	
Sara VITO	*Assessore*	*presente*	

Udine Hospital is the only 2^level Hub Center in FVG For IA thrombolisys

EARLY TREATMENT RISKS

CEREBRAL HEMORRAGE (ICH)

CEREBRAL HYPERPERFUSION SYNDROME (CHS)

ISCHEMIC STROKE

ACUTE MIOCARDIAL INFARCTION

DEATH

WHO and WHEN ?

Simptomatic patients with TIA ,CRESCENDO TIA,MINOR STROKE ,SIE >48 H <14 DAYS U

CEA (standard risk) CAS (high risk)

Simptomatic patients AFTER VENOUS THROMBOLISYS >48H <14 DAYS U

CEA (standard risk) CAS (high risk)

Simptomatic patients with ACUTE MAJOR STROKE & TANDEM LESIONS < 8H E

CAS (Mostly) CEA

Simptomatic & asimptomatic patients candidate to urgent cardiac surgery < > 12 h E U

CEA (Mostly) CAS

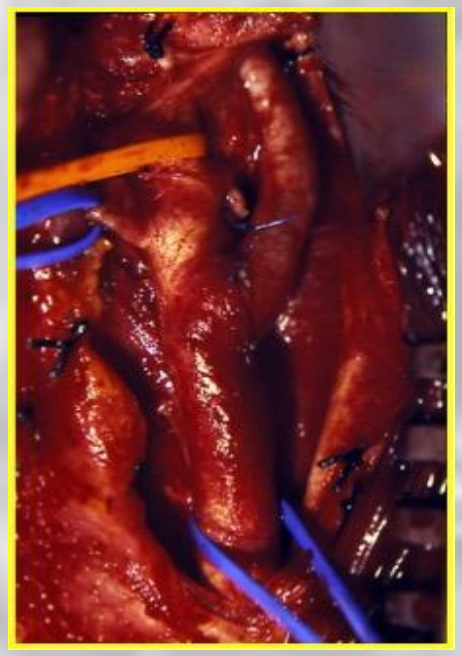
Simptomatic patients after vascular or endovascular carotid surgery < 8H E

CAS (Mostly) CEA

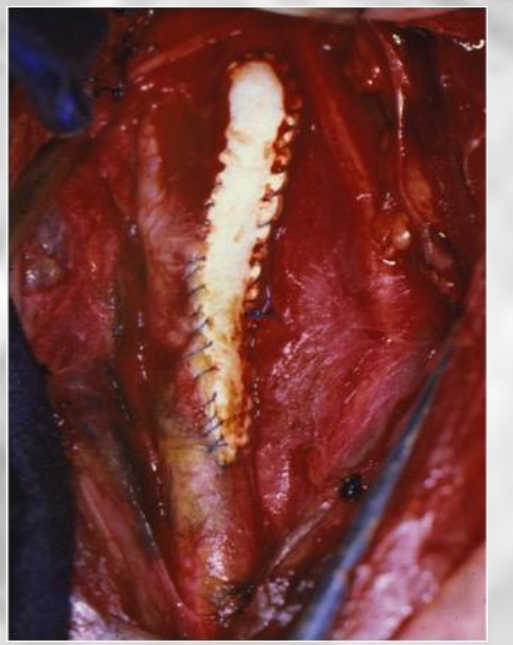
HOW ?

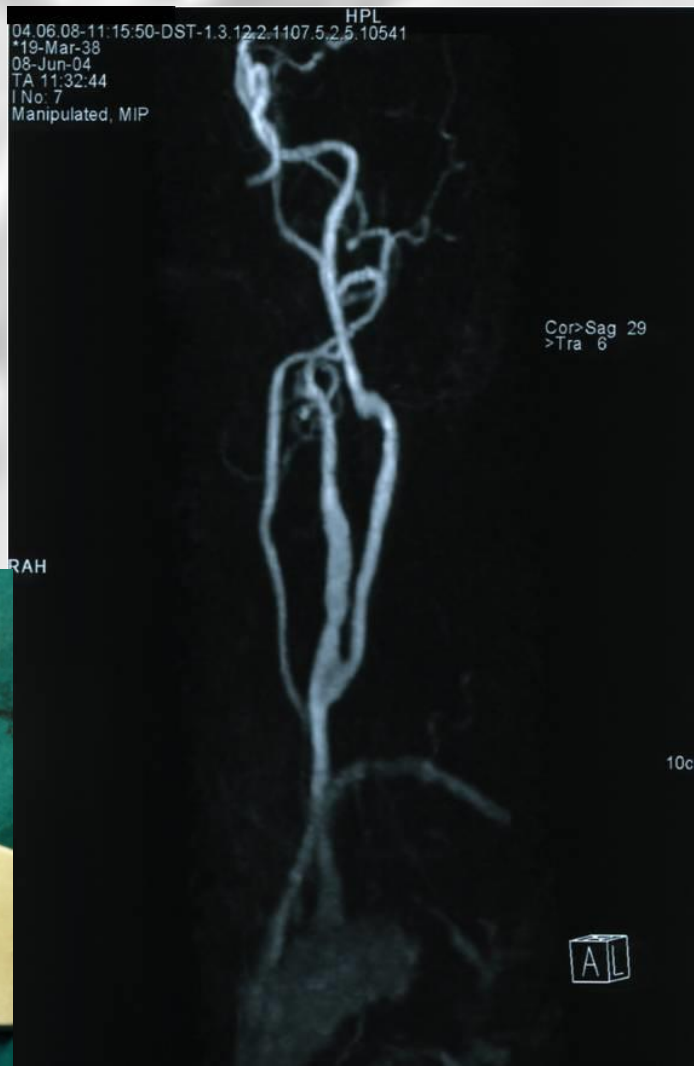
CEA

Eversion

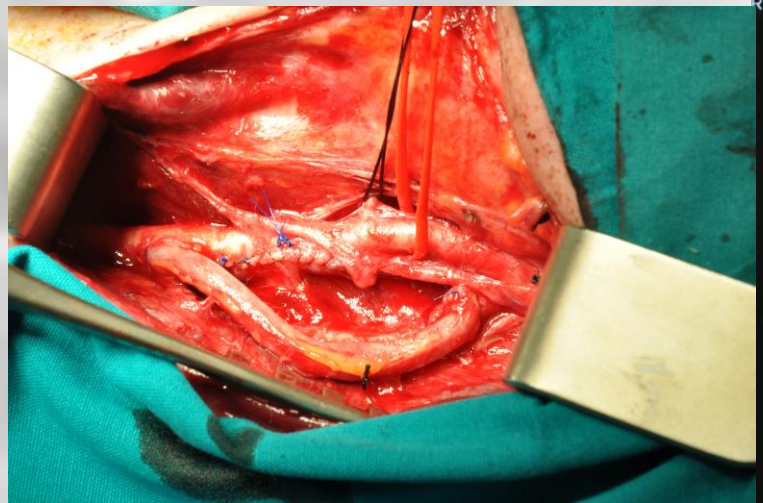


Patch





By Pass



TECHNICAL OBSERVATIONS

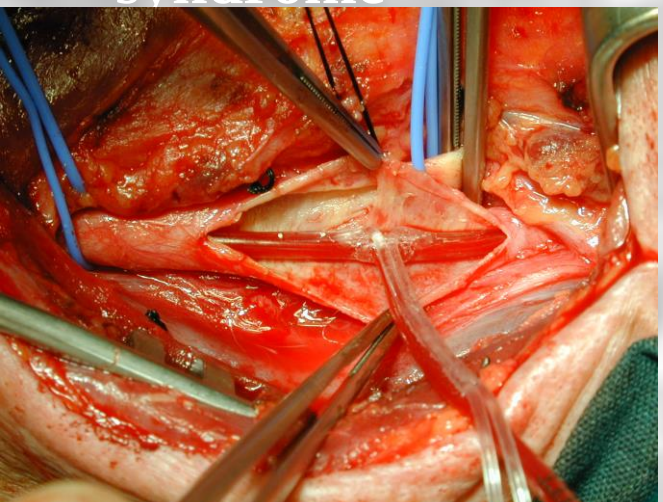
CEA

- **Avoid the manipulation of the arteries before clamping(No Touch Technique)**
- **Use of the shunt allowing :**

a) **cerebral perfusion during the Cea**

b) **lower sistemic pressure during the procedure**

c) **reducing the risk of cerebral hemorrage or reperfusion syndrome**



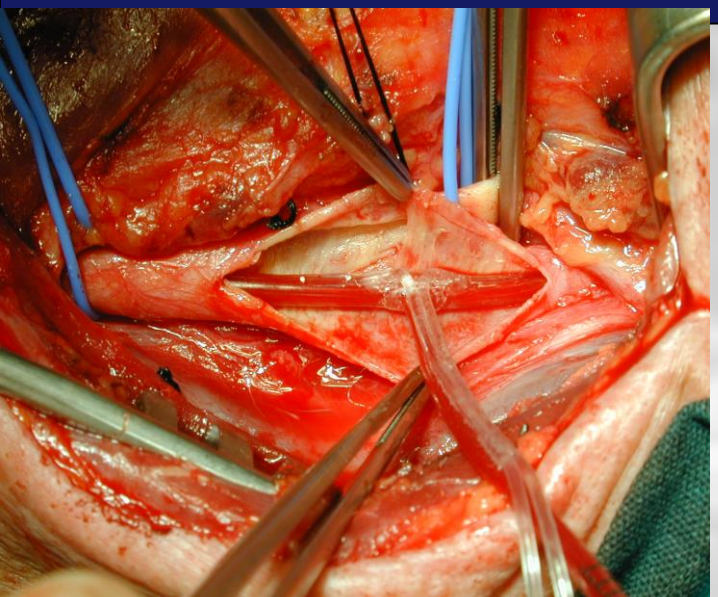
J AM COLL CARDIOL 2012;59:1383-9
J CARDIOVASC SURG 2013:54(Suppl 1 to No1):9-14

DELAYED SHUNT INSERCTION AFTER PLAQUE REMOVAL

(GP Deriu et al."Clamping ischemia,threshold ischemia and delayed insertion of the shunt during carotid endarterectomy with patch "(J Cardiovasc Surg 1999, 40, 1-7)

CEA

- **Extra exposure to avoid delays in shunt placement and shunt complication;**
- **Early clamping of the common and external carotid artery before dissection of the carotid bulb and the ICA to prevent embolization during carotid artery dissection;**
- **Allowing the ICA to backbleed before any clamp is placed on it when stenosis is associated with a floating thrombus;**
- **Long arteriotomies to allow close and direct assessment of the entire endarterectomized site**



DELAYED SHUNT INSERCTION AFTER PLAQUE REMOVAL

(GP Deriu et al."Clamping ischemia,threshold ischemia and delayed insertion of the shunt during carotid endarterectomy with patch "(J Cardiovasc Surg 1999, 40, 1-7)

CAS

TANDEM…

OR NOT

TANDEM?

DISEASED ICA

- Atheroma
- Dissection

- Pt history
- Imaging evaluation
- ECD evaluation

UNDISEASED ICA

- T Occlusion and stasis
- Prox ICA embolic occlusion.

Before or after cerebral recanalization ?

STENT: HOW **CAS**

Before :

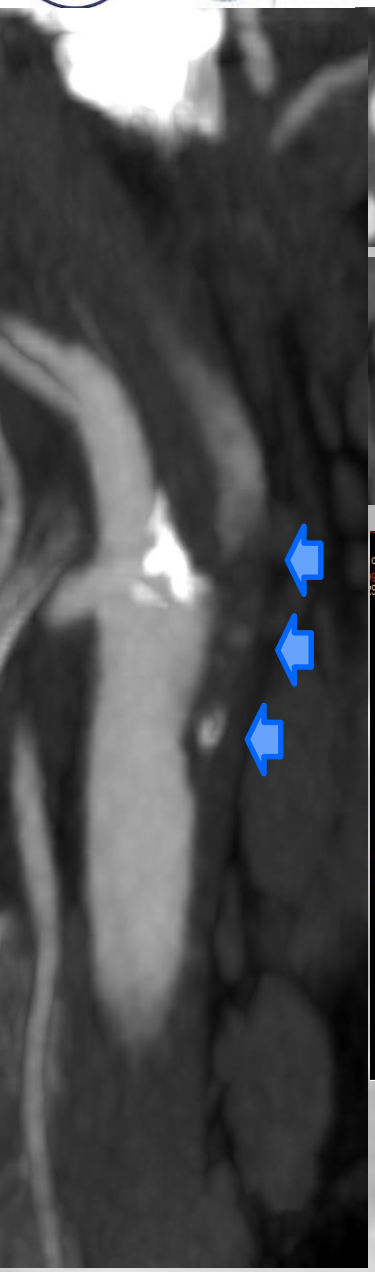
- Distal clot can stop distal embolization coming from IC recanalizaton
- No Ica lesion recross in case of multiple passages

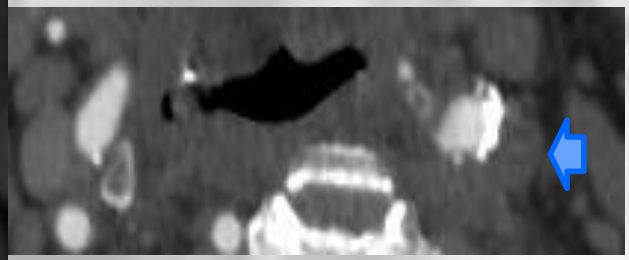
- Delayed cerebral reperfusion
- Anatomic characteristics of the lesion less evident

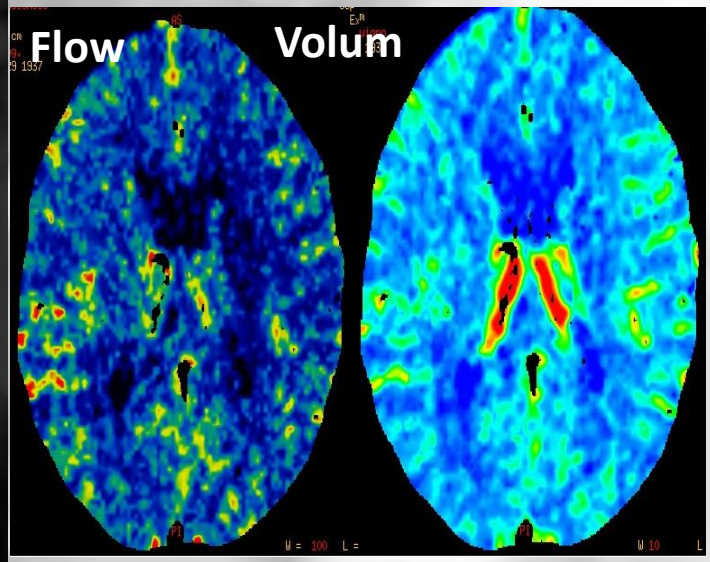
After:

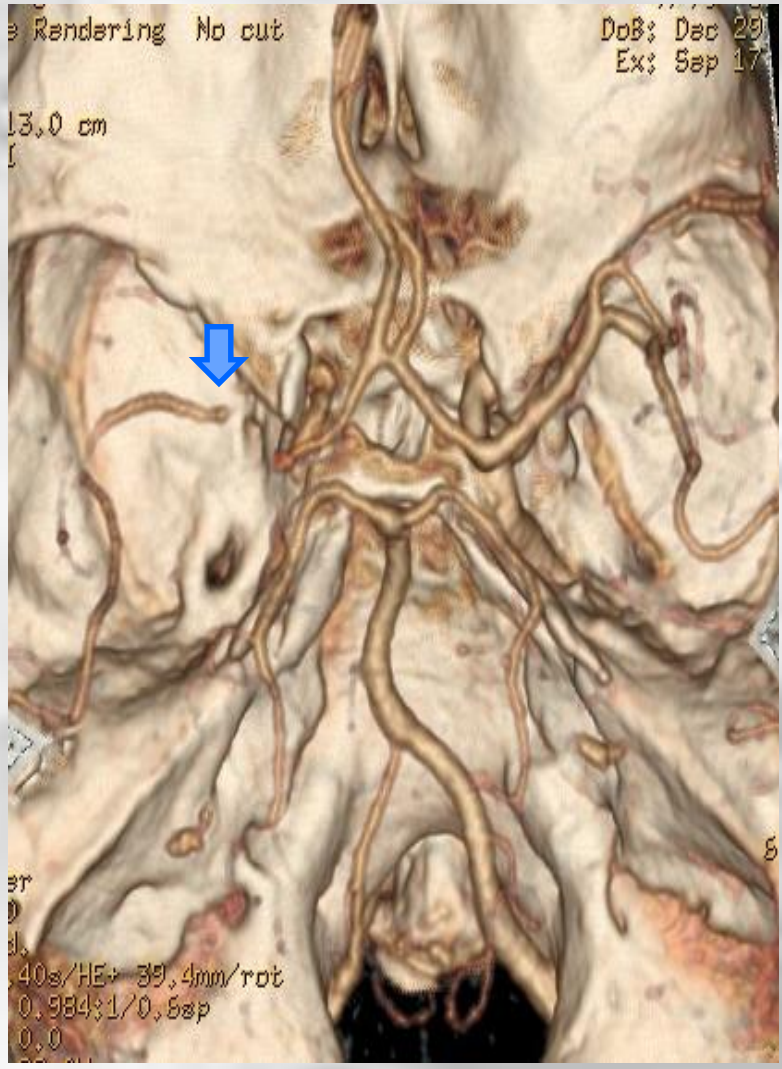
- Quick cerebral reperfusion
- More evident Anatomic characteristics of the lesion
- Precise stent deployment.

- The proximal recrossing of the lesion could be more difficult
- Potential new embolization after stenting

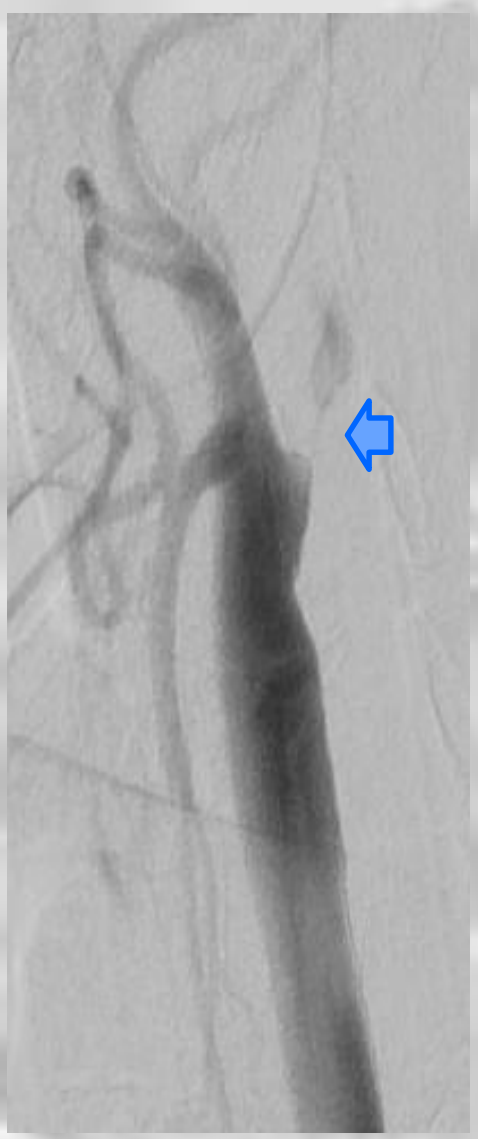


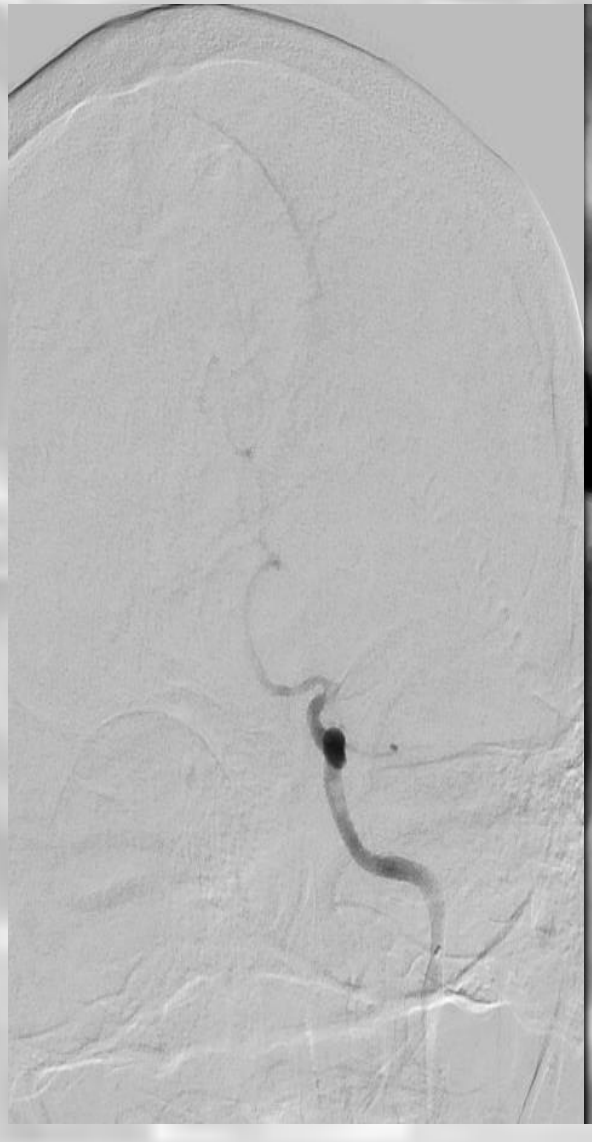


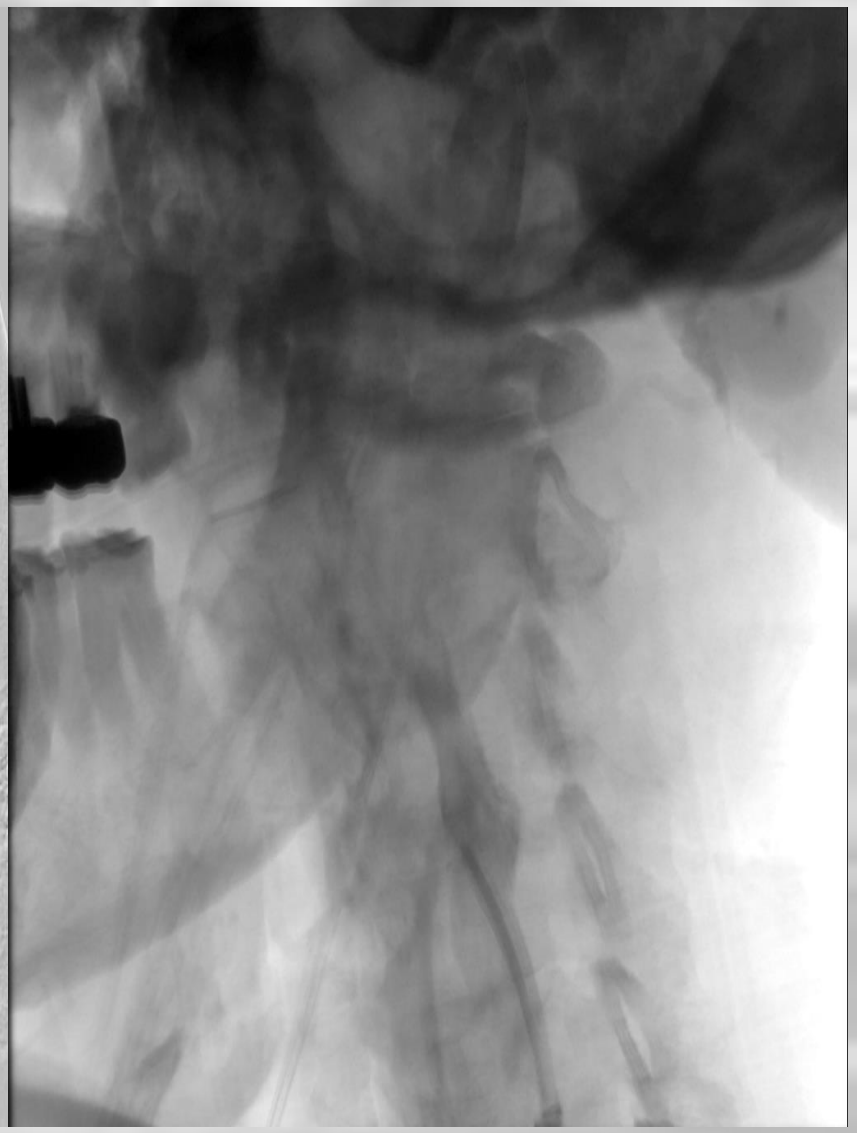


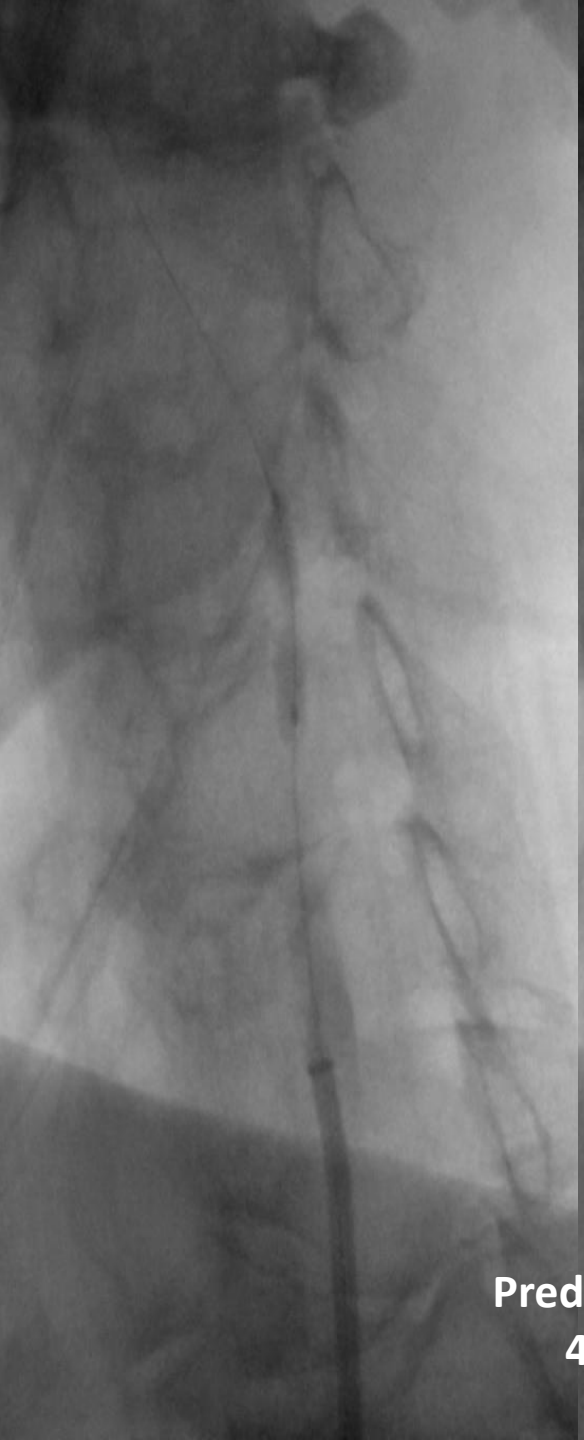


Right Hemiplegia ed Aphasia ,fall and cranic trauma NIHSS 27

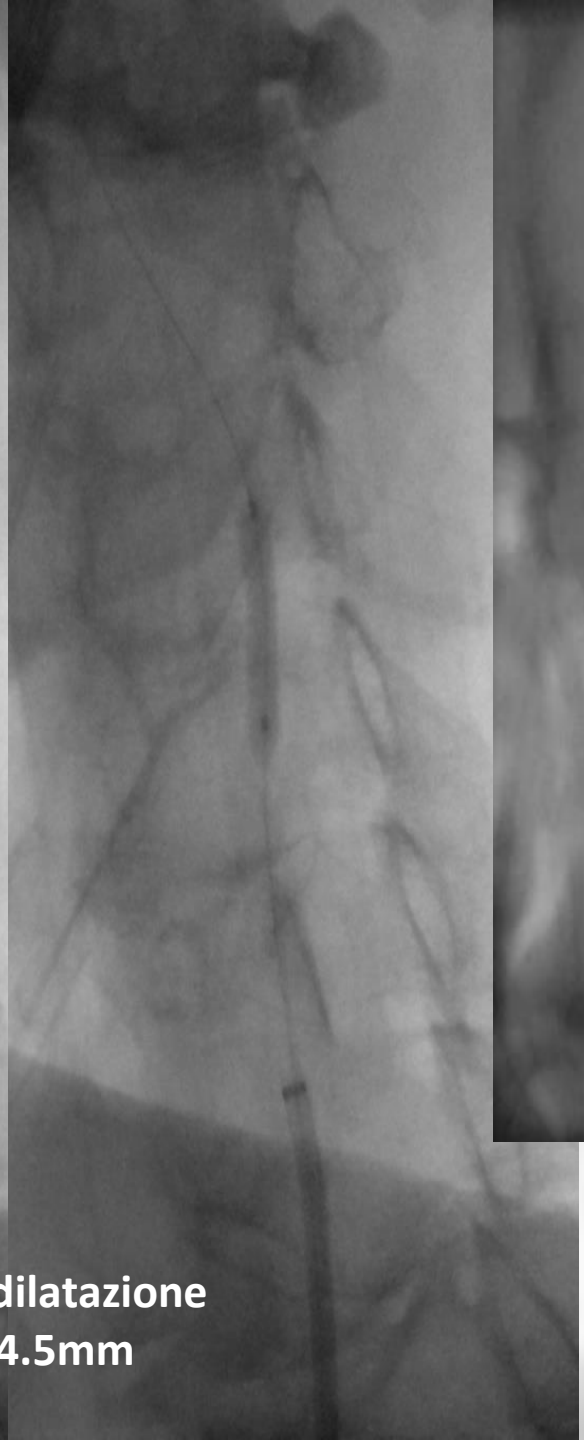


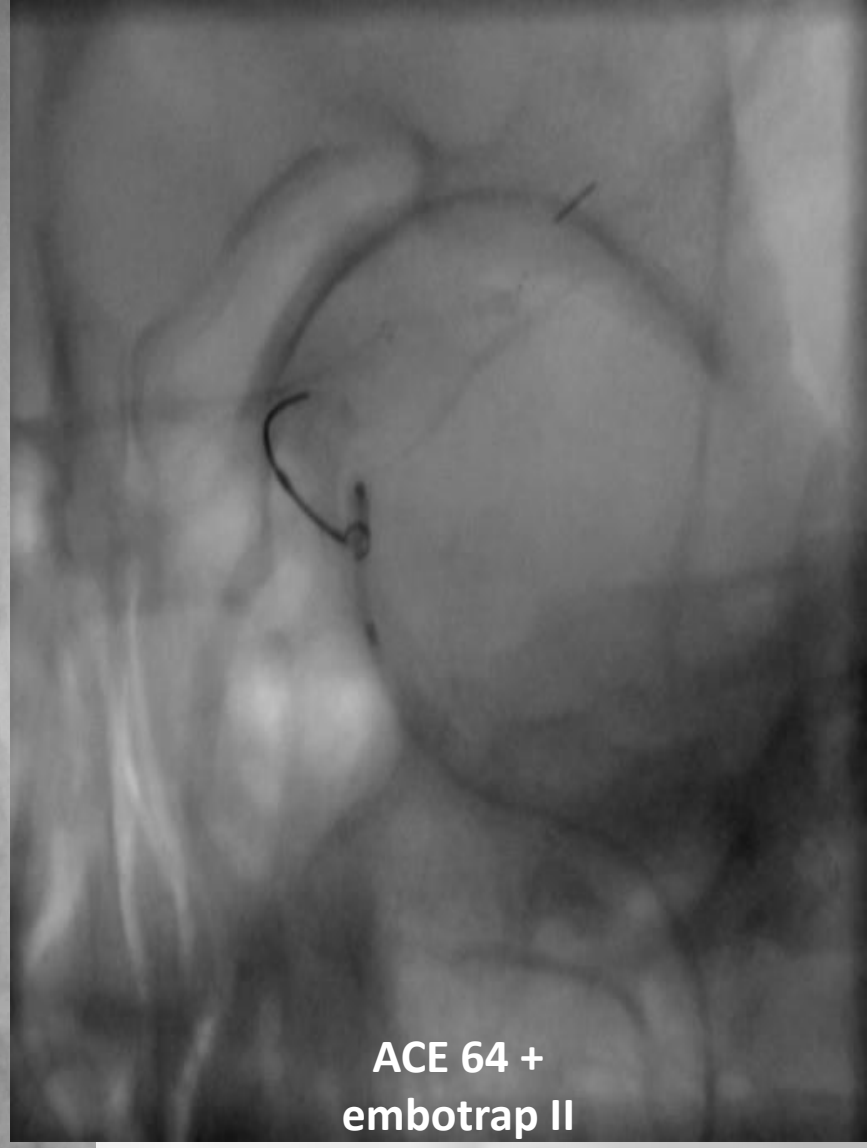






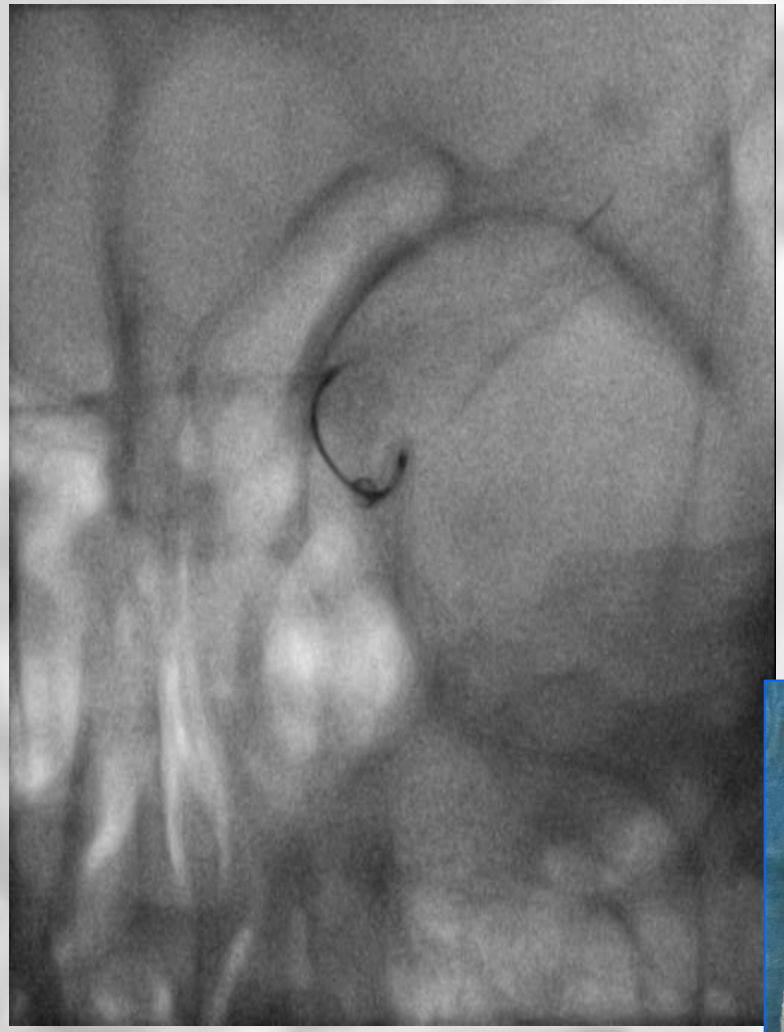
Predilatazione
4.5mm

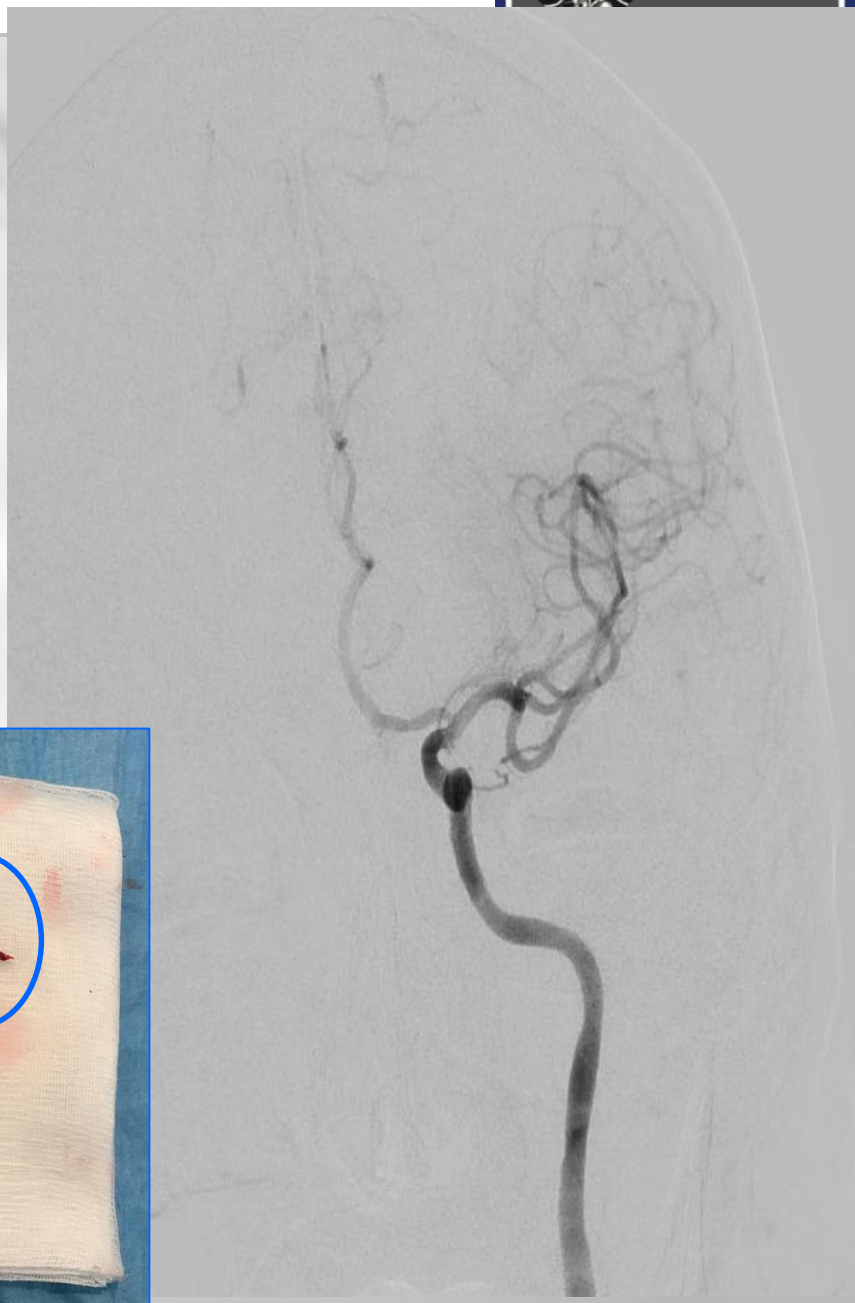


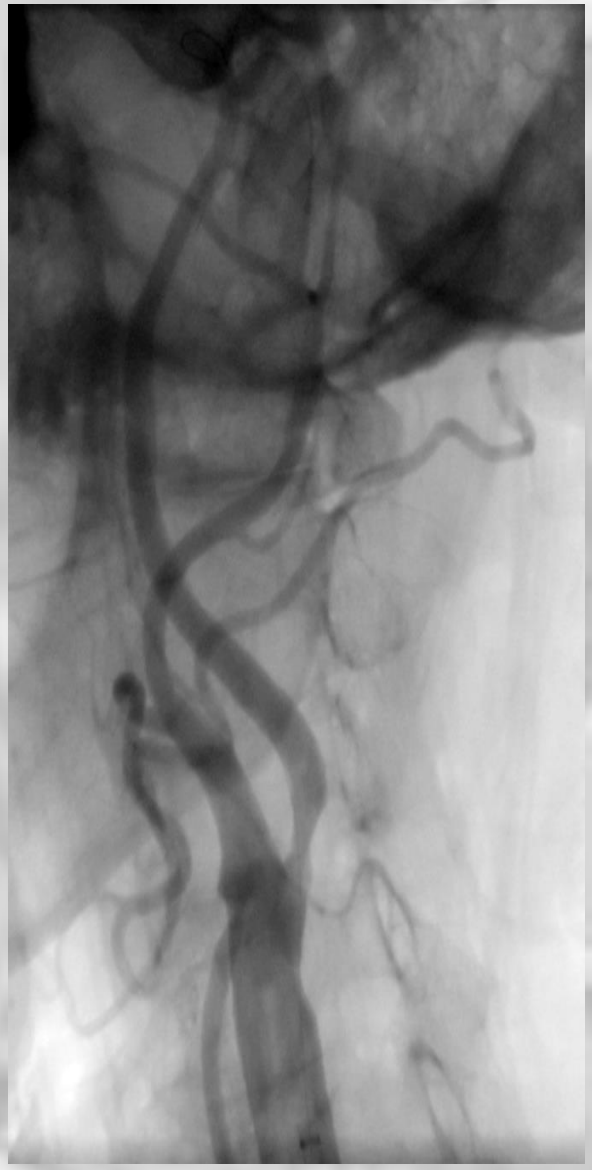


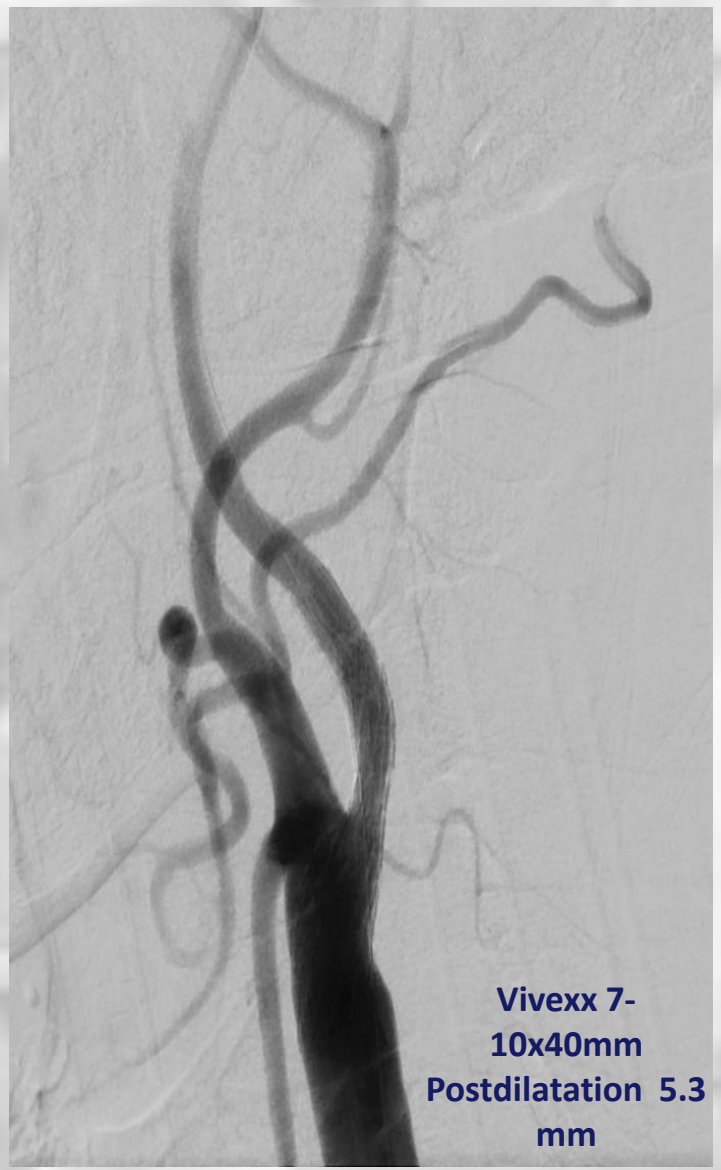
ACE 64 +
embotrap II

Flectadol
500mg ev

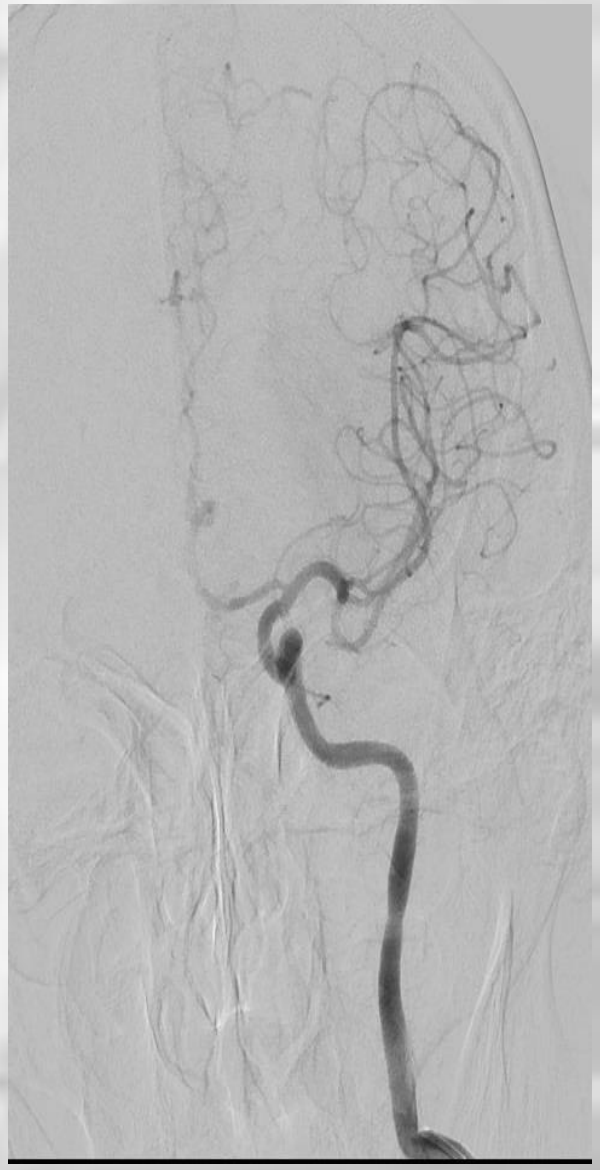


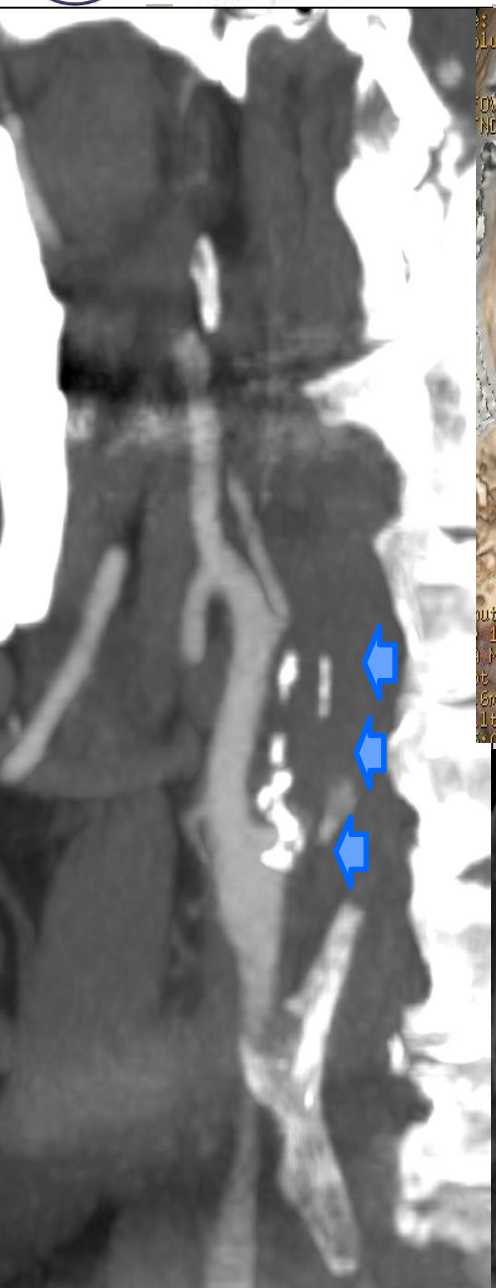


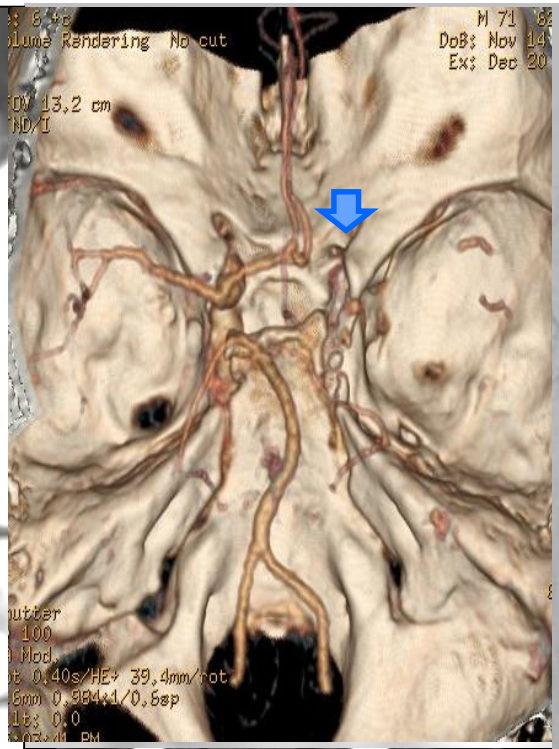


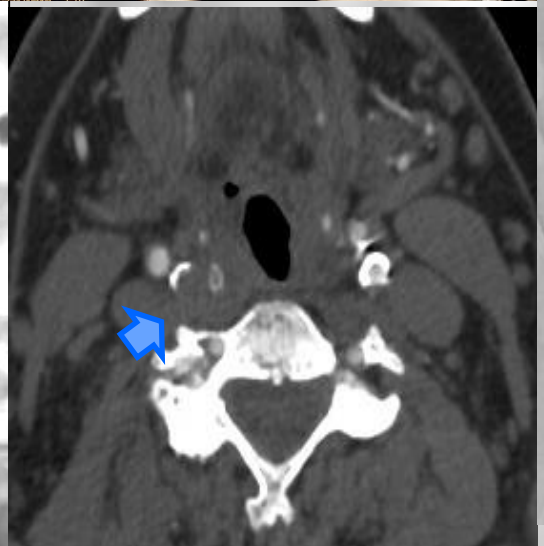


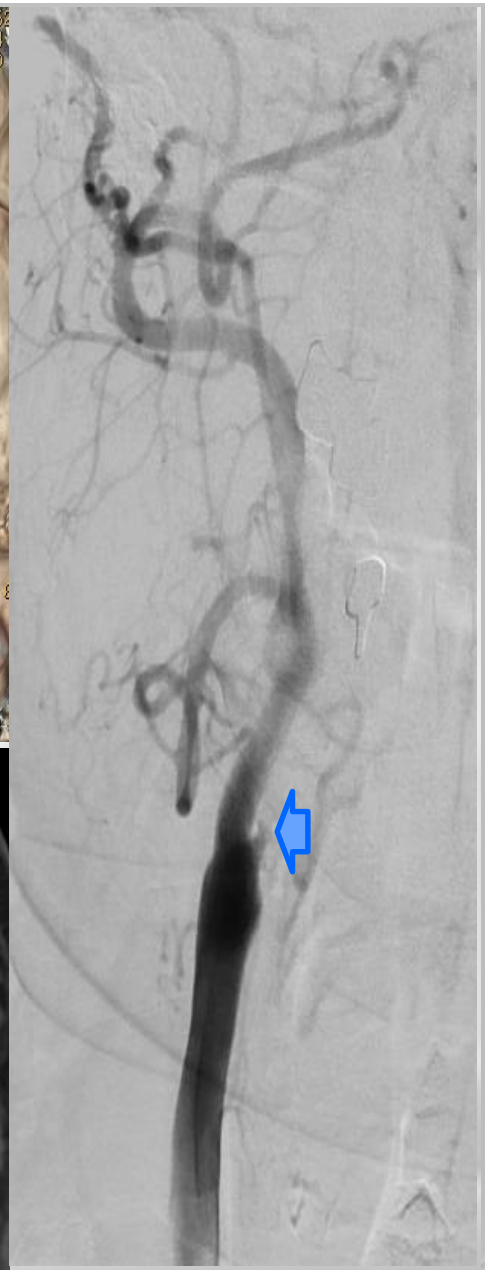
Vivexx 7-10x40mm Postdilatation 5.3 mm

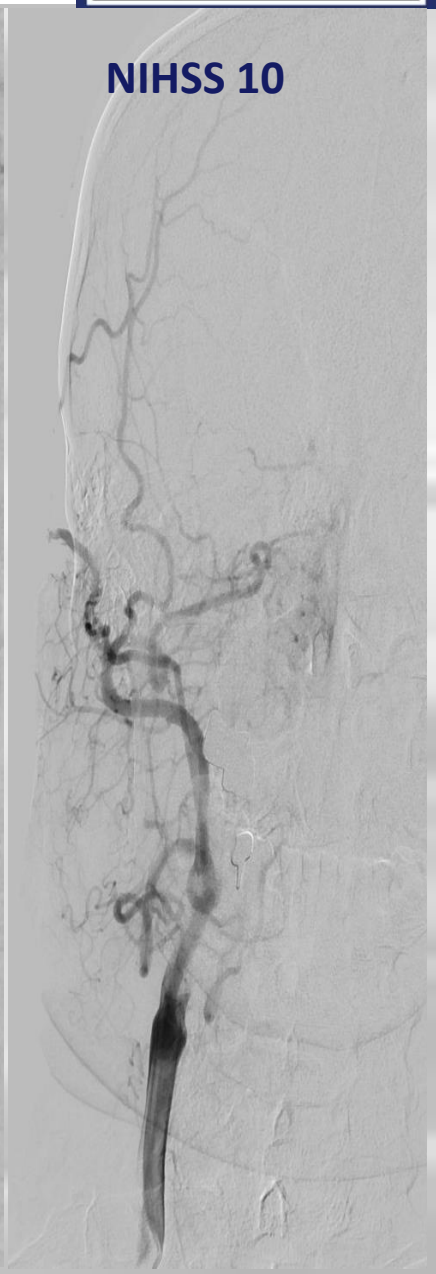








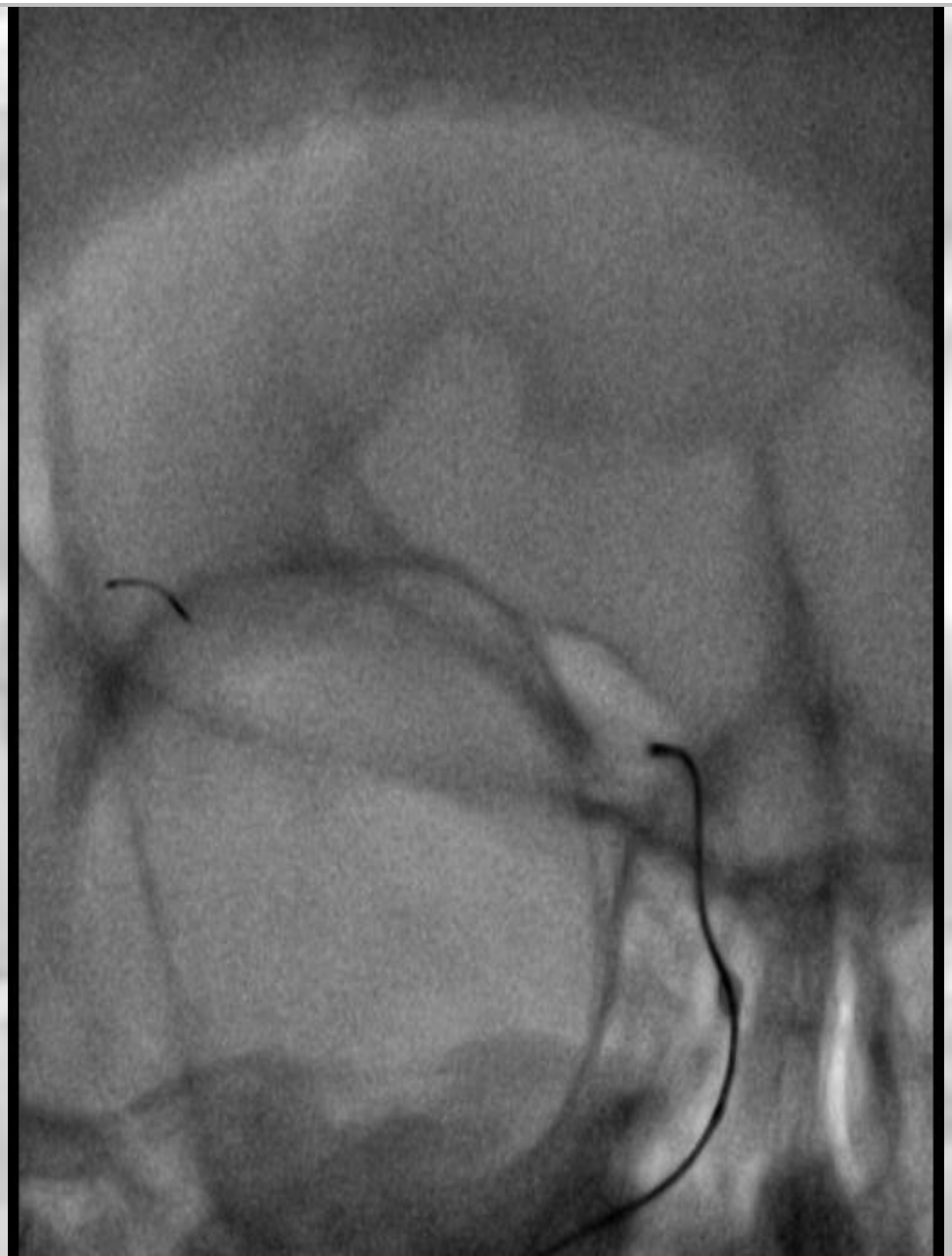


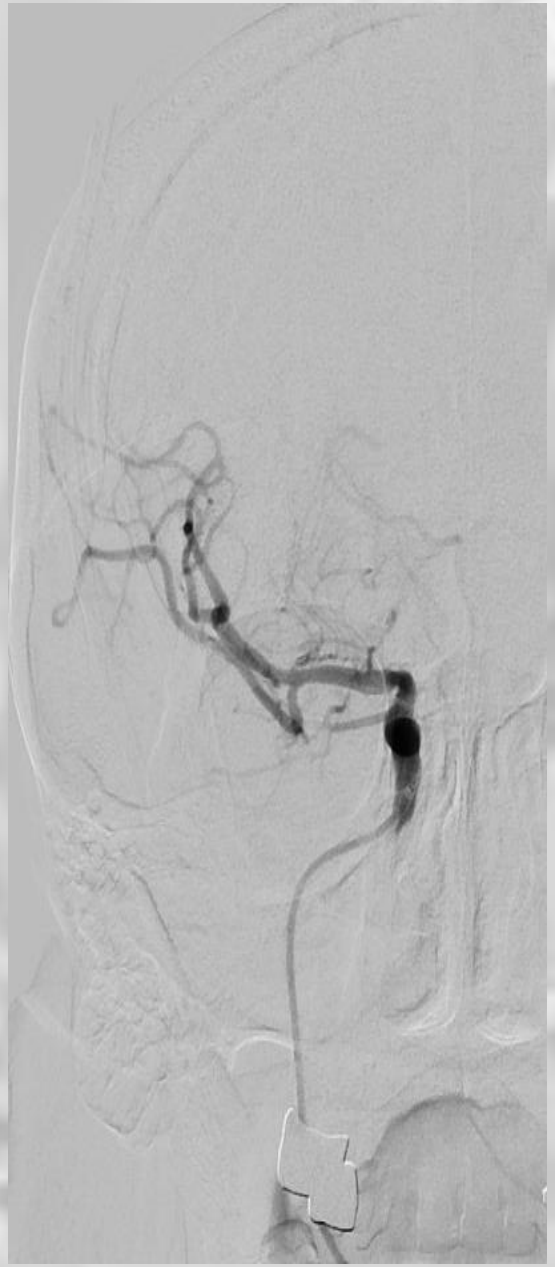


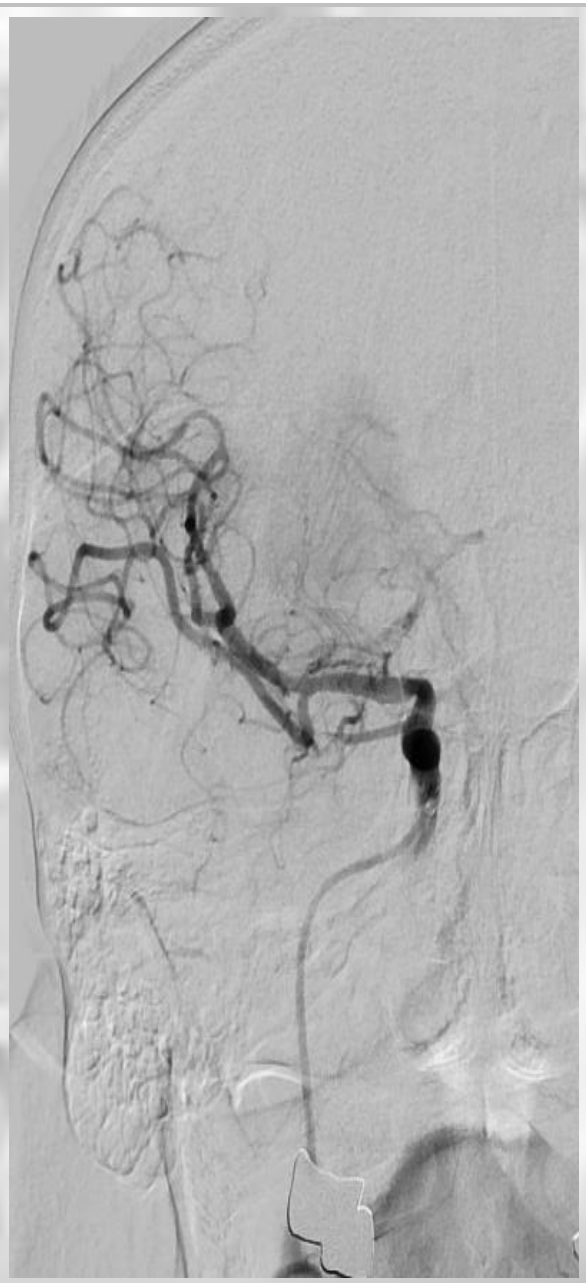
NIHSS 10

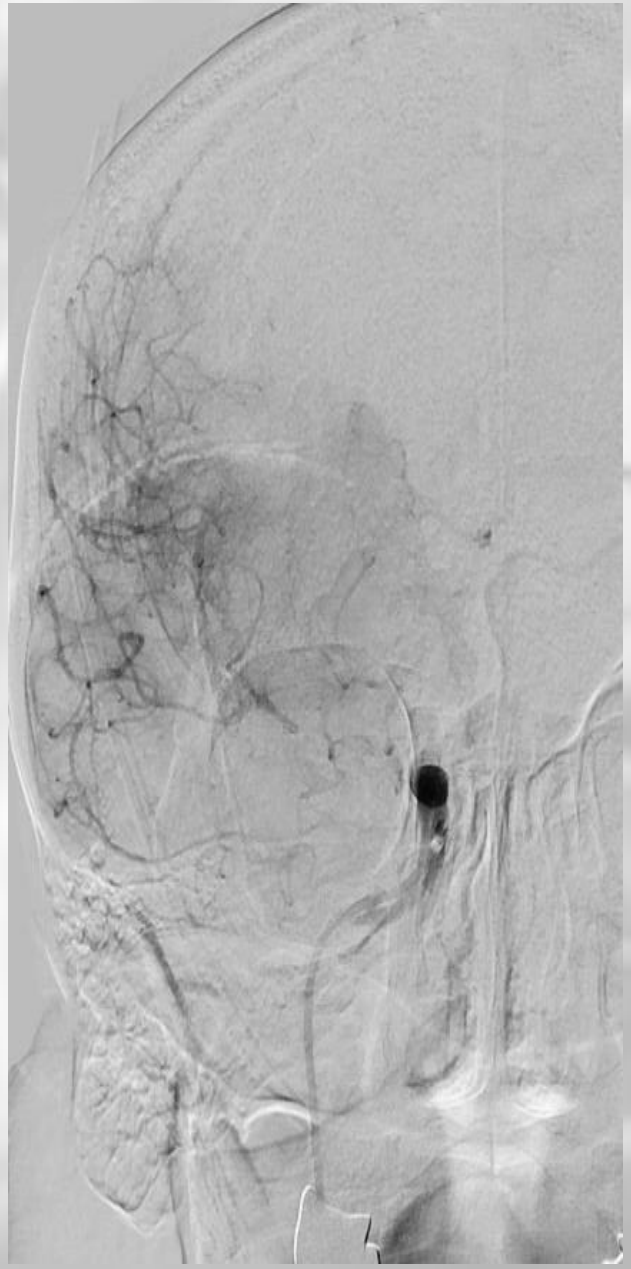
Revive
+
Aspiration 5 Max

(«Solumbra»)

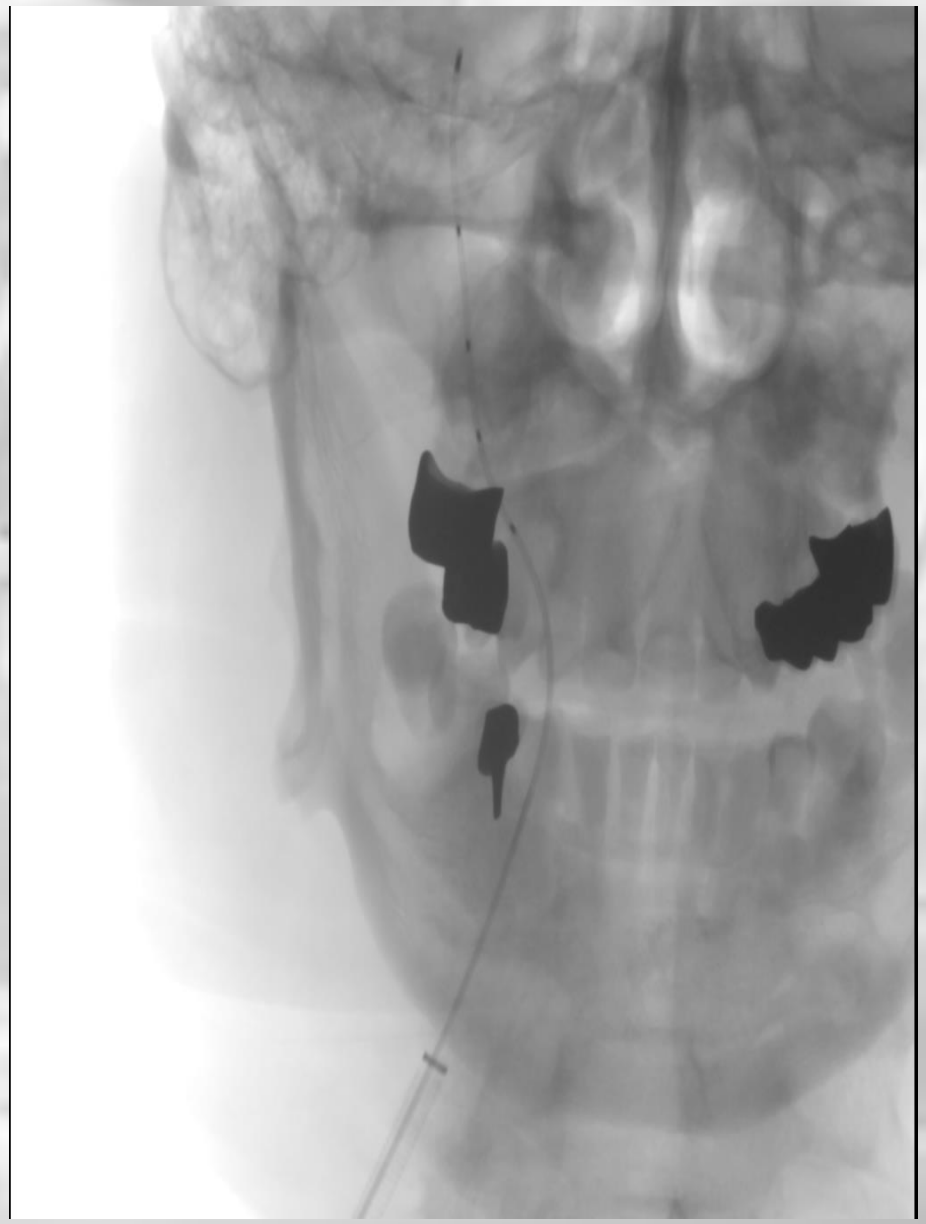








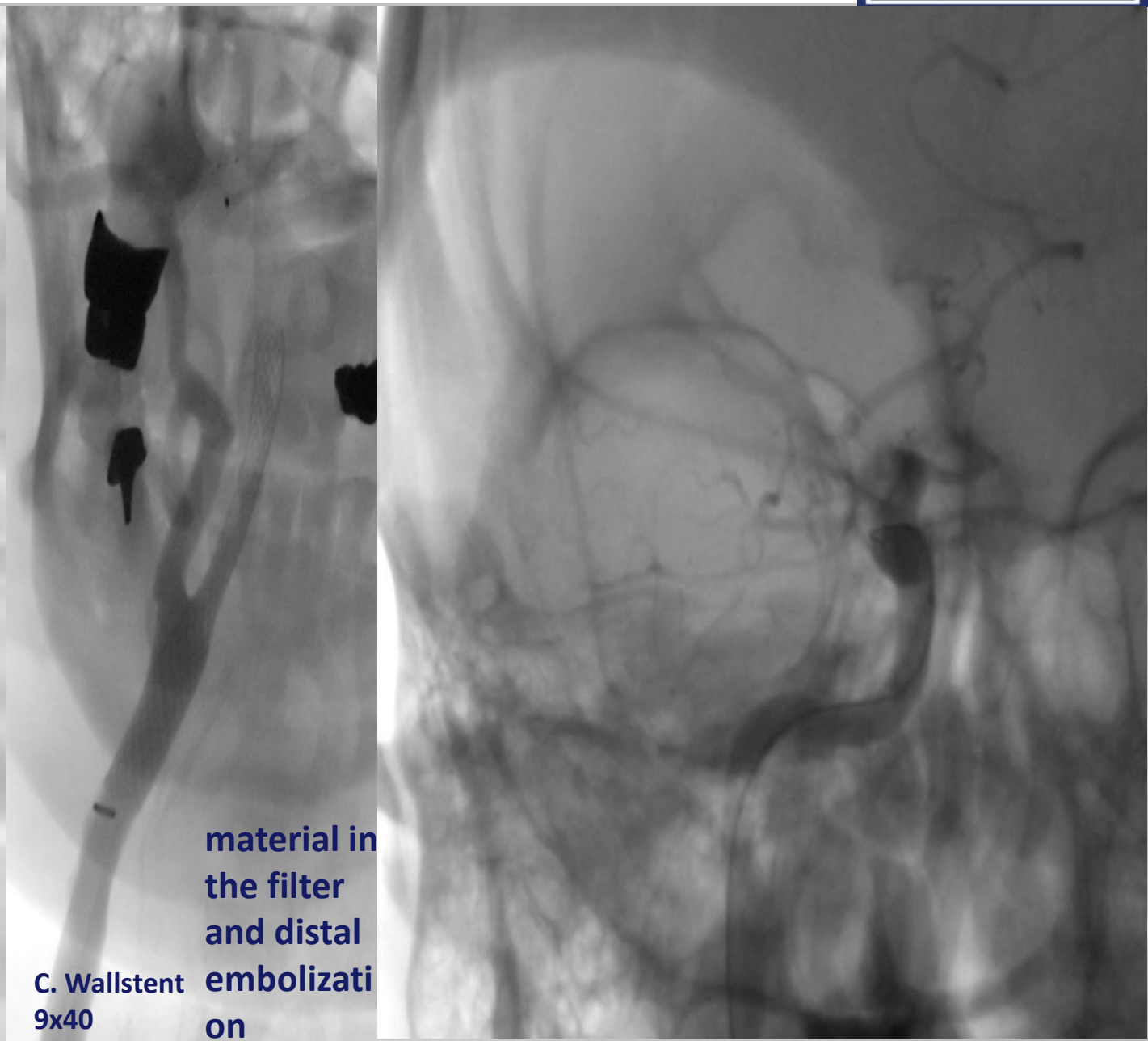
Aspiration from the 5Max catheter with multiple passages at the origin of the internal carotid artery which however remains occluded



After 5mm Spider filter deployment

4mm predilation

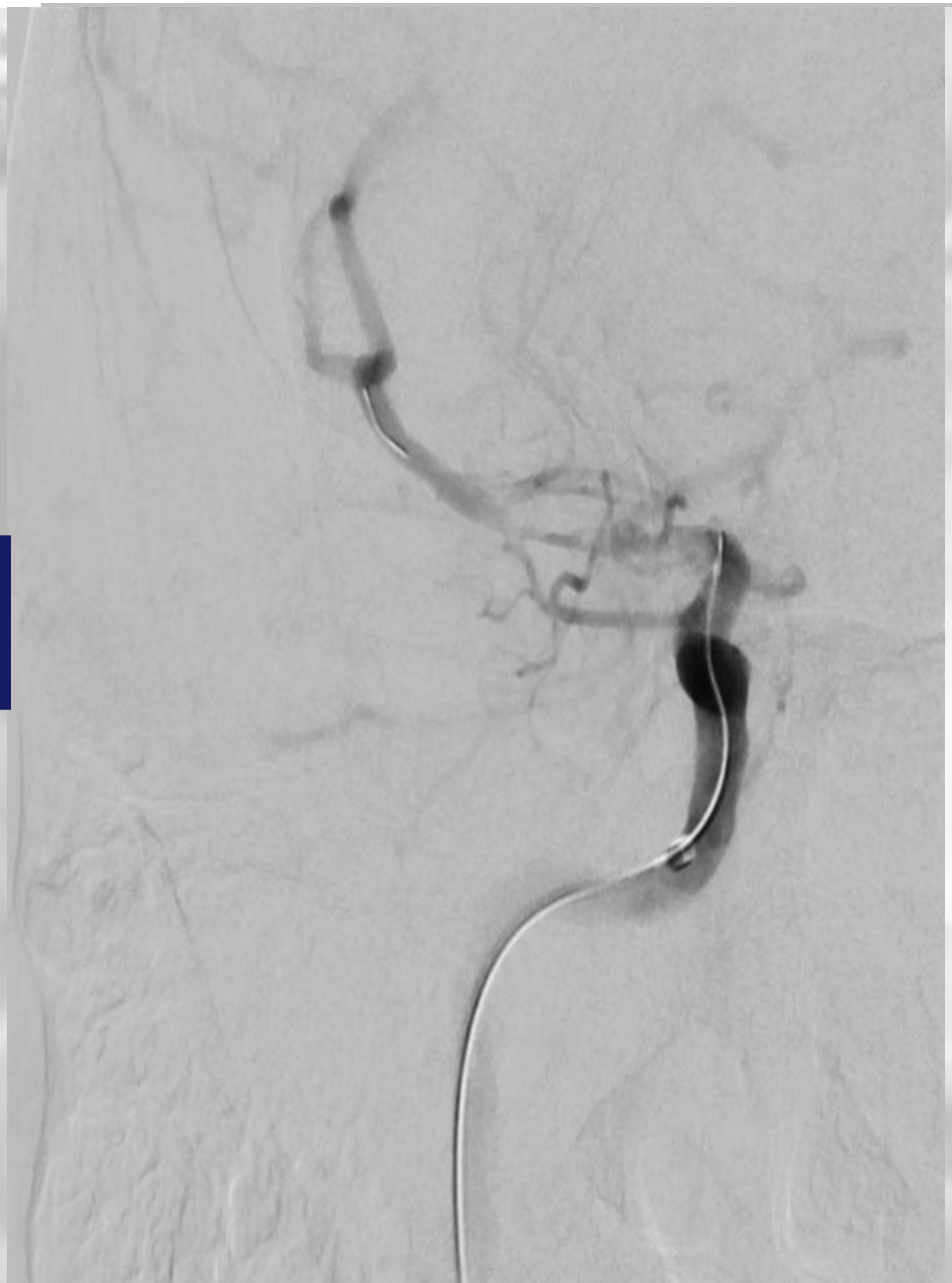
the Wallstent 9x40mm stent implanted expands well but

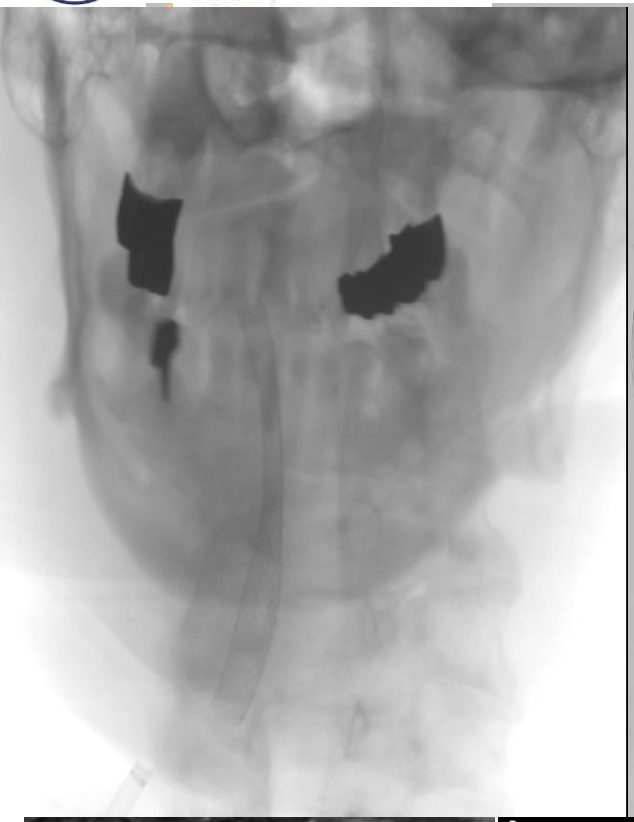


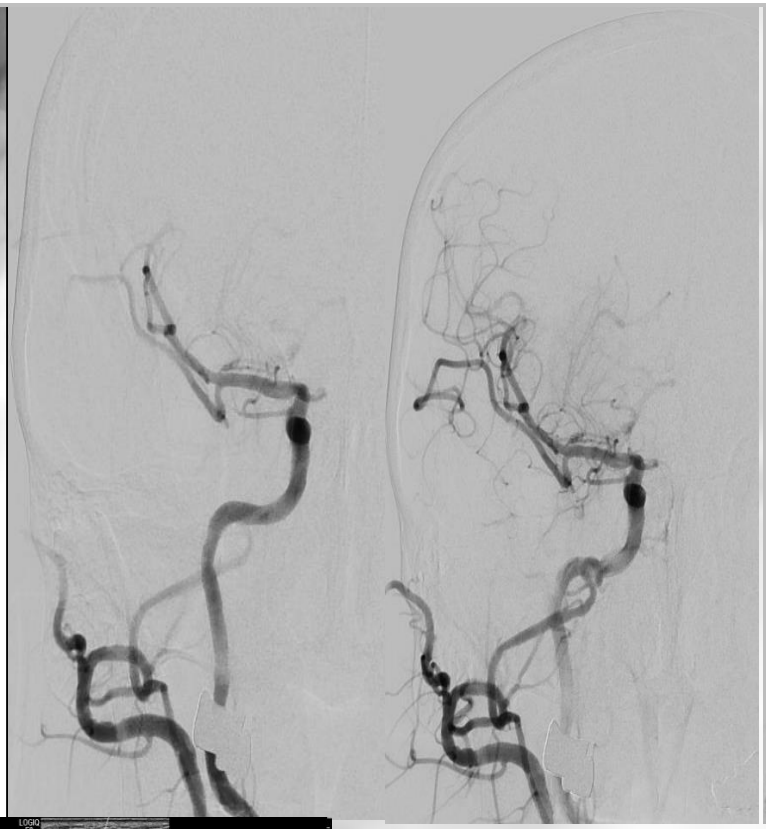
C. Wallstent 9x40

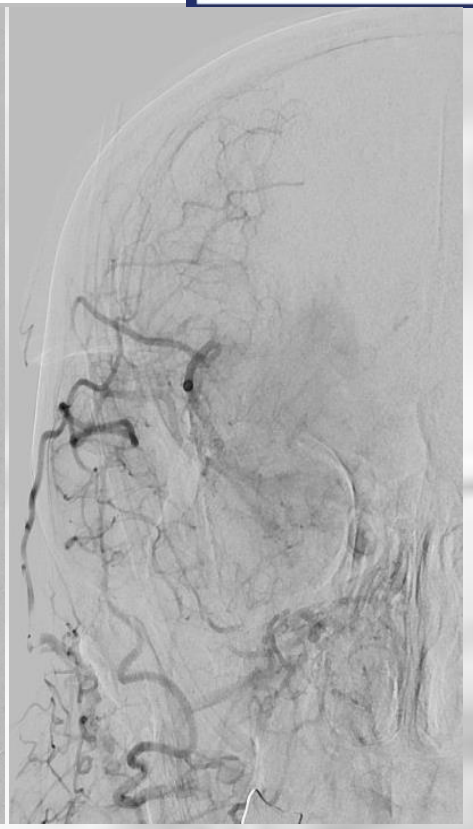
material in the filter and distal embolization

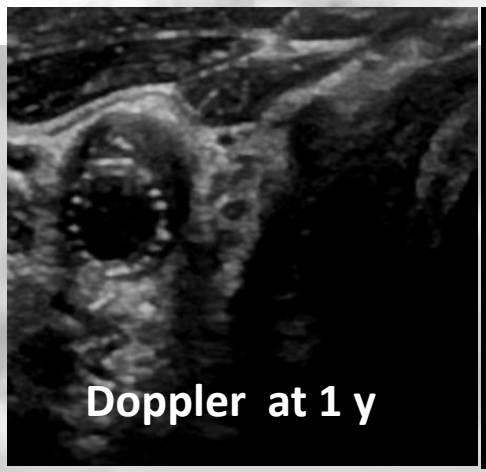
Revive 5’ + 5Max



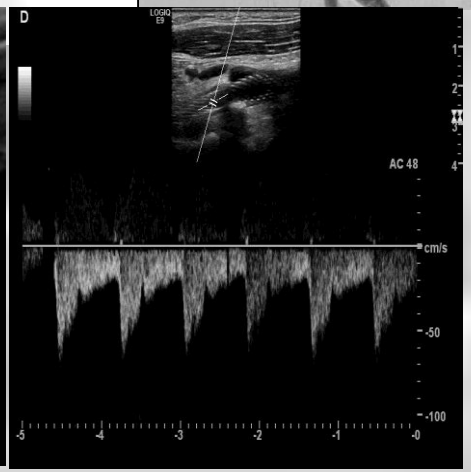








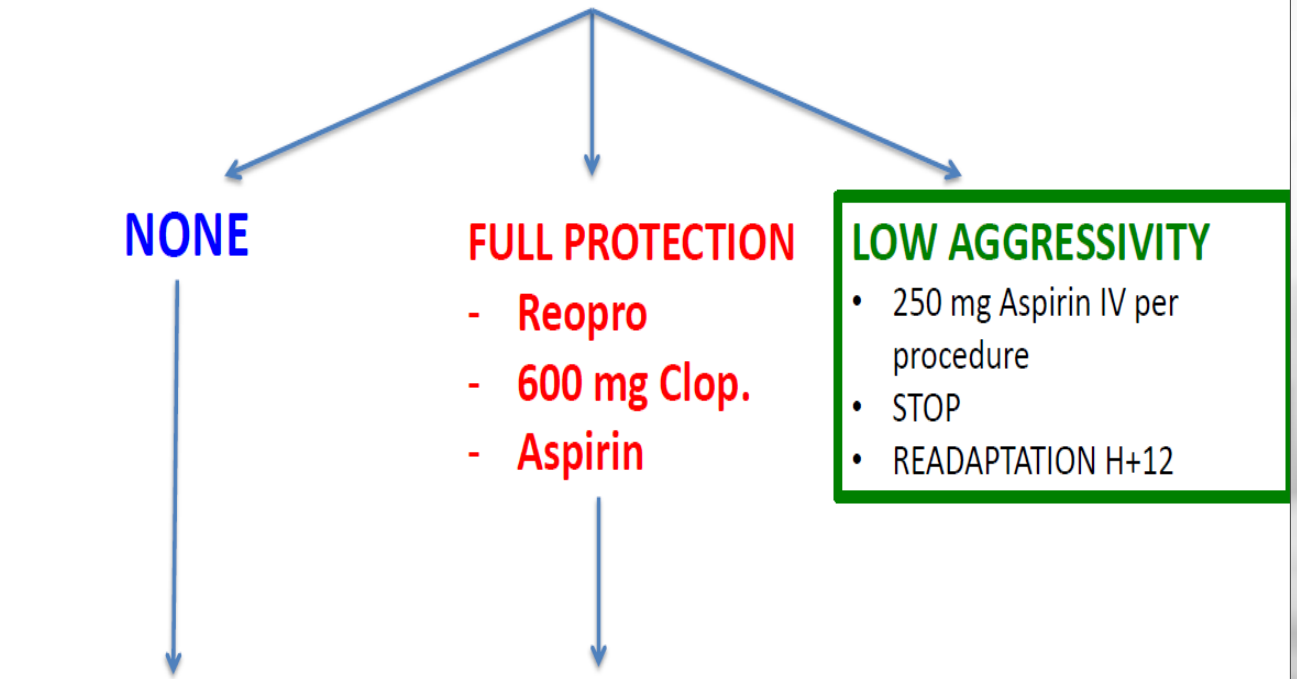
Doppler at 1 y



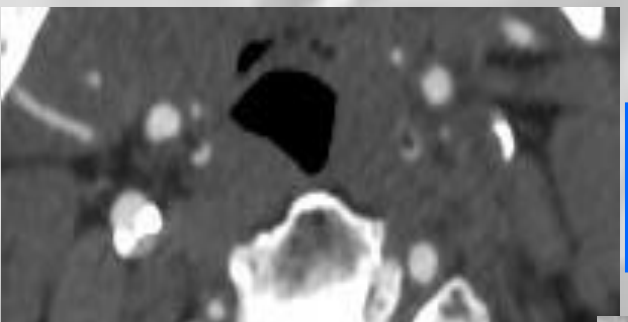
After return to the Stroke Unit NIHSS 1 (minimal left oral rhyme deviation)

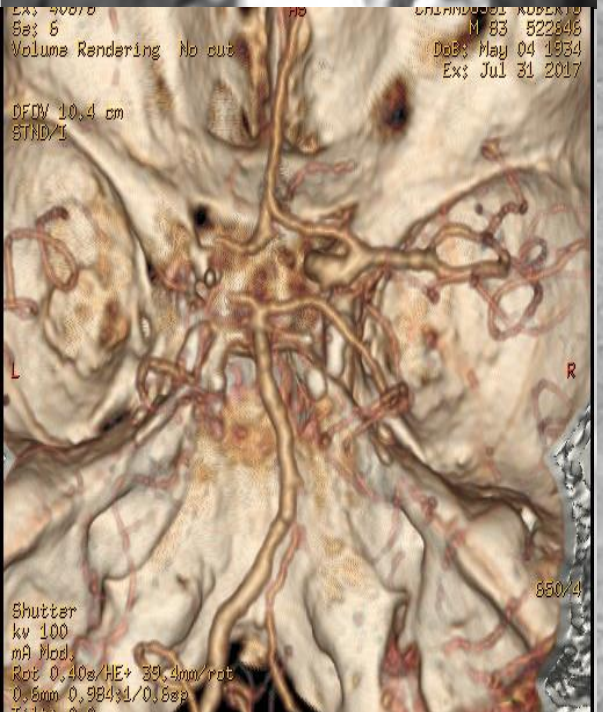
Tandem Atheroma

- **How to PROTECT THE STENT ?**
  - WHAT PHARMACOLOGICAL TREATEMENT OPTIONS?

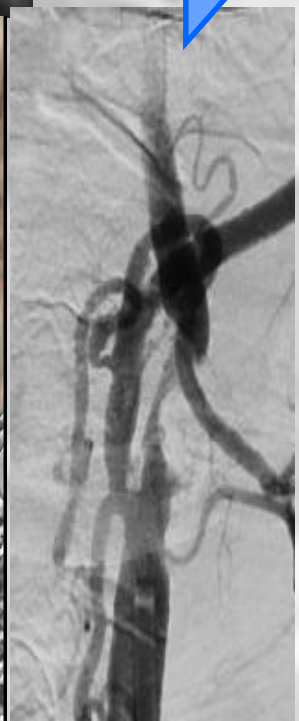


PREVIOUS EXPERIENCE

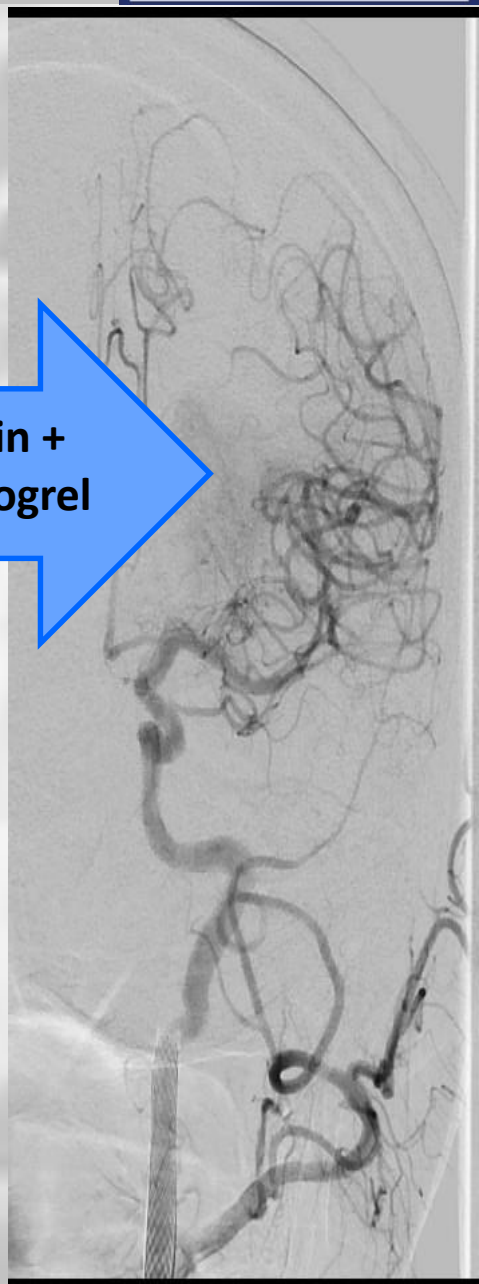


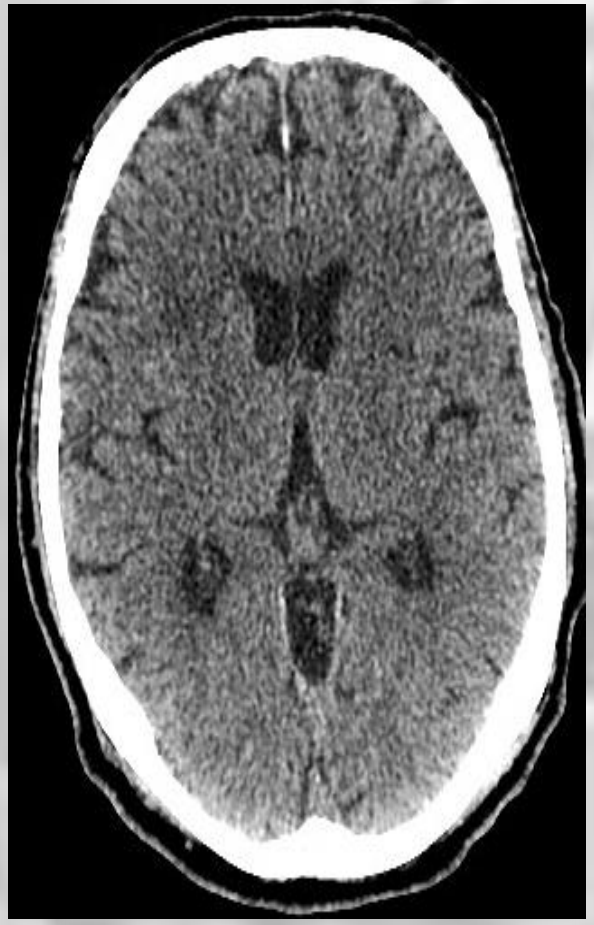


Thromboaspir 5 Max + C. Wallstent 9x40mm

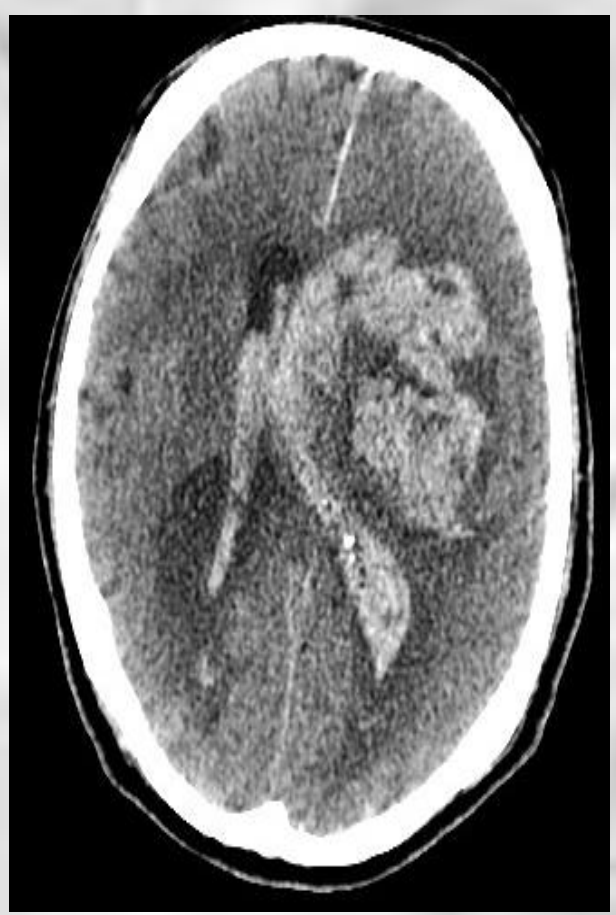


Aspirin + Clopidogrel





24h



Tandem Atheroma – "Low Agressivity" pharmacologic Protocol

PEROPERATIVE
- 250 mg Aspirin IV per procedure
- STOP / **NICE ANGIOPLASTY**

12H00 post procedure CT/CTA
- STENT Patency (if occlusion STOP)
- Hemorrhagic transformation & Core Volume

\+ FINAL CORE VOLUME & H.TRANSFORMATION -

STOP

CONTINUE ASPIRIN

CONTINUE ASPIRINS INTRODUCING CLOPIDOGREL

Courtesy of Pr. Vincent Costalat & Montpellier Team

TANDEM: Atheroma

- **TREAT CERVICAL LESION (stent / surgery) AS SOON AS POSSIBLE TO PREVENT STROKE RECURRENCE**
- **TREAT THE BRAIN FIRST AND THEN THE NECK**
- **CERVICAL STENT DOES NOT MEAN 600MG CLOPIGOGREL + REOPRO + ASPIRIN !!! (ANTIPLATELET THERAPY SHOULD BE DISCUSSED AND MODULATED CASE BY CASE AFTER CT AND CONTROL ANGIOGRAPHY AT 12H)**

The good results in revascularization fo carotid arteries in acute fase might be obtained only by :

1. **Close cooperation among neurologists, vascular surgeons, and radiologists to identify and select patients who may benefit from early surgery**

2. **Standardized operative techniques performed by trained surgeons and anesthetists**

3. **Most sensitive imaging techniques and optimal medical treatment well established**

4. **Close monitoring and management of blood pressure throughout the poststroke and perioperative period.**

THANK YOU

INTRAVENOUS (IV) THROMBOLYSIS WITH TISSUE PLASMINOGEN ACTIVATOR (TPA) FOR ACUTE ISCHEMIC STROKE)

The treatment of extracranial internal carotid artery (ICA) occlusions is a dramatic challenge because IV thrombolysis **has low recanalization rates, ranging from 4% to 32% depending on the vessel** (4% for ICA occlusions and 32% for middle cerebral artery [MCA] occlusions)

For these types of lesions, treatment with standard IV thrombolysis alone leads to a **good clinical outcome in only 17%** of the cases with a death rate of as high as 55%

The occluded segment of the ICA consists of predominantly **atherosclerotic plaque and a superimposed thrombus.** Therefore, large contributions of atherosclerotic plaque and platelet activation **do not provide an ideal substrate for thrombolytics alone**

CAS

TANDEM: Atheroma

- **Treatment of extracranic lesion**
- **CAS: when?Why? How?**
- **What postoperative therapy?**

ACUTE SYMPTOMATIC PATIENTS WITH CAROTID STENOSIS HAVE VERY HIGH ISCHEMIC RISK IN THE FIRST 48 HOURS DUE TO THE CHARACTERISTICS OF THE PLAQUE: THE SURGICAL TREATMENT MUST BE CARRIED OUT IN THE SHORTEST POSSIBLE TIME TO OBTAIN THE MAXIMUM BENEFIT IN STROKE PREVENTION

- **THEREFORE IN ALL PATIENTS BEFORE THE INTERVENTION MUST BE STUDIED:**
- **MORPHOLOGY AND CHARACTERISTICS OF THE CAROTID PLAQUE BY ECOCOLORDOPPLER AND CT SCAN**
- **PONTENTIAL CEREBRAL HEMORRHAGE –EVALUATION OF THE AREA OF ISCHEMIC DAMAGE - ISCHEMIC PENUMBRA (WITH HEMODYNAMIC COMPROMISE)**