A DIRECT ASPIRATION FIRST PASS TECHNIQUE (ADAPT) IN PATIENTS WITH ACUTE ISCHEMIC STROKE

Hocine REDJEM
Raphaël BLANC
Bertrand LAPERGUE
Gabriele CICCIO
Stanislas SMAJDA
Mikael MAZIGHI
Georges RODESCH
Michel PIOTIN

Fondation Rothschild, Paris, France
Hôpital Foch, Suresnes, France

Délégation Rhône-Alpes

SFR
Société Française de Radiologie

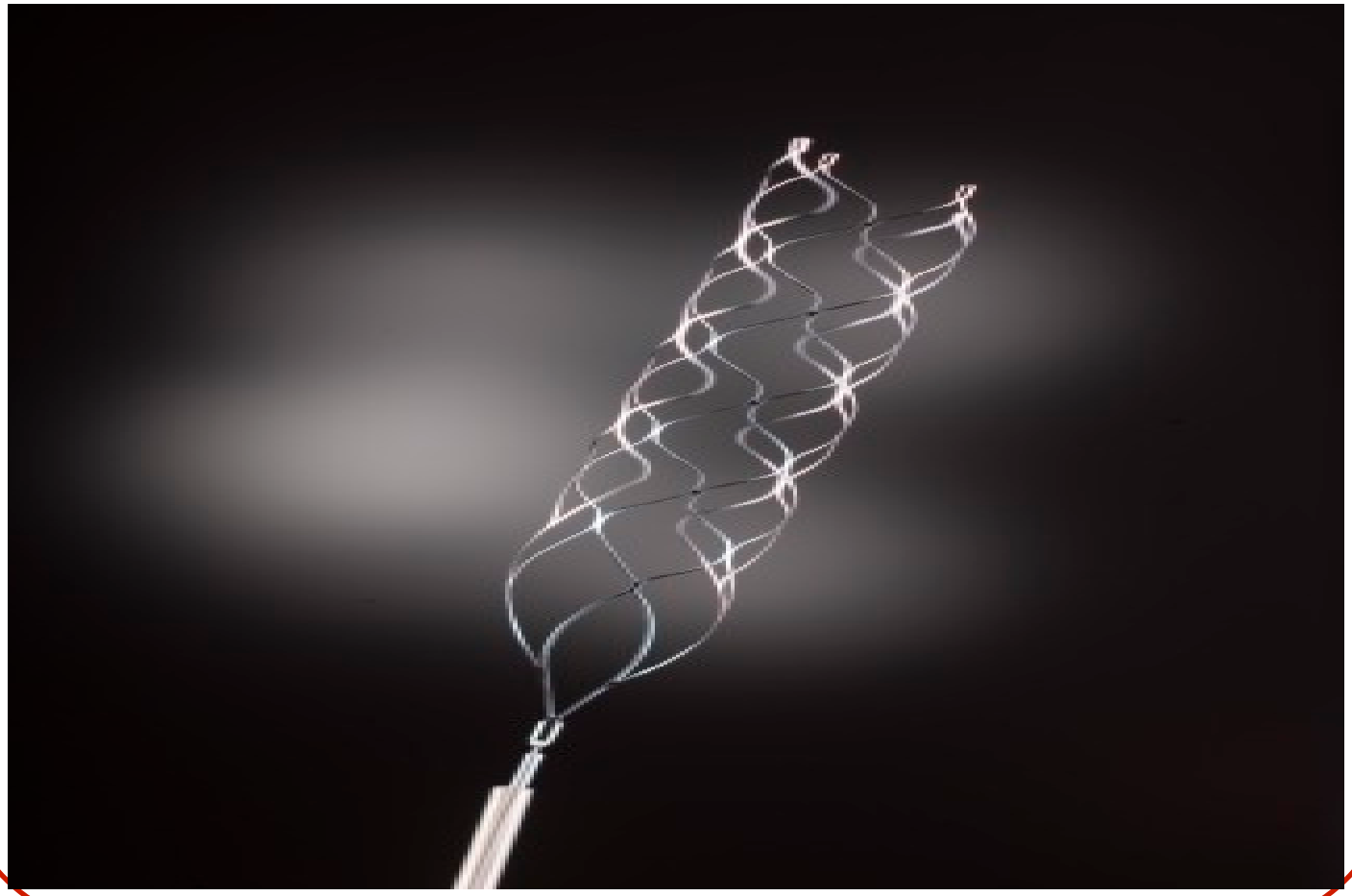
Fondation A. de Rothschild
De l'œil au cerveau

HOPITAL FOCH
Pour votre santé, Foch s'engage

2015:

5 POSITIVE Results of Thrombectomy Trials

>90 % of stent retrievers have been used in these trials



2015:

Rate of recanalization in the two largest thrombectomy trials

	MR CLEAN	ESCAPE
TICI 2B-3 %	81.5	86

Can we do better in terms of recanalization?

Since 2013:
other technology than Stentriever

A DIRECT ASPIRATION FIRST PASS TECHNIQUE (ADAPT)

THE ADAPT TECHNIQUE

1

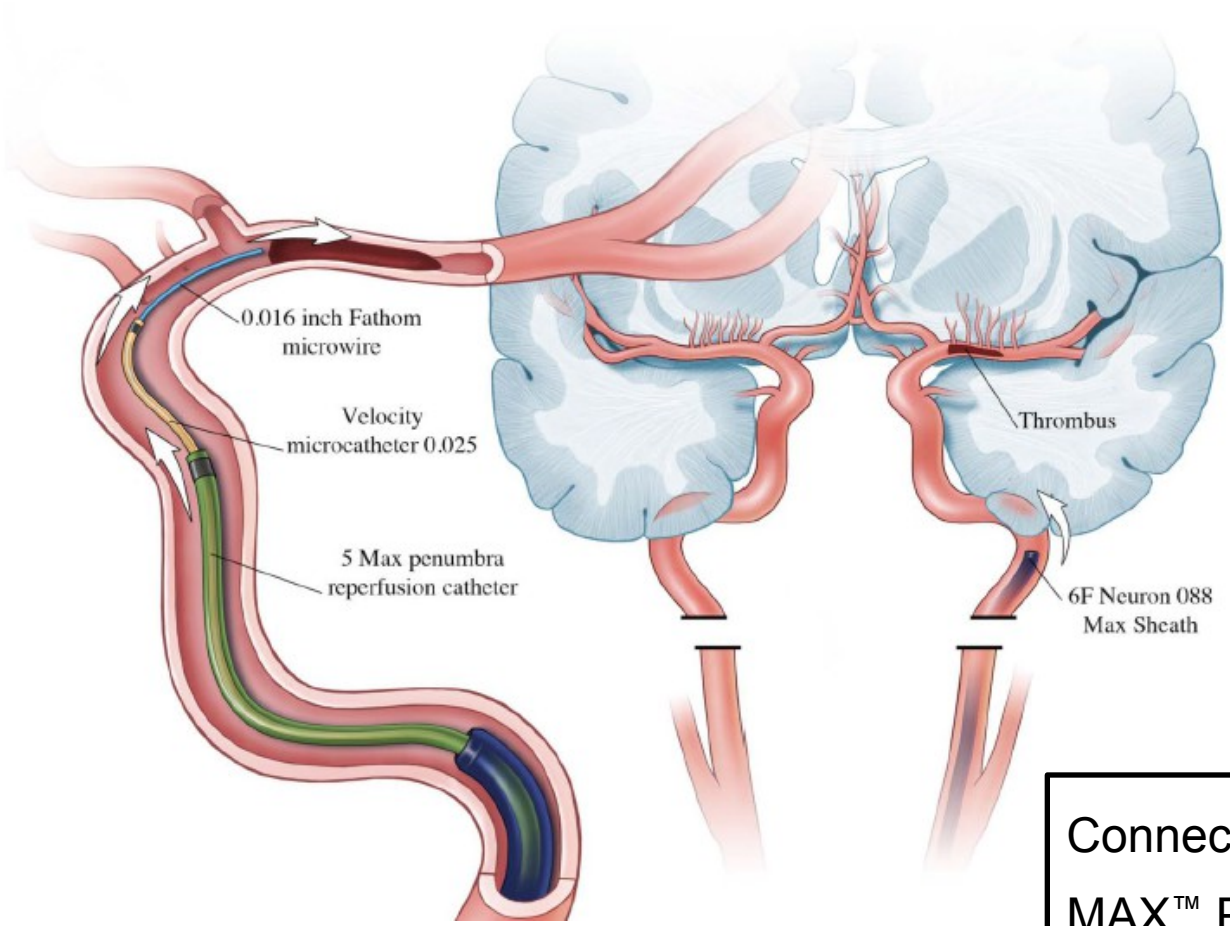
Access

2

Continuous Aspiration

3

Removal of the clot



Connecting tubing

MAX™ Pump

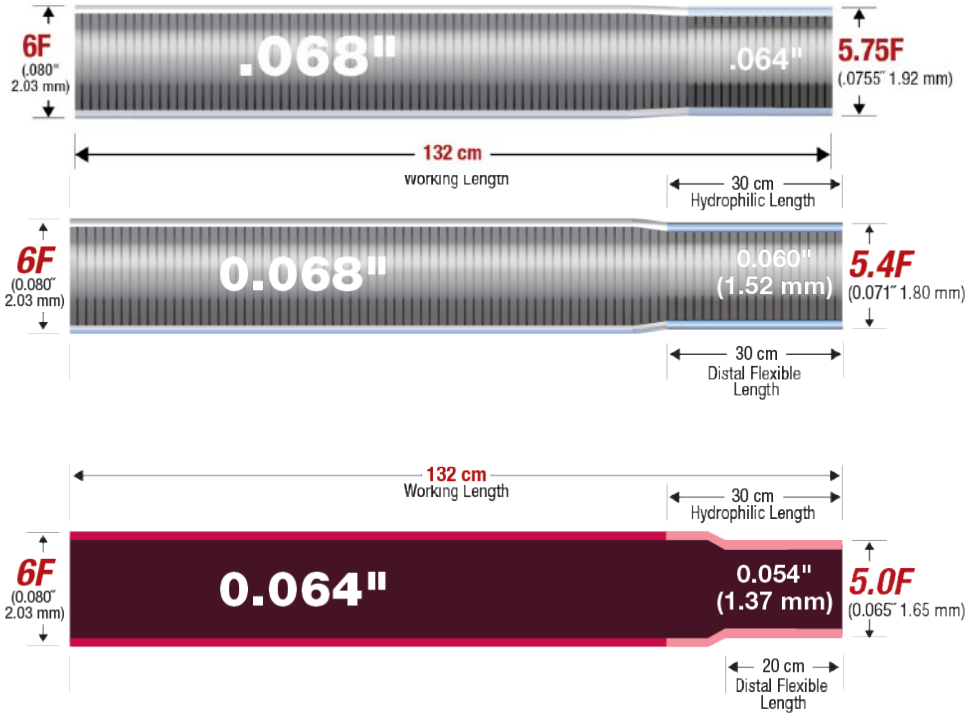
Canister

ACE™ Access SET-Up

ACE tracks over Velocity™ or 3MAX™

Note: If a low profile, 160 cm microcatheter is desired, track ACE over Velocity.

THE RIGHT device FOR THE RIGHT ARTERY



ACE64™

ACE™

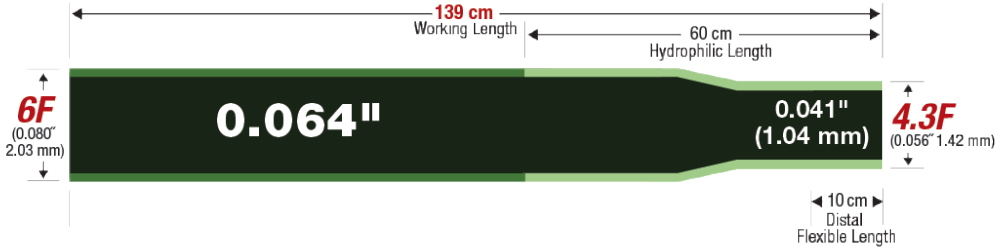
5MAX™

FIRST INTENTION

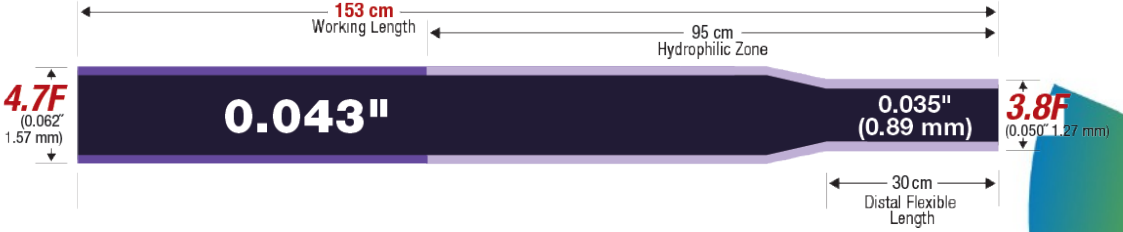
Design for large vessel occlusions

Design for distal arteries

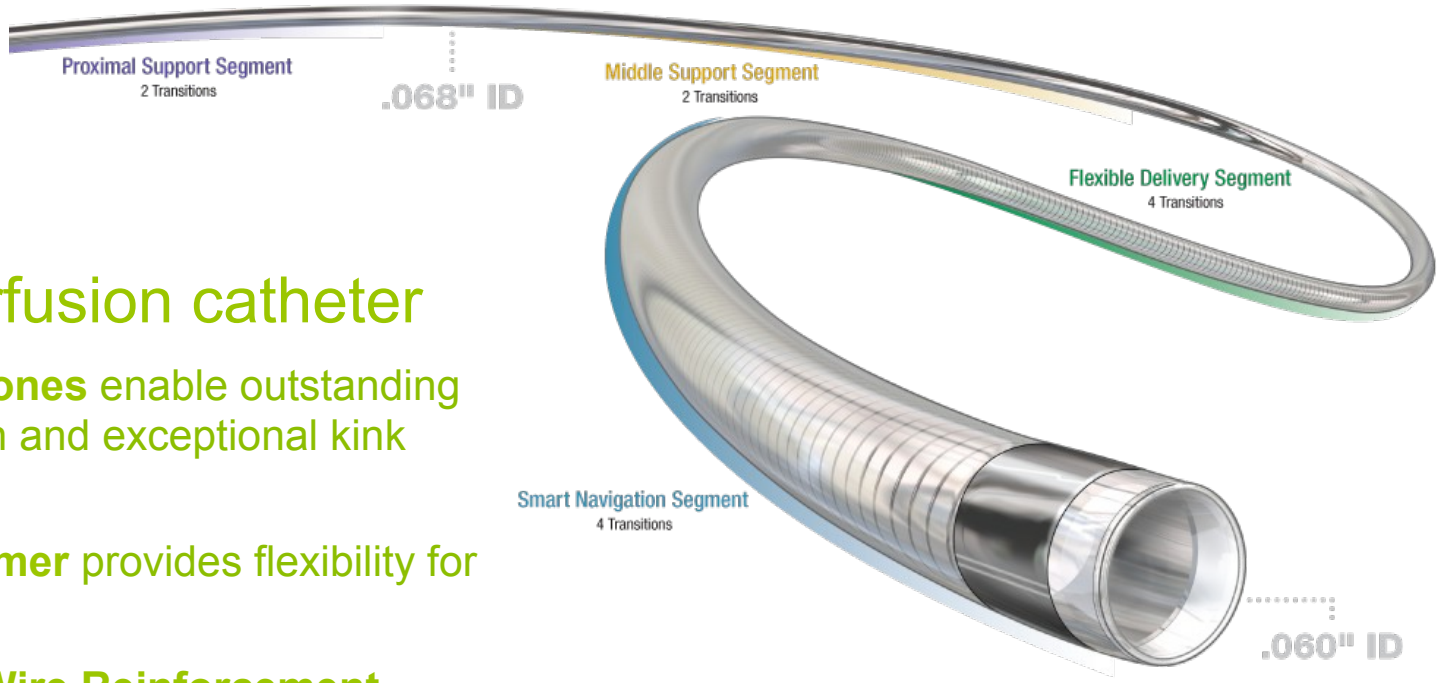
4MAX™



3MAX™



The larger, the better



ACE™ reperfusion catheter

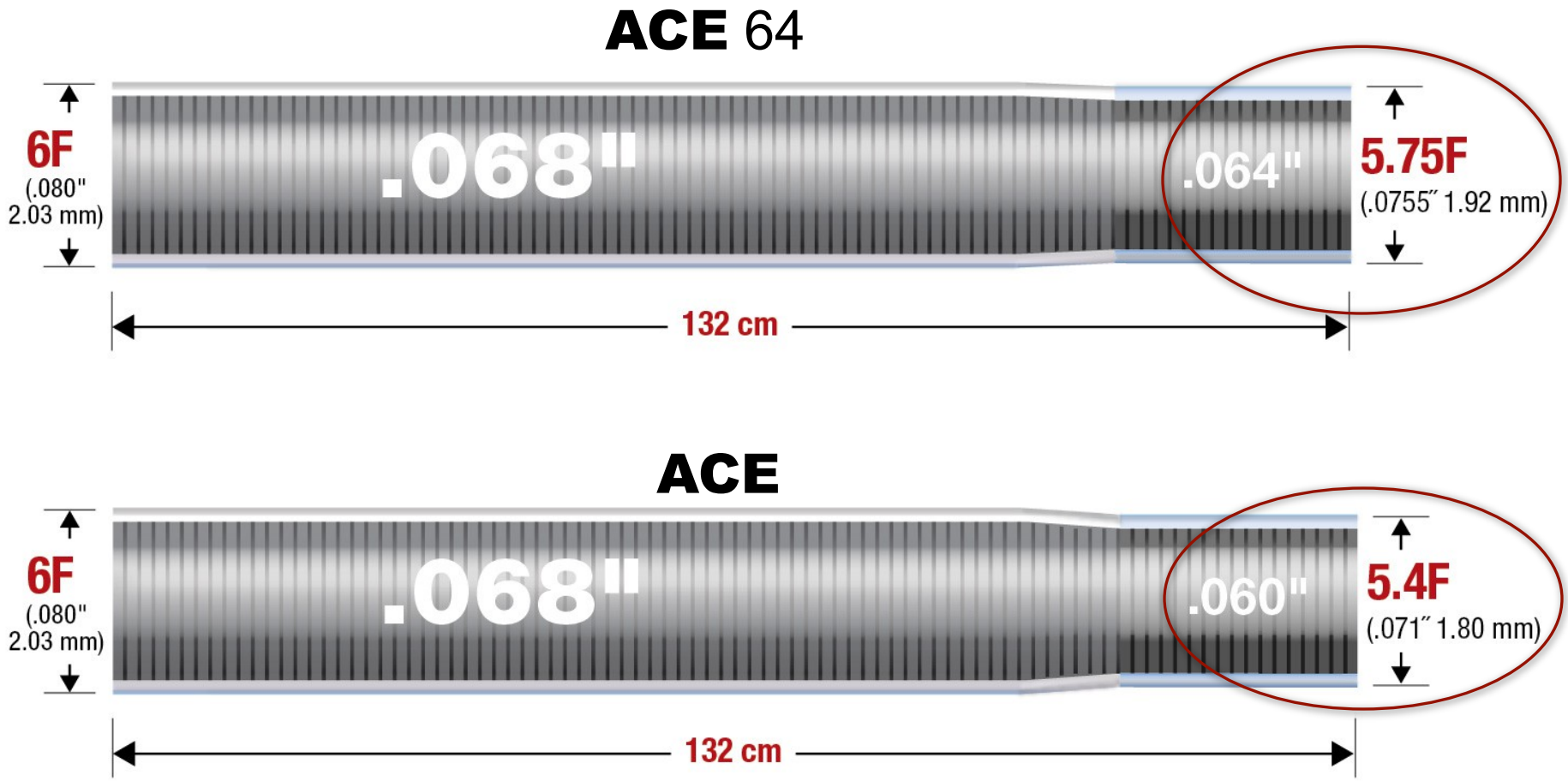
–**12 Transition Zones** enable outstanding force transmission and exceptional kink resistance

–**Advanced Polymer** provides flexibility for superior tracking

–**Nitinol Round Wire Reinforcement** maintains lumen integrity

And now, ACE64!

THE RIGHT device FOR THE RIGHT ARTERY



THE RIGHT DEVICE FOR THE RIGHT ARTERY

ACE 64 and ACE Comparison

	ACE 64	ACE
Distal ID	.064”	.060”
Distal OD	5.75F (1.92 mm)	5.4F (1.8 mm)
Proximal ID	Same .068”	
Proximal OD	Same 6F (.080”)	
Transitions	14	12
Distal Shaft Design	Same Nitinol coil reinforcement	
Proximal Shaft Design	Alternating flat and round stainless steel wire coil reinforcement	Flat stainless steel wire coil reinforcement

HYPOTHESIS:

ADAPT first line better than Stent Retriever first line

>

alone

HYPOTHESIS:

Synesgistic effect of ADAPT and Stent Retriever such as SOLITAIRE® = « SOLUMBRA »

+

>

alone

or

alone

ORIGINAL RESEARCH

ADAPT FAST study: a direct aspiration first pass technique for acute stroke thrombectomy

Aquilla S Turk,[1] Don Frei,[2] David Fiorella,[3] J Mocco,[4] Blaise Baxter,[5] Adnan Siddiqui,[6] Alex Spiotta,[7] Maxim Mokin,[3] Michael Dewan,[8] Steve Quarfordt,[5] Holly Battenhouse,[9] Raymond Turner,[7] Imran Chaudry[1]

Turk AS, *et al. J NeuroInterv Surg* 2014;**6**:260–264. doi:10.1136/neurintsurg-2014-011125

Table 2 Baseline characteristics

Variable	
Mean age (years)	66.3
Gender	
Men (n (%))	46 (47)
Women (n (%))	52 (53)
NIHSS	
Pretreatment	17.2/17.0*
Post-treatment	7.3/4.0*
IV tPA	
Yes (n (%))	27 (28)
No (n (%))	70 (72)
Average time to groin puncture (h)	8.5
Average time to TICI 2b/3 recanalization (min)	37
Site of occlusion (n (%))	
Right M1	20 (20)
Right M2	11 (11)
Right ICA	3 (3)
Right ICA terminus	3 (3)
Left M1	23 (23)
Left M2	7 (7)
Left ICA	6 (6)
Left ICA terminus	11 (11)
Basilar	5 (5)
Right cervical ICA–MCA	8 (8)
Left cervical ICA–MCA	3 (3)

*Mean/median values.
ICA, internal carotid artery; IV tPA, intravenous tissue plasminogen activator; MCA, middle cerebral artery; NIHSS, National Institutes of Health Stroke Scale; TICI, Thrombolysis in Cerebral Infarction.

- **N = 98 over 6 centers.**
- **Onset to Groin: 8.5 h (mean 507 min; median 241.5 min, SD=506 min).**
- **Successful revascularization rate (TICI 2b-3): 95%.**
- **Groin to TICI 2b or 3 revascularization was 36.6 min (SD=26.4 min).**
- **ADAPT technique alone was successful in achieving successful revascularization of the occluded vessel in 78% of the cases**

ORIGINAL RESEARCH

Direct aspiration first pass technique for the treatment of acute ischemic stroke: initial experience at a European stroke center

Annika Kowoll,[1] Anushe Weber,[1] Anastasios Mpotsaris,[2] Daniel Behme,[3] Werner Weber[1]

Kowoll A, *et al. J NeuroInterv Surg* 2015;0:1–5. doi:10.1136/neurintsurg-2014-011520

Table 1 Baseline characteristics of the patients

Characteristic	All (n=54)
Age (years) (median (range))	69 (39–94)
Male sex (n (%))	29/54 (54)
Baseline NIHSS (median (range))	15 (2–27)
IVT (n (%))	44/54 (81)
Atrial fibrillation (n (%))	28/54 (52)
Hypertension (n (%))	38/54 (70)
Diabetes mellitus (type II) (n (%))	11/54 (20)
Hyperlipoproteinemia (n (%))	22/54 (41)
Time from symptom onset to revascularization (min) (median (range))	220 (133–563)

IVT, intravenous thrombolysis; NIHSS, National Institutes of Health Stroke Scale.

Characteristic	All (n=54)
mTICI ≥2b (n (%))	50/54 (93)
mTICI 3 (n (%))	35/54 (65)
Time from groin puncture to revascularization (min) (median (range))	41 (9–115)
sICH (n (%))	2/54 (4)
ENT (n (%))	3/54 (6)
NIHSS at discharge (median (range))	6 (0–24)
mRS ≤2 at discharge (n (%))	25/54 (46)
Mortality (n (%))	6/54 (11)

ENT, embolization to new territories; mRS, modified Rankin Scale; mTICI, modified Thrombolysis in Cer
symptomatic intracranial hemorrhage.

- N=54 pts
- A successful revascularization result **(mTICI ≥2b) was achieved in 93% of cases** whereas direct **aspiration alone was successful in 30/54 (56%)** cases

ADAPT first line VERSUS SOLITAIRE first line
Methods

- We analyzed consecutive patients with large intracranial artery occlusions of the anterior circulation, treated with MT, according to the use of the first-line thrombectomy device (ADAPT or Solitaire).
- Consecutive inclusion at 2 comprehensive stroke center; 2012-2014
- Patients were eligible if they were treatable by MT within 6 h of stroke onset.
- Bridging ou stand alone thrombectomy.
- The interventionist could, in case of recanalization failure with the Solitaire system, used another thrombectomy device left to the operator's choice.

Fondation A. de Rothschild
De l'œil au cerveau

HOPITAL FOCH
Pour votre santé, Foch s'engage

ADAPT first line VERSUS SOLITAIRE first line
Methods

- **Primary outcome was the rate of recanalization (TICI scores of 2b-3). Secondary outcome included procedural and clinical data.**
- **Secondary outcome:**
- Safety issues of these strategies of thrombectomy (procedures complications)
- Clinical outcome at 3 months: patient's disability assessed by the modified Rankin score and mortality.
- Procedural delays between these 2 strategies recanalization thrombectomy.

Fondation A. de Rothschild
De l'œil au cerveau

HOPITAL FOCH
Pour votre santé, Foch s'engage

Baseline Characteristics

- Study period: 2012-2014
- 244 consecutive patients **in** 2 centers (Rothschild Foundation, and Foch Hospital) admitted for a cerebral infarction associated with proximal occlusion were included
- This is so far the largest series of patients with ADAPT

Fondation A. de Rothschild
De l'œil au cerveau

HOPITAL FOCH
Pour votre santé, Foch s'engage

Results – Baseline Characteristics

	ADAPT (n=124)	SOLITAIRE (n=120)	P
Age (yr) median	65	64	0.7
Sex (% male)	47	49	0.7
Medical History	--	--	NS
HBP	49	59	0.9
NIHSS score, median	17 (11-21)	17 (12-21)	0.99
Location of the occlusion			
M1	69.3	72.5	0.6
ICA with involvement of the M1 segment	30.6	27.5	0.6
rtPA use	66.1	44.0	0.001
Stroke Onset to IV tPA	130 (105-172)	142 (120-165)	0.1
Onset to groin puncture	245 (205-305)	235 (181-300)	0.23

Results – Characteristics of Endovascular Procedures

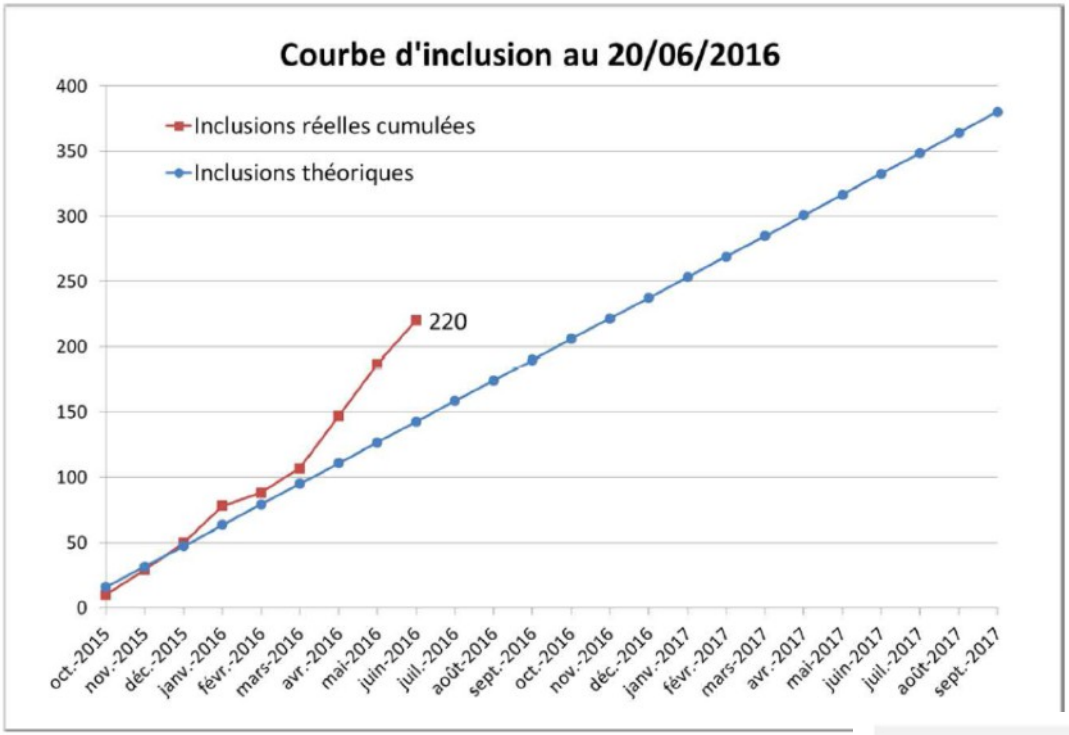
	ADAPT (n=124)	SOLITAIRE (n=120)	P	P adjusted
Proportion of patients receiving general anesthesia , n (%)	28 (22.6)	96 (80)	<0.001	
Final TICI 2b-3, n (%)	**102 (83.6)**	**82 (68.3)**	**0.005**	**OR 2.044 95% CI 1.034_4.04**
Median time from groin puncture to TICI 2b-3 (min)	43 (27-65)	50 (25-80)	0.24	
Rescue Therapy	38.7	13.3		<0.0001
Symptomatic ICH	16(13%)	8(6.7%)		0.13
Per procedural erratic embolisms, n, %	7 (5.6%)	8* (6.8%)	0.71	

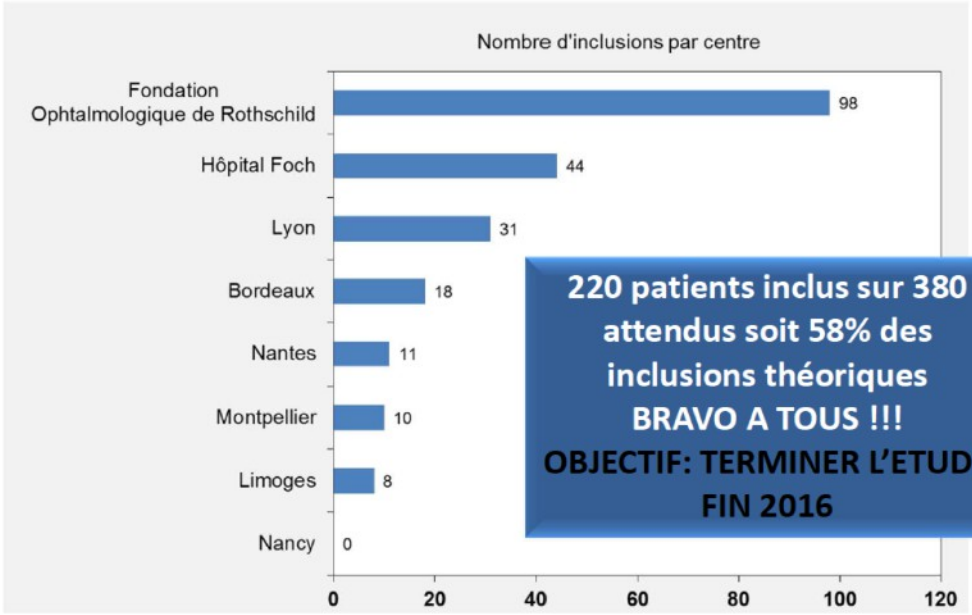
* : 8/118. 2 missing data

ASTER TRIAL:
Adapt versus StEnt Retriever

- ADAPT versus Stent retrievers for thrombectomy revascularisation of large vessel occlusion in acute ischaemic stroke :
  a randomised, controlled, multicentric, blinded-end-point study.
- Study initiated in November 2015
- Planned enrollment: n = 360 in up to 6 french centers
- Primary outcome: % of TICI 2b/3 at the end of the procedure
- To date approaching 220 patients enrolled after 7 months
- (FOR, FOCH, BORDEAUX, LYON, NANTES, MONTPELLIER, LIMOGES, NANCY, NICE)

Etat d'avancement ASTER





220 patients inclus sur 380 attendus soit 58% des inclusions théoriques
BRAVO A TOUS !!!
OBJECTIF: TERMINER L'ETUDE FIN 2016

When and where ADAPT in Anterior Circulation Ischemic Strokes Really Works?

- Retrospective analysis of our single center experience (Foundation Rothschild) results of endovascular treatment of anterior circulation of ischemic stroke by the technique of direct aspiration (ADAPT)

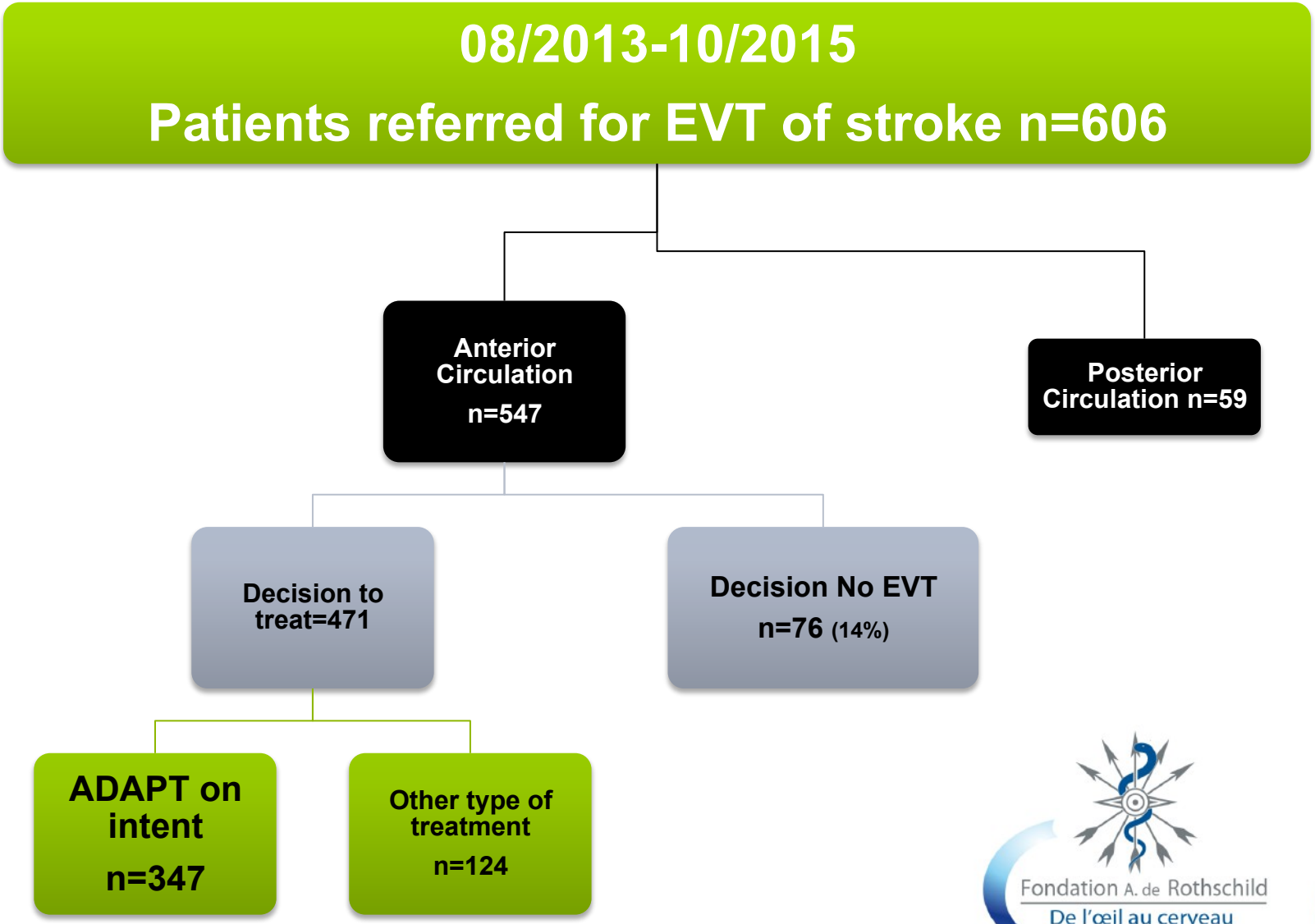
Fondation A. de Rothschild
De l'œil au cerveau

Methods

- From August 2013 to October 2015, we reviewed 347 « intent to treat » large vessel occlusion ischemic strokes that were treated with ADAPT
- Procedural and clinical data were collected for analysis

Fondation A. de Rothschild
De l'œil au cerveau

Methods



Fondation A. de Rothschild
De l'œil au cerveau

Results

- **347 Patients**
  - 159 Female (45.8%)
  - 188 Male (54.1%)
- **Age: 65±14 years (range 21-93)**
- **Mean admission NIHSS 17±6.4**
- **Sites of occlusions:**
  - 200 MCA (57.6%)
  - 89 Siphon (25.6%)
  - 58 Tandem (16.7%)
- **65.1% Patients received IV Thrombolysis prior to ADAPT (162 by alteplase, 55 by tenecteplase, and 9 with both).**

Table 1. Baseline characteristics, overall and according to successful reperfusion status after ADAPT.

		Successful reperfusion Status		
	Overall	No (TICI 0/1/2a)	Yes (TICI 2b/3)	*P Value**
Number of patients	*347*	*154*	*193*	
Age, y mean± SD	66.4 ± 14.7	65.9 ± 15.1	66.8 ± 14.5	0.57
Female	159 (45.8)	71 (46.1)	88 (45.6)	0.92
Hypertension	196 (56.7)	87 (56.5)	109 (56.8)	0.96
Diabetes	68 (19.7)	31 (20.1)	37 (19.3)	0.84
Dyslipidemia	81 (23.4)	20 (18.8)	52 (27.1)	0.072
Current smoking	76 (22.0)	38 (24.7)	38 (19.8)	0.28
Antithrombotic medications	117 (33.9)	47 (30.7)	70 (36.5)	0.26
Admission NIHSS score, median (IQR)	17 (11-20)	17 (12-20)	16 (11-20)	0.78
DWI-ASPECTS<7	115 (34.7)	57 (39.3)	58 (31.2)	0.12
Site of occlusion				
MCA	200 (57.6)	69 (44.8)	131 (67.9)	<0.001
ICA siphon	89 (25.6)	56 (36.4)	33 (17.1)	
ICA siphon and MCA	58 (16.7)	29 (18.8)	29 (15.0)	
Left side occlusion	174 (50.1)	78 (50.7)	96 (49.7)	0.87
Cardio-embolic stroke aetiology	181 (52.2)	78 (50.7)	103 (53.4)	0.61
Previous use of IV thrombolysis	226 (65.1)	95 (61.7)	131 (67.9)	0.23
General anesthesia	65 (18.7)	34 (22.1)	31 (16.1)	0.15
Onset to clot contact, min, median (IQR)	283 (234-354)	301 (240-377)	269 (232-339)	0.003
Onset to groin puncture	*255 (210-324)*	*274 (217-330)*	*245 (207-315)*	*0.008*
Groin puncture to clot contact	*25 (17-33)*	*27 (18-37)*	*22 (16-30)*	*0.006*

Values expressed as number (percentage) unless otherwise indicated. * P-values calculated using Student t test or Mann-Whitney U test or Chi-square test as appropriate.

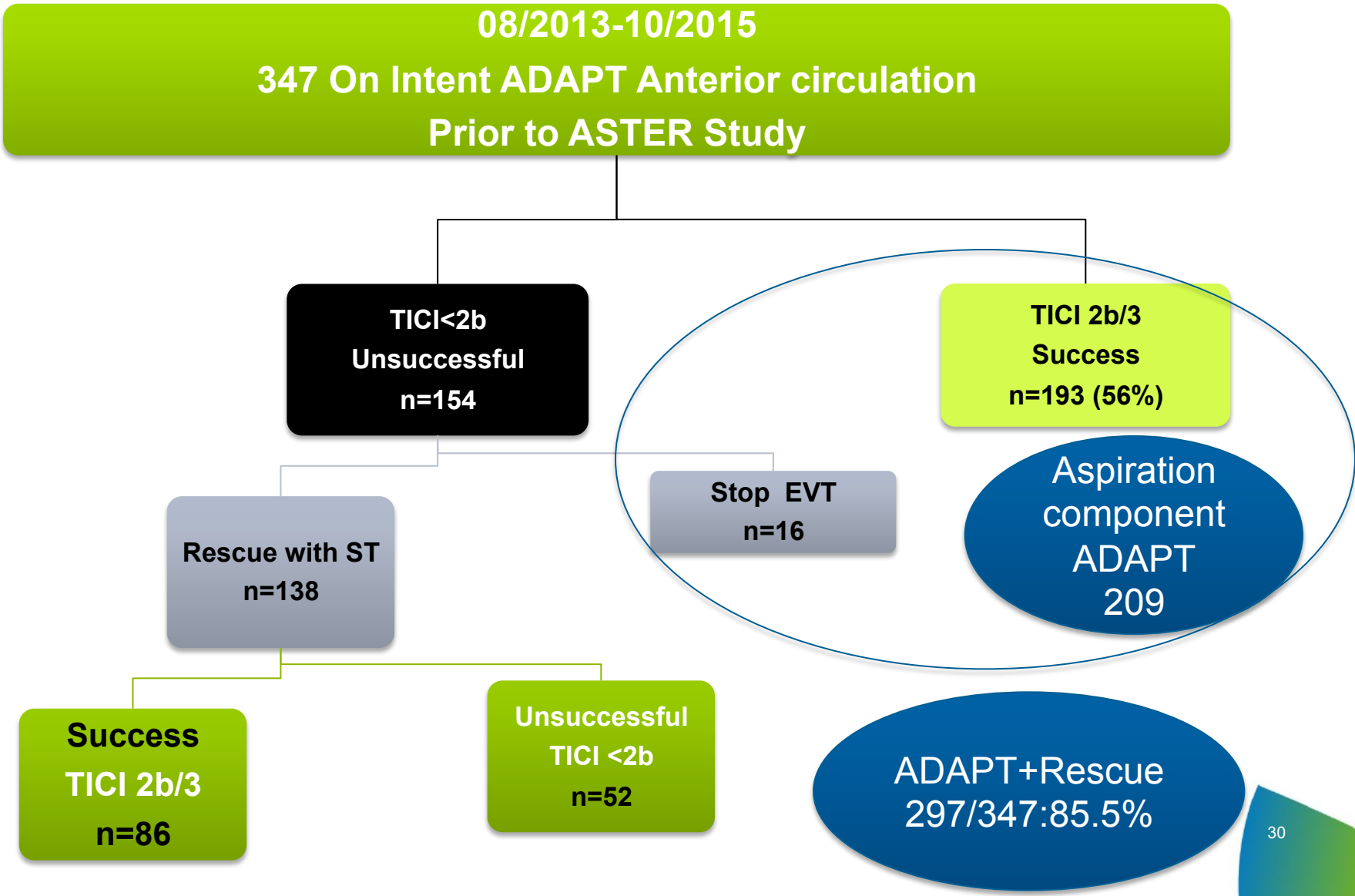
Results

- 80.0 % of cases under local anesthesia
- Cervical angioplasty in 53 cases (29 cases with stent)
- Angioplasty at the intracranial level in 13 cases (2 cases with a stent)
- IA Thrombolysis (n=3) or clot fragmentation with guidewire in (n=3) cases

Results

- **Overall ADAPT was effective in achieving a TICI2b/3 in 83.4% of 347 patients**
- **Aspiration Component pass was effective in 56% (193/347 patients) median 2 passes**
- **A rescue strategy was necessary in 138/309 patients (40.3%)**

Results


08/2013-10/2015
347 On Intent ADAPT Anterior circulation
Prior to ASTER Study
TICI<2b
Unsuccessful
n=154
TICI 2b/3
Success
n=193 (56%)
Stop EVT
n=16
Aspiration component ADAPT 209
Rescue with ST
n=138
Success
TICI 2b/3
n=86
Unsuccessful
TICI <2b
n=52
ADAPT+Rescue
297/347:85.5%

Results

ADAPT Alone first line 193/347 Cases (56%)

MCA Involved 200 cases
Success 178/200 89%
ADAPT First line: 132/200 66%
FP to desobstruction: 37 min

ICA Involved 89 cases
Success 69/89 77.5%
ADAPT First line: 33/89 37%
FP to desobstruction: 38 min

Tandem cases : 42
Success 42/50 84%
ADAPT First line: 29/42 69%
FP to desobstruction: 54 min

MCA: 200 cases
ICA: 89
Tandem: 58

Procedural complications All 21%

HSA Traction / Perforation/ Stent	5 perforation (Aspiration 1st line 3/209 1.4%) 6 Traction SHA (Aspiration1st line 1/209 0.5%)
Embol Same territory (EST) Embol new territory (ENT)	30 (Aspiration 1st line 16/209 7.5%) 22 (Aspiration 1st line 12/209 5.7%)
Dissection	8 (ADAPT 1st line 2)

Intracranial Hemorraghe H24 and delayed*>24h (273/347 available 78.7%)

(HI 1-2) PH1	116 (42%) Aspiration 1st line 72/209 34%
(PH 2)	13 (4.7%) Aspiration 1st line 4 (2%)
Delayed H	5 (1.8%)

Malignant Infarct : 6% (5 patients) 2 craniectomies

Symptomatic Hemorraghe H24: 2% (5 patients PH2)

Results

- **Three factors influenced positively the success of reperfusion with Aspiration component of ADAPT as a stand alone procedure:**

– an isolated MCA occlusion ($p<0.0001$)
– a shorter time from stroke onset-to-femoral puncture ($p=0.0156$)
– initial NIHSS

Fondation A. de Rothschild
De l'œil au cerveau

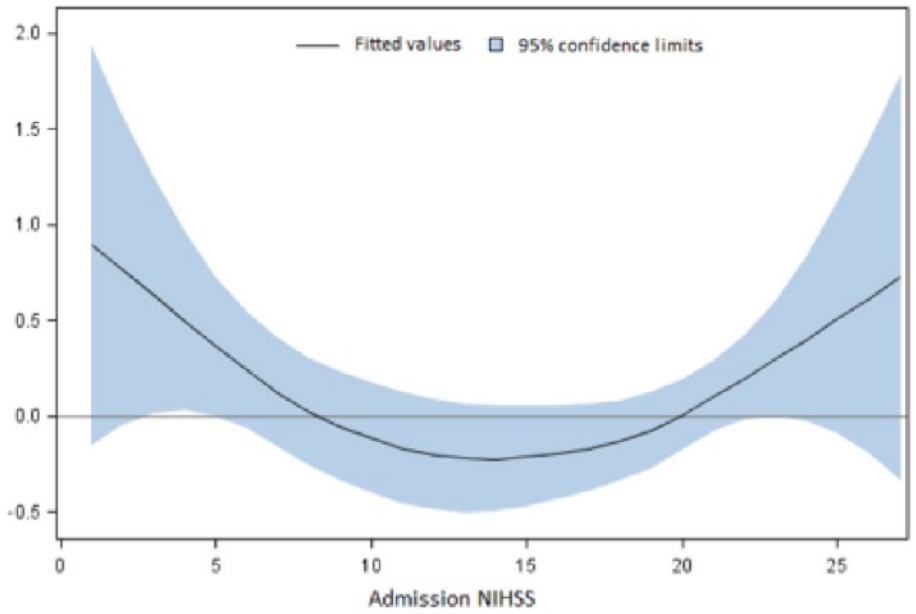
Table 2. Multivariable regression analysis of predictors of unsuccessful reperfusion after ADAPT

Predictors	OR (95%CI) *	*P*-Value*
Admission NIHSS		
NIHSS (per 5 point increase)	3.96 (1.53-10.24)	0.004
NIHSS squared	0.80 (0.68-0.94)	0.005
Onset to clot contact (per 1 log increase)	2.74 (1.37-5.45)	0.004
ICA occlusion (Isolated or in tandem with MCA)	2.47 (1.57-3.88)	<0.001

* Calculated from backward-stepwise selection logistic-model after handling missing data for candidate variables by simple imputation.

Abbreviations: ICA=internal carotid artery; CI=confidence interval; MCA=middle cerebral artery; NIHSS=National Institutes of Health Stroke Scale, OR=odds ratio.

Supplemental figure. Shape of relationship between successful reperfusion after ADAPT and admission NIHSS using restricted cubic spline function (3 knots).



Results

- **Age, Gender, DWI-ASPECTS and IV thrombolysis prior to MT did not influence the success (Final TICI score) of the ADAPT procedure**

Results

- 3-month mRS were available for 304/347 (88%)
- 136/304 (45%) had a good clinical outcome (mRS 0-2)
- death occurred in 69 patients (23%)

Fondation A. de Rothschild
De l'œil au cerveau

Results

- When ADAPT was the sole technique used to achieve satisfactory reperfusion, 3-month mRS≤2 was achieved in 70% of the patients
- When rescue therapy was used after failure of ADAPT, only 41% of mRS≤2 at 3-months was achieved (p=0.0001)

Results

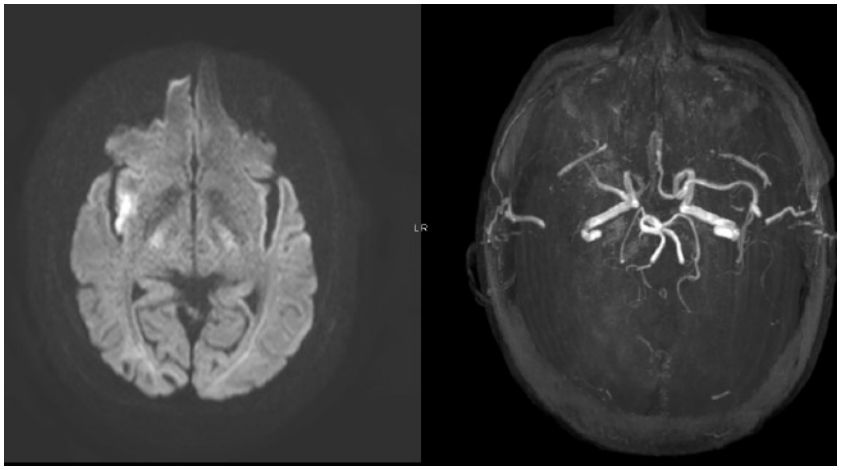
- **In the anterior circulation, starting with ADAPT first is effective in 56% to achieve TICI2B/3**
  - MCA: 65%
  - ICA: 36%
  - Tandem 50%

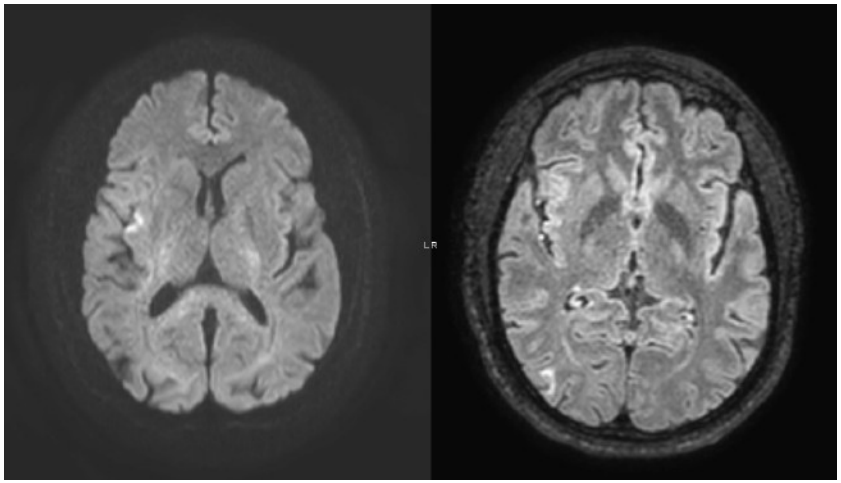
- **A rescue strategy with the use of other techniques (ADAPT +stentrievers) can achieve a recanalization rate with TICI2B/3 in 83.4%**

Summary
ADAPT versus Stent retriever: TICI 2b-3

TICI 2b-3 %	MR CLEAN	ESCAPE	Turk A, 2013	Kowoll, 2015	Rothschild series
ADAPT ±Stent Retriever	---	---	95	87.5	83.4
Stent retriever	58.7	72.4	---	---	---

Case 1 BA HAOUKA



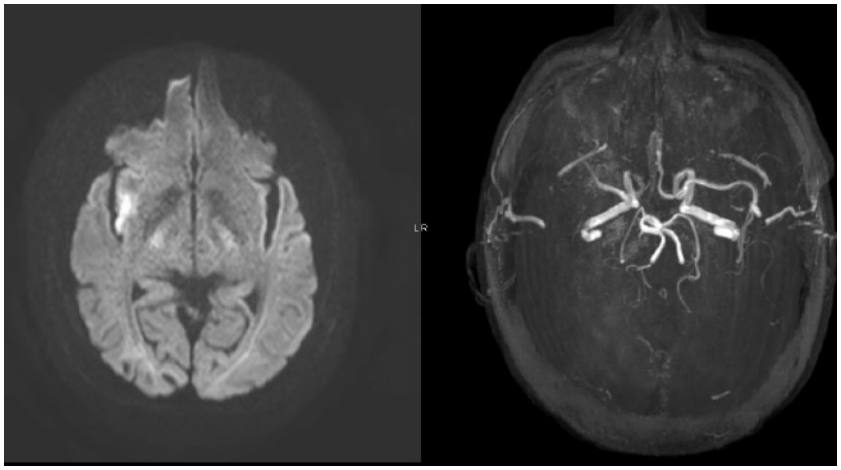


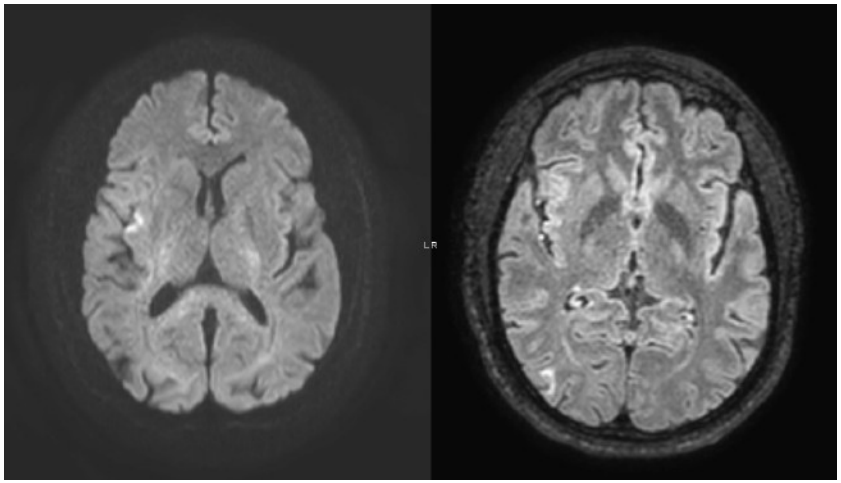
- 47 YO Male
- History of stroke (complete recovery)

October 27, 2015 :

- 9:40 pm : left hemiparesis and dysarthria (NIHSS 10)
- 10:52 pm : MRI showing insular DWI restriction and right MCA occlusion

Case 1





- 47 yo man
- History of recent stroke (complete recovery

October 27, 2015 :

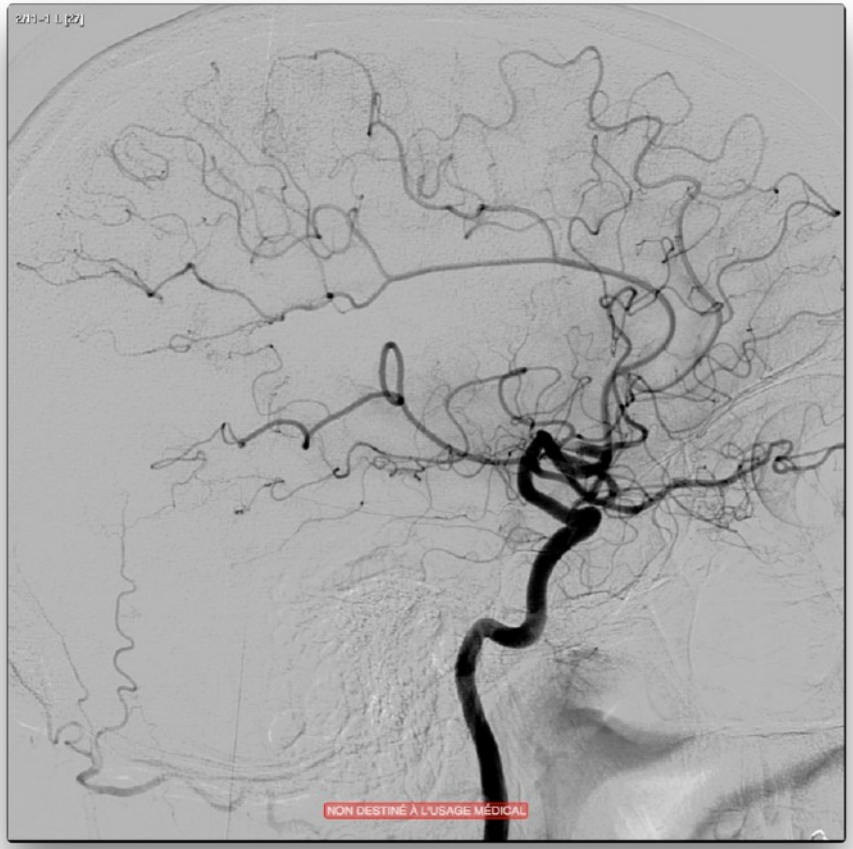
- 9:40 pm : left hemiparesis and dysarthria (NIHSS 10)
- 10:52 pm : MRI showing insular DWI restriction and right MCA occlusion (DWI ASPECT 8), no rt-PA

Case 1

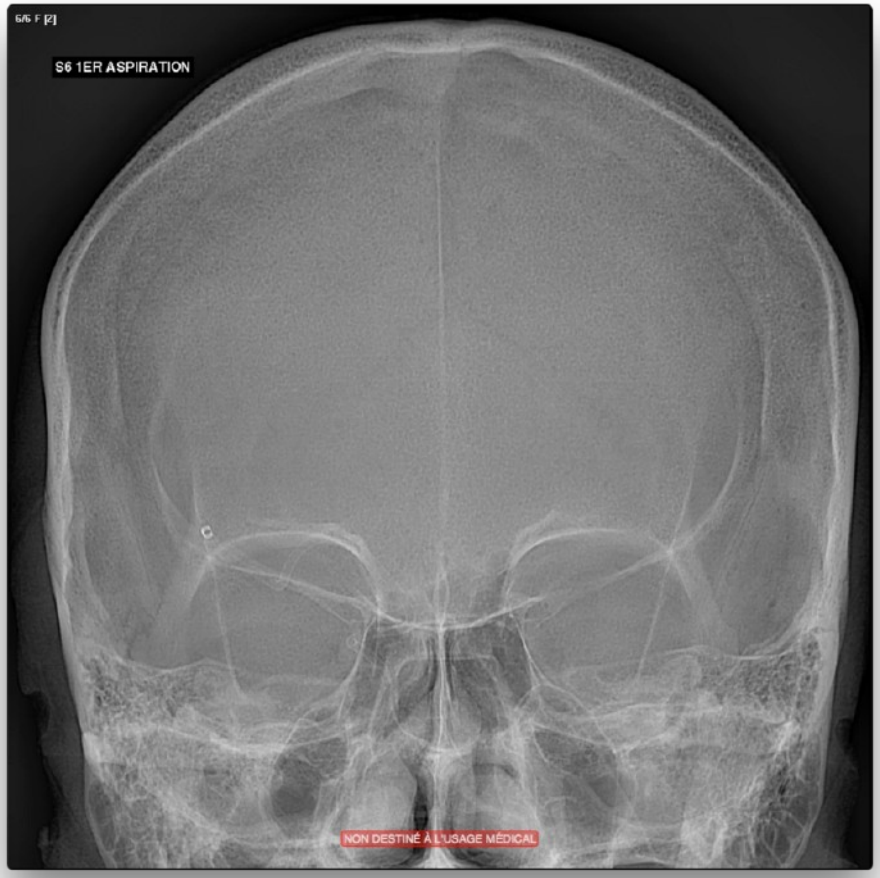
- ADAPT
- M2 occlusion
- 3 aspirations

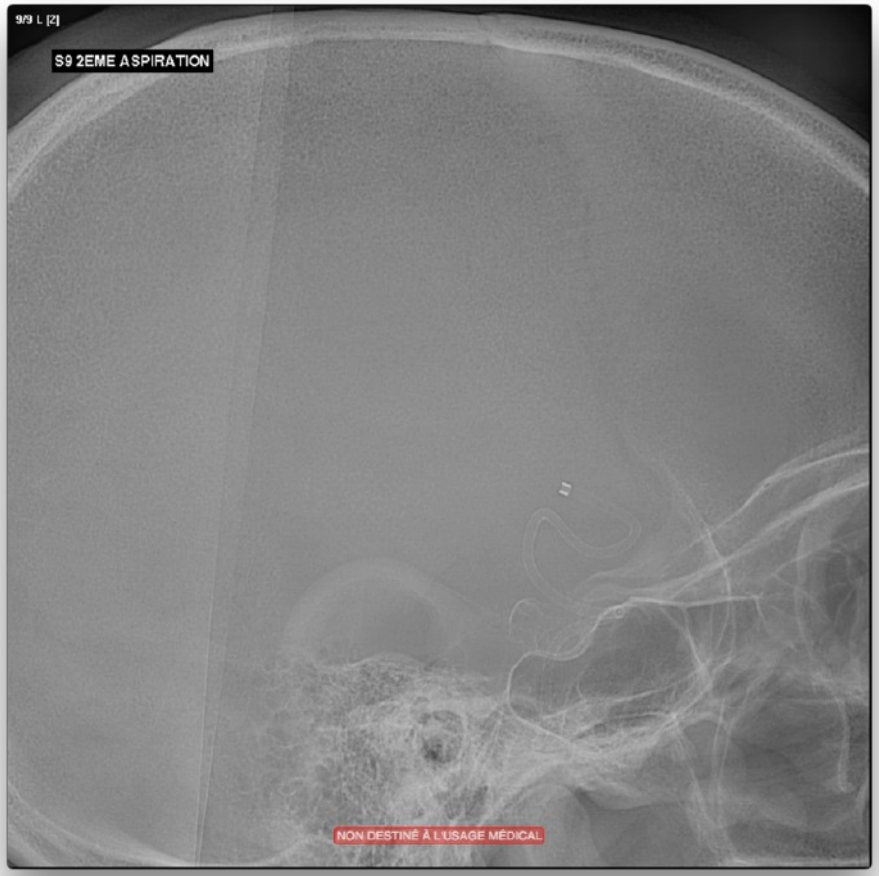
- TICI2B

Case 1

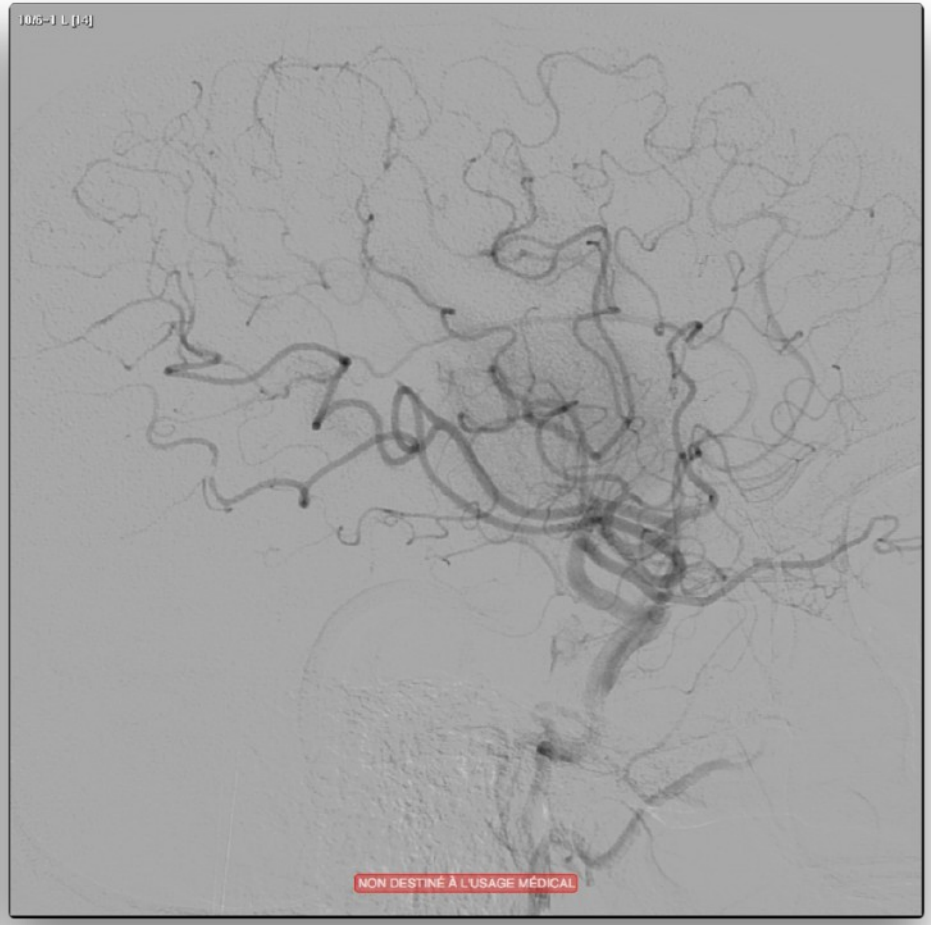


Case 1


S6 1ER ASPIRATION
NON DESTINÉ À L'USAGE MÉDICAL


S9 2EME ASPIRATION
NON DESTINÉ À L'USAGE MÉDICAL

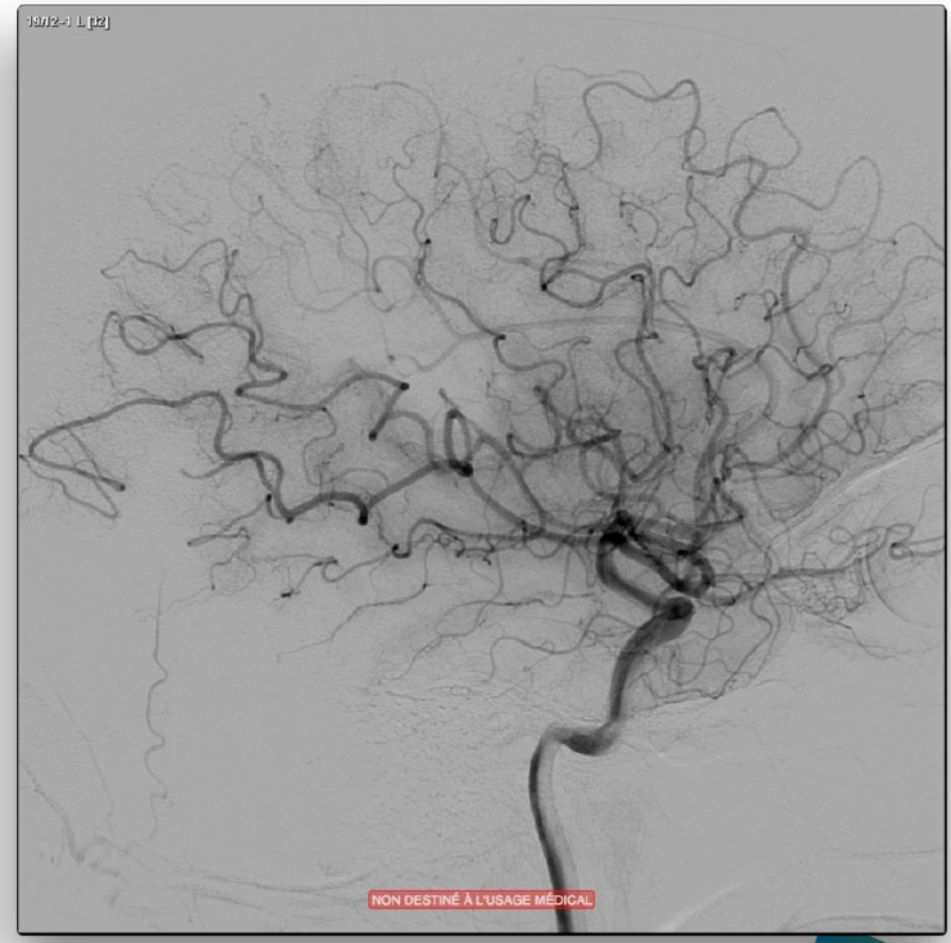
Case 1



Case 1


S13 3EME ASPIRATION 3MAX
NON DESTINÉ À L'USAGE MÉDICAL
S13 3EME ASPIRATION 3MAX
NON DESTINÉ À L'USAGE MÉDICAL

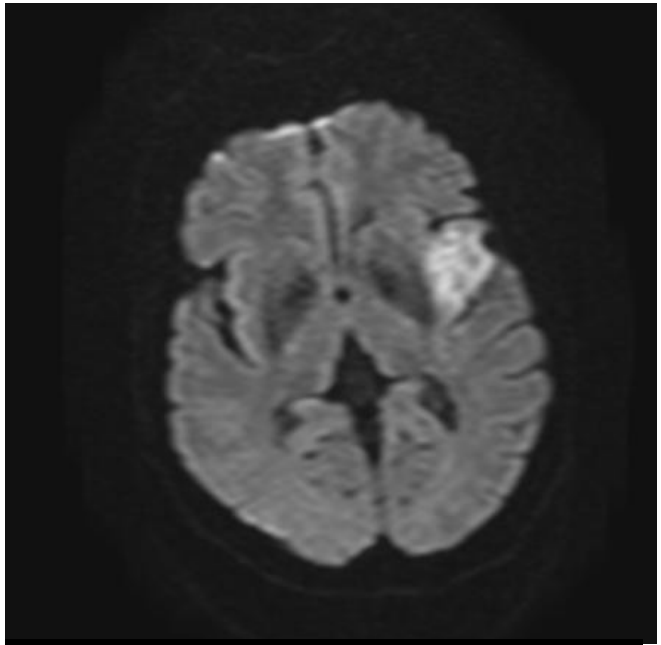
Case 1



Case 1

- **Time from groin puncture to recanalization : 25 min to TICI2B**

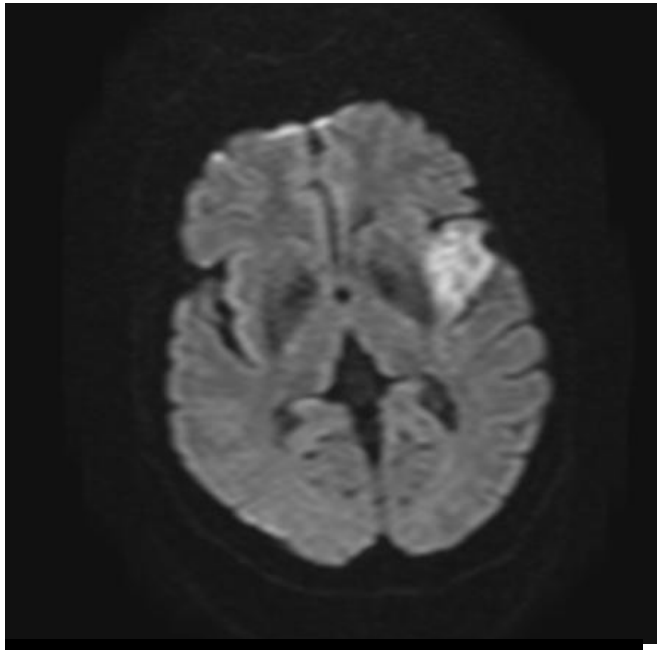
- **3 months Outcome : mRS 1**



- 55 YO Female
- History of stroke
  (complete recovery)

October 27, 2015 :

- 7:00am: right hemiparesis and dysphasia
- 11:55am : MRI showing surface cortex DWI restriction (ASPECT 7) and left MCA occlusion



- 55 YO Female
- History of stroke (complete recovery)

October 27, 2015 :

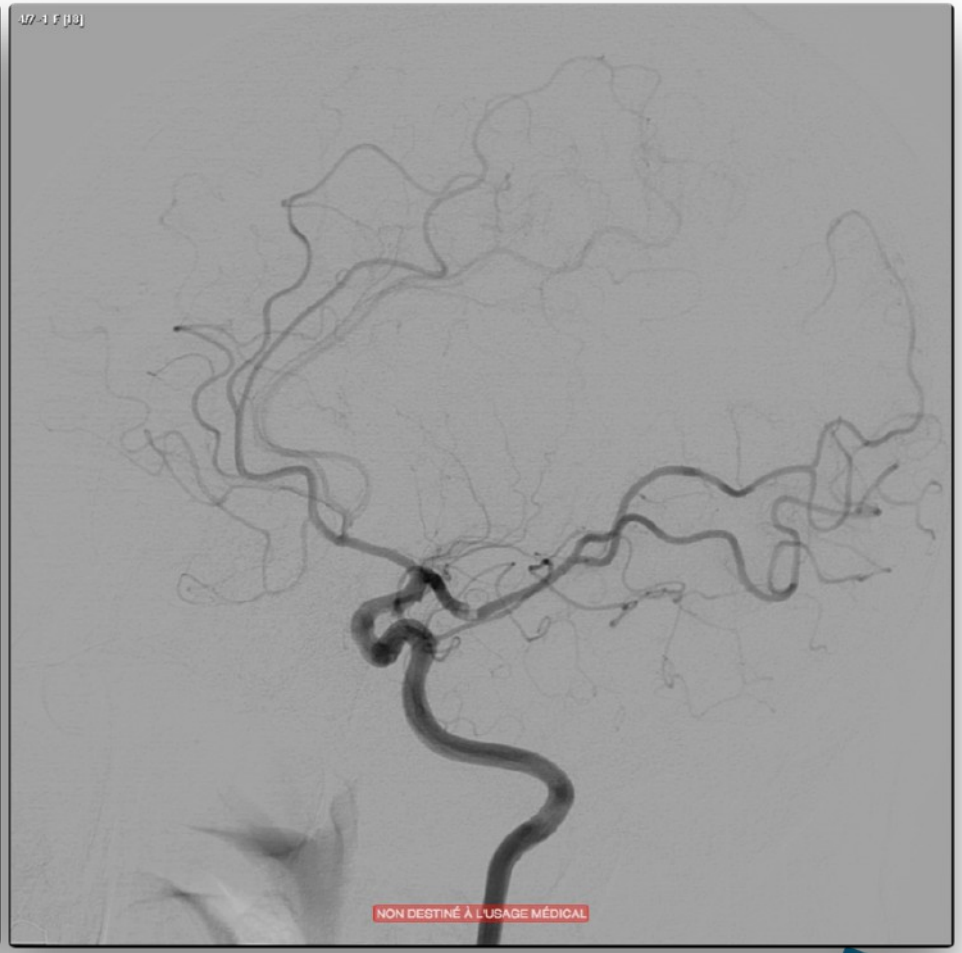
- 7:00am: right hemiparesis and aphasia (NIHSS 10)
- 11:55am: MRI showing surface cortex DWI restriction (DWI ASPECT 7) and left MCA occlusion

Case 2 :

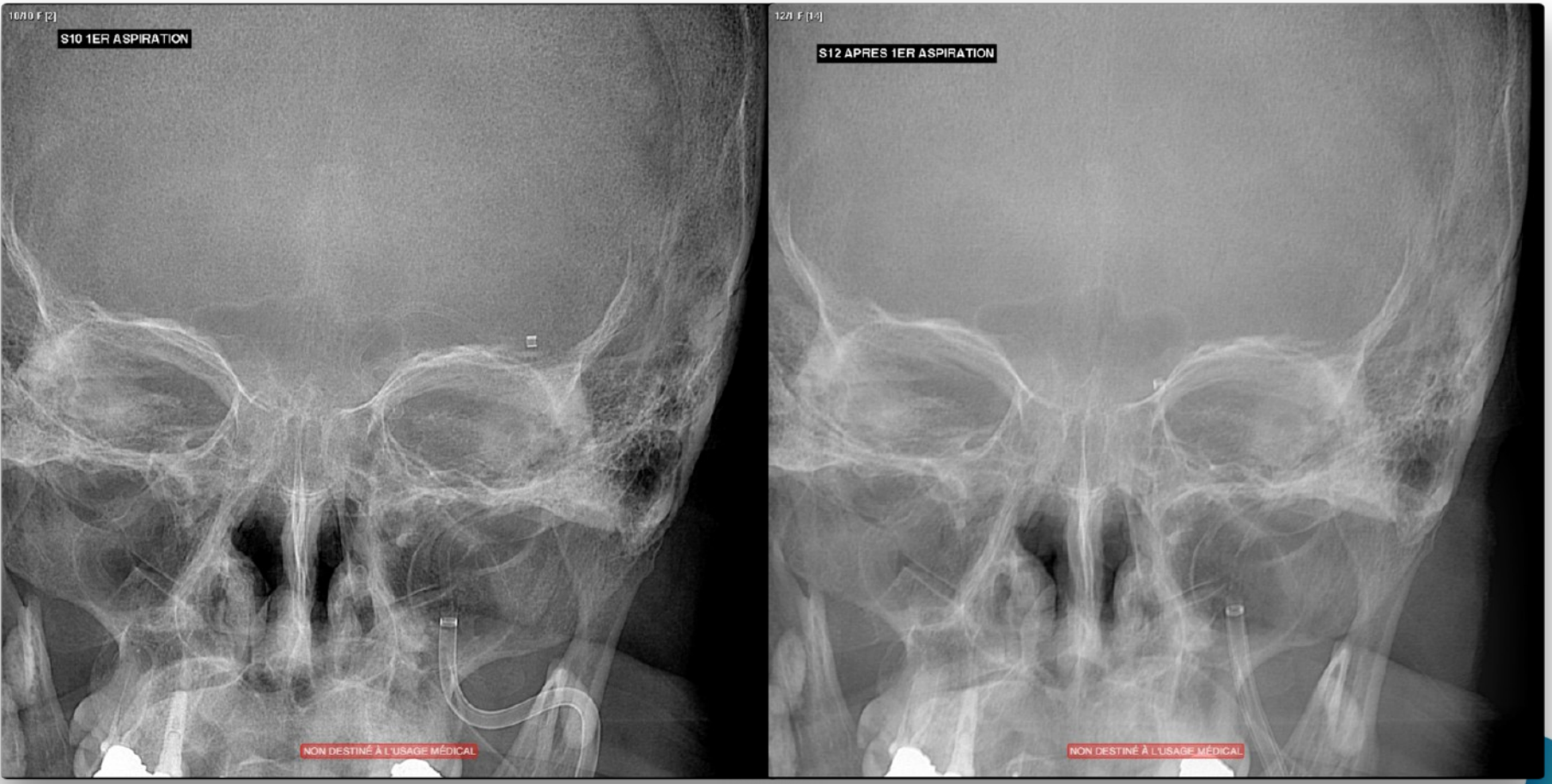
- ADAPT
- M2 superior branch occlusion
- M1 floating clot

- Neuron Max 6F/5Max ACE/Synchro 14
- 1 aspiration
- TICI 2b

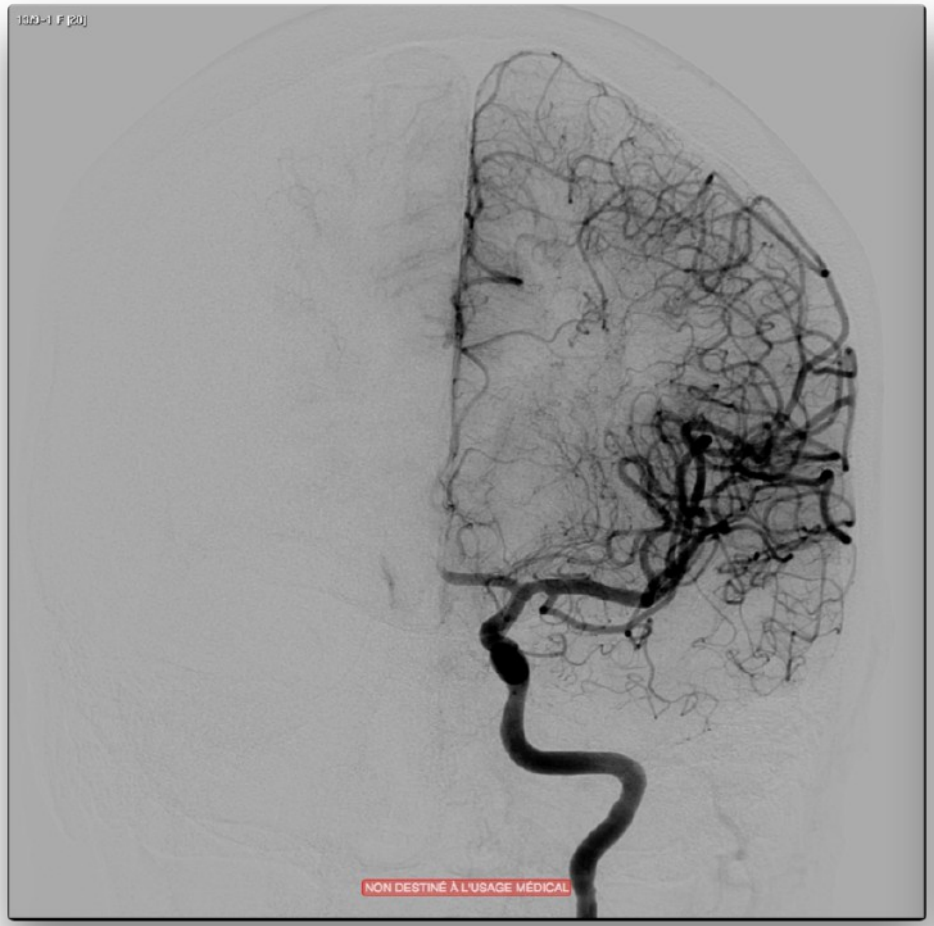
Case 2



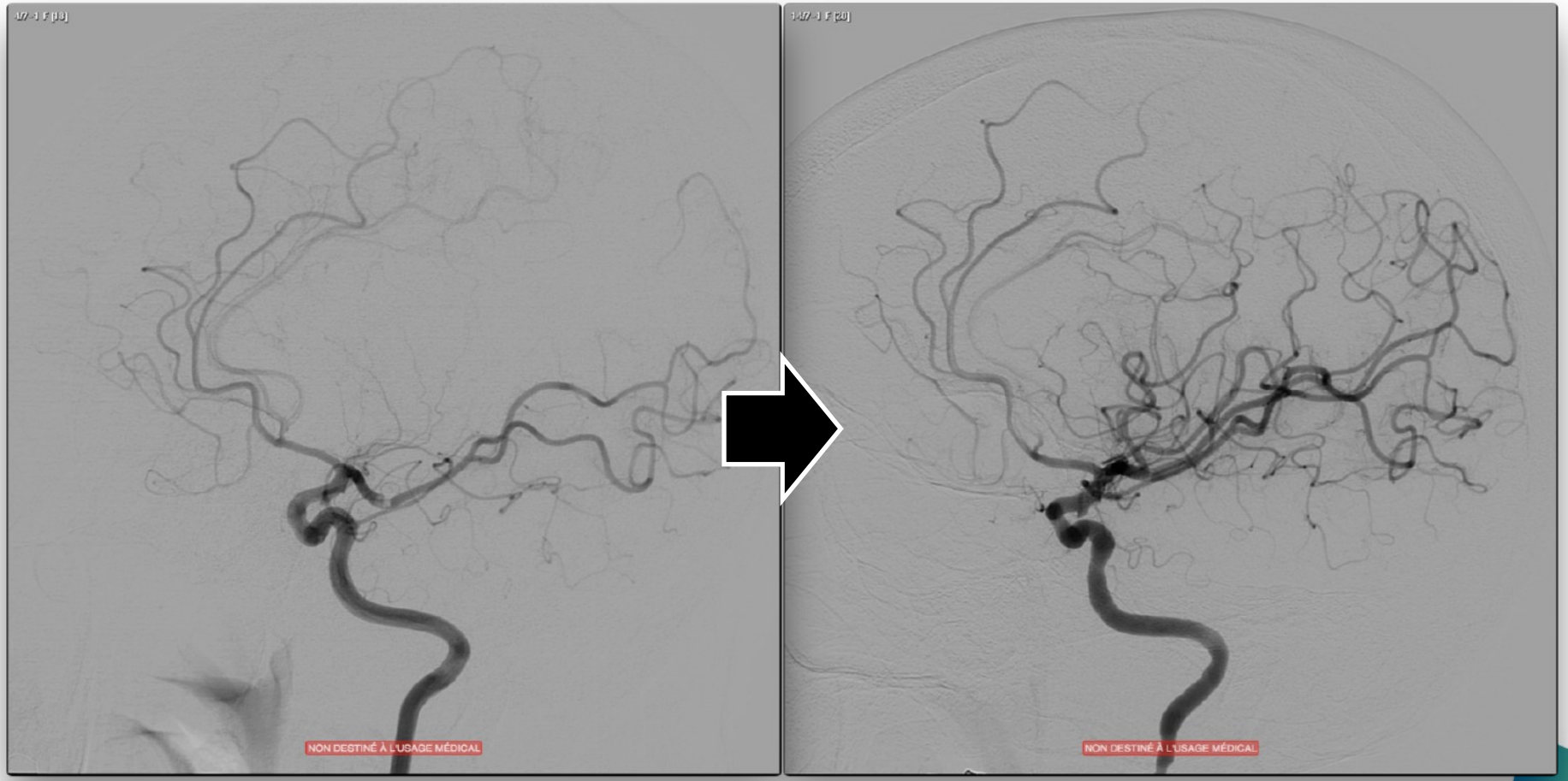
Case 2


S10 1ER ASPIRATION
NON DESTINÉ À L'USAGE MÉDICAL
S12 APRES 1ER ASPIRATION
NON DESTINÉ À L'USAGE MÉDICAL

Case 2



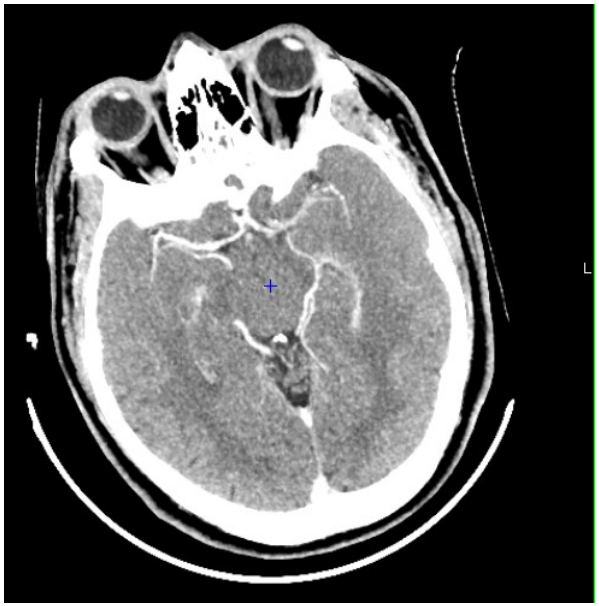
Case 2



Case 2 :

- **Time from groin puncture to recanalization : 30 min to TICI2B**
- **3 months Outcome : mRS 1**

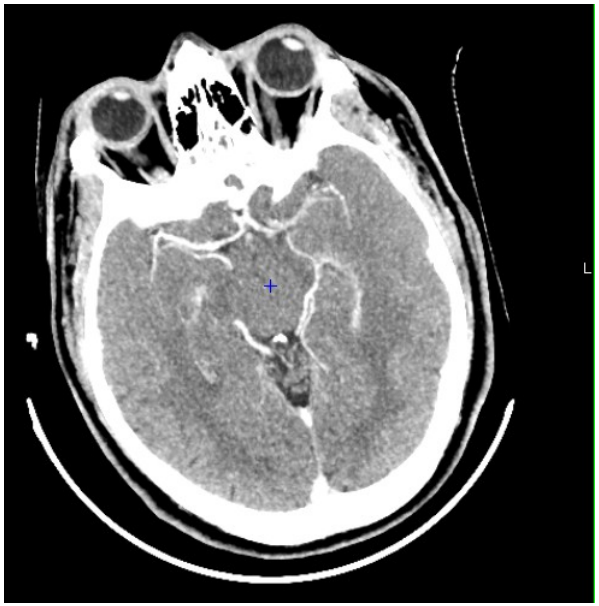
VID



- 47 YO male
- History of atrial fibrillation (xarelto)

October 9, 2015 :

- 2:00am: right hemiparesis and aphasia (NIHSS 24)
- 4:43am : CT showing left MCA occlusion (CT-ASPECT 9)



- 47 yo man
- History of atrial fibrillation (Xarelto)

October 9, 2015 :

- 2:00am: right hemiparesis and aphasia (NIHSS 24)
- 4:43am : CT showing left MCA occlusion (CT ASPECT 9)

Case 3 :

- No thrombolysis
- ADAPT
- M3 occlusion
- Neuron Max 6F/ 5Max ACE/ Velocity/ Synchro14
- 1 aspiration

TICI 3

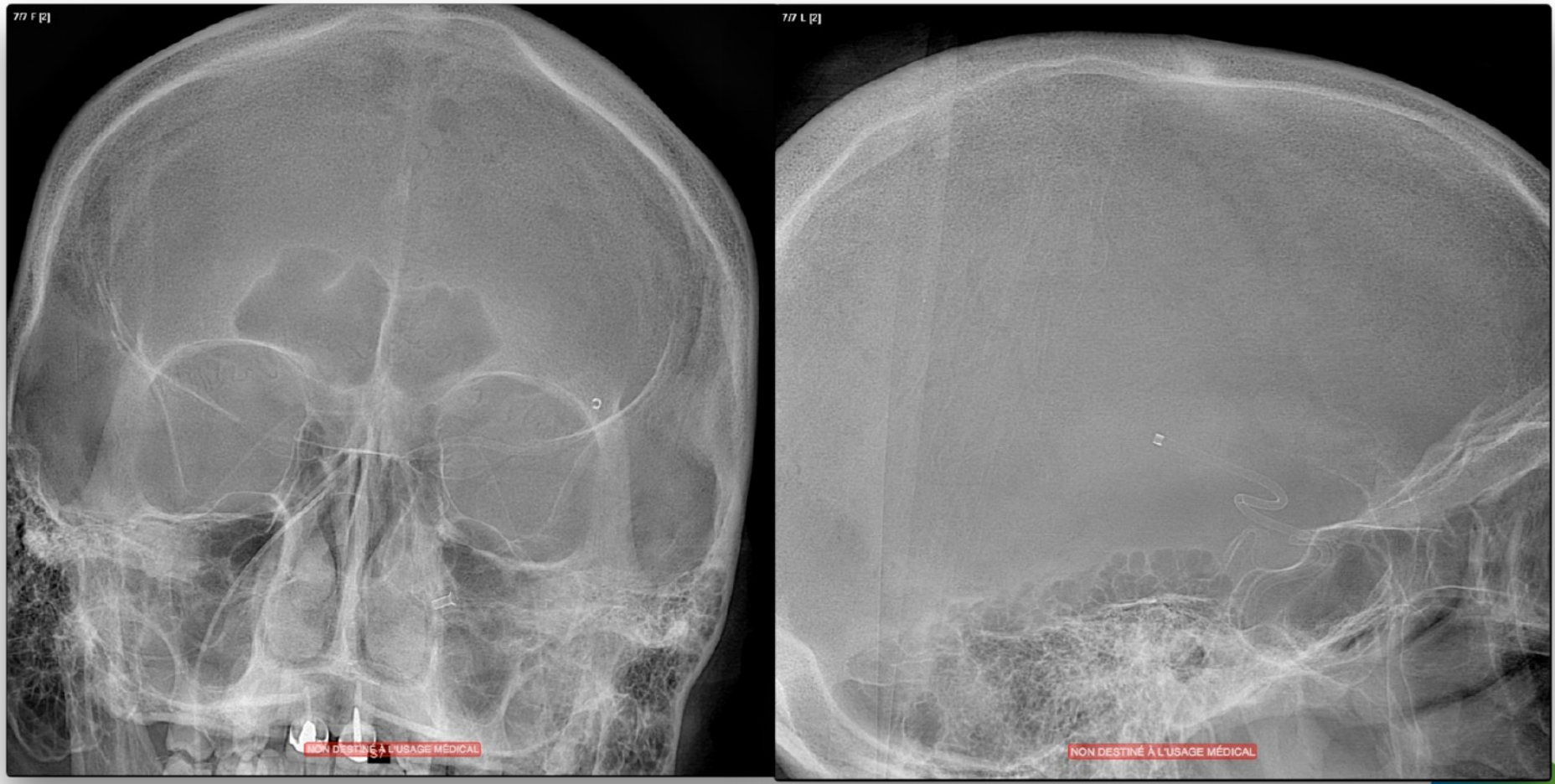
Case 3

Case 3

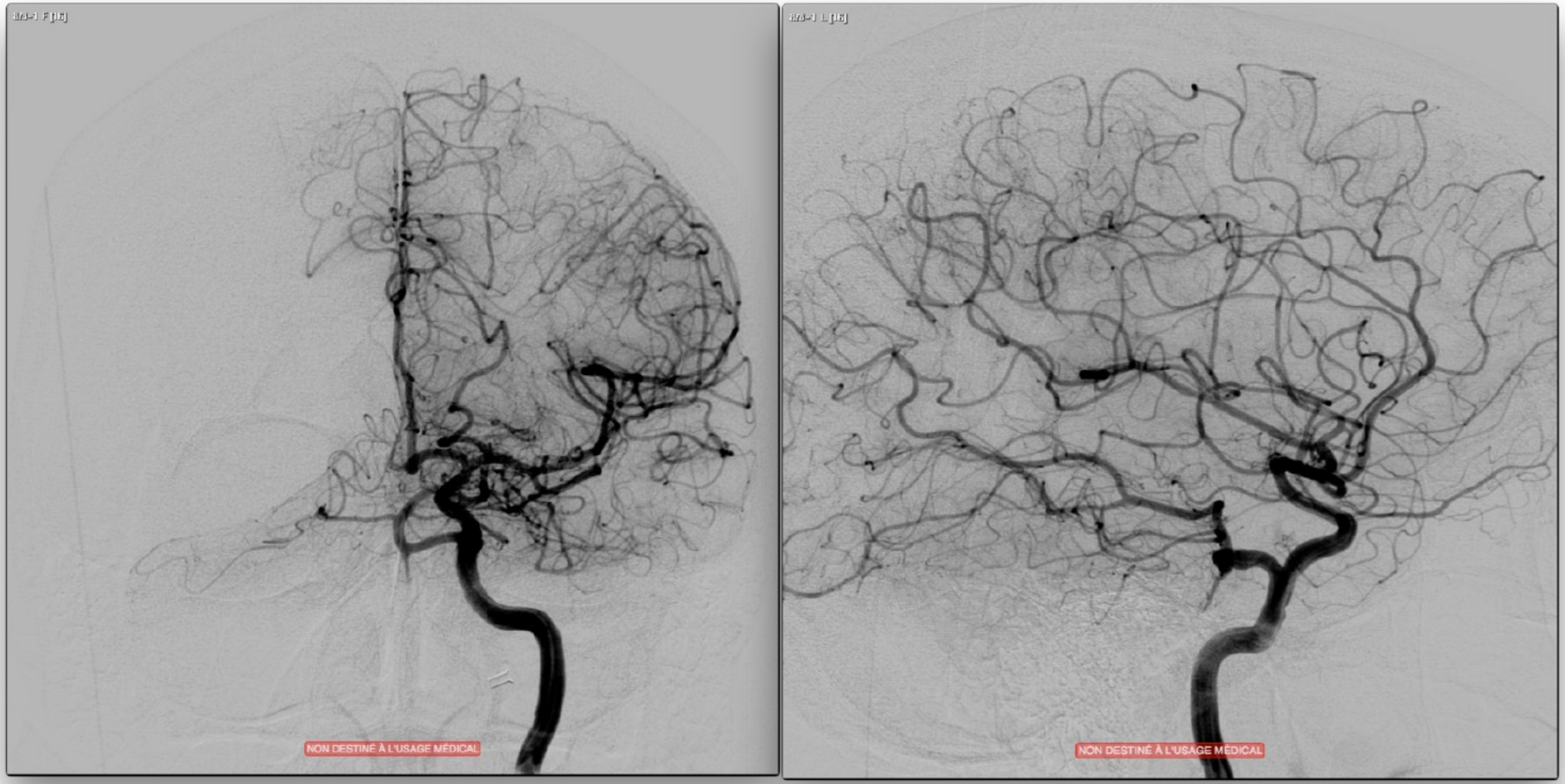

NON DESTINÉ À L'USAGE MÉDICAL
S6 CONTACT CAILLOT


NON DESTINÉ À L'USAGE MÉDICAL

Case 3


7/7 F [2]
NON DESTINÉ À L'USAGE MÉDICAL
7/7 L [2]
NON DESTINÉ À L'USAGE MÉDICAL

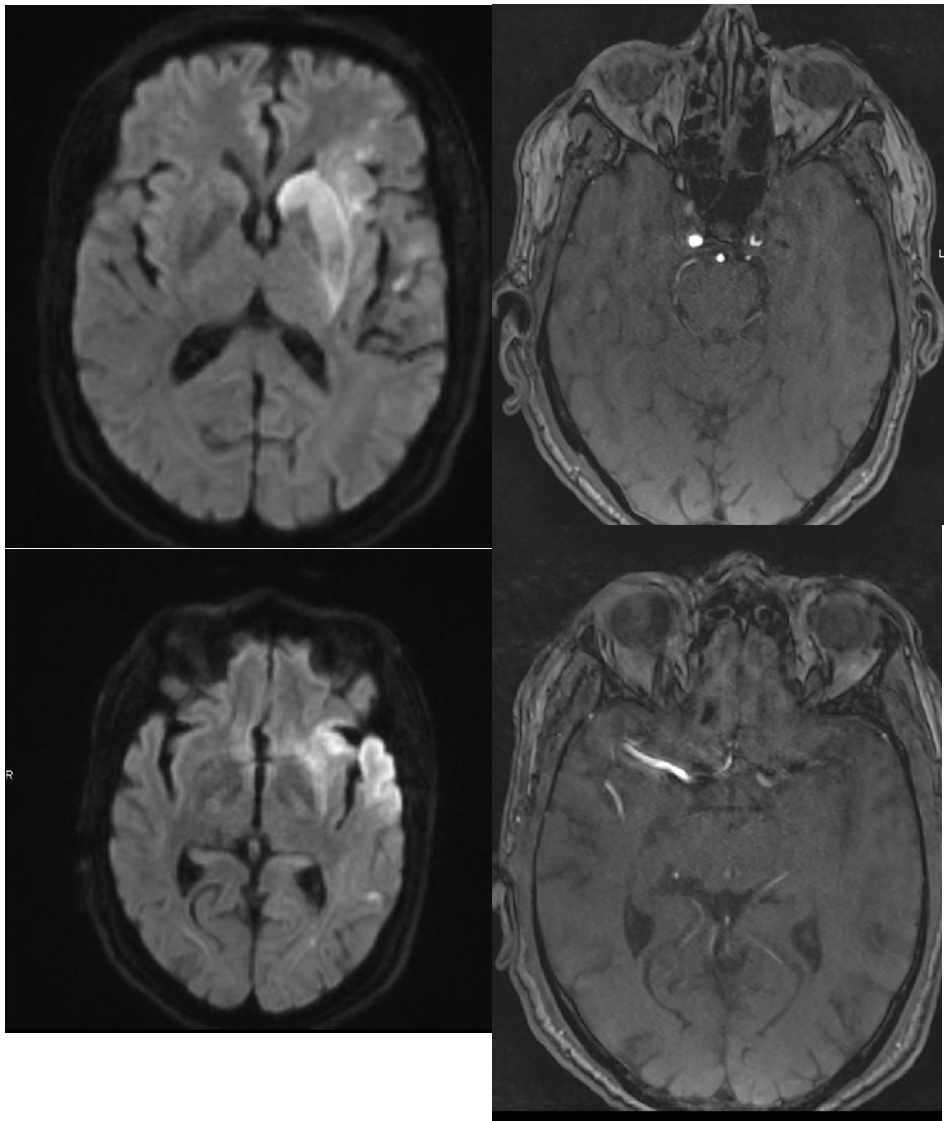
Case 3



Case 3 :

- **Time from groin puncture to recanalization : 23 min to TICI 3**
- **3 months Outcome : mRS 1**

Case 4 : EZZRARI LARBI

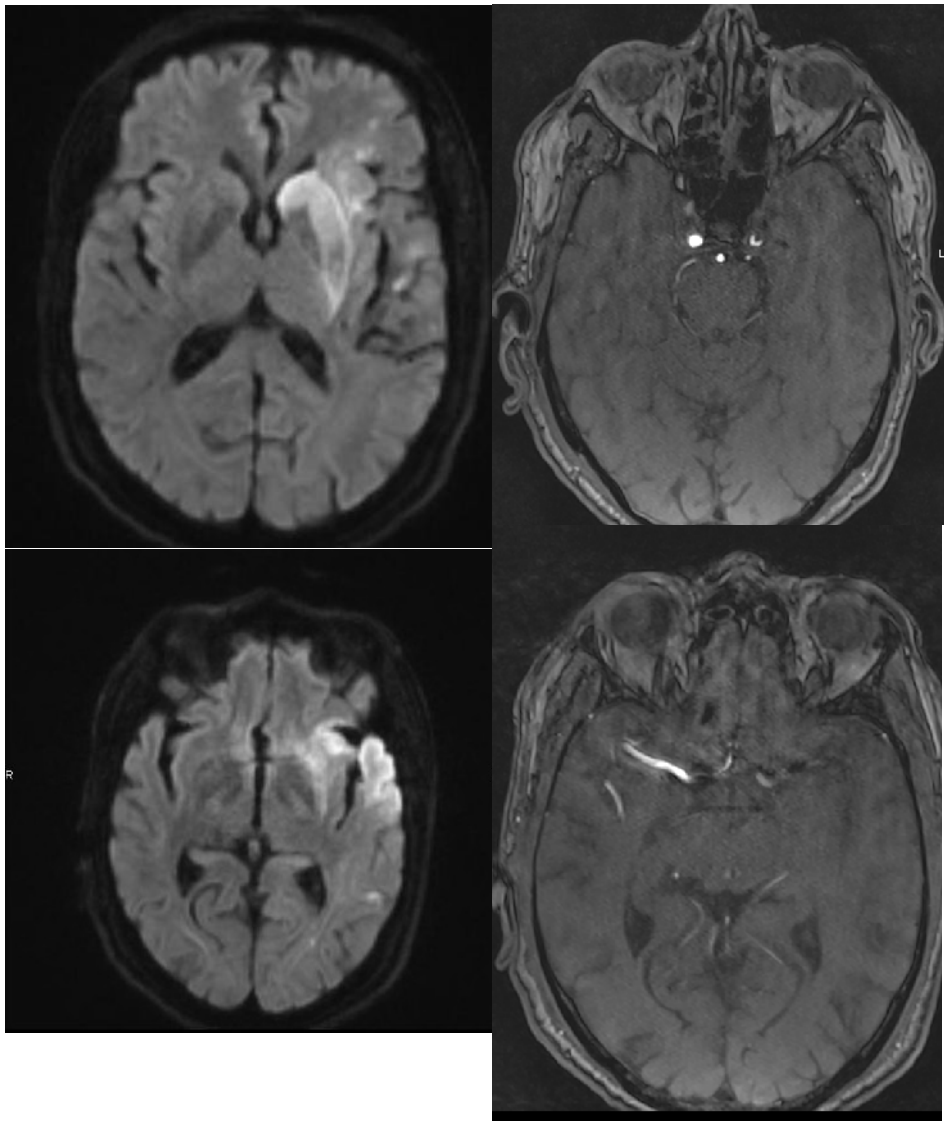


- 74 YO male
- History of atrial fibrillation (treatments unknown)

December 11, 2015 :

- 10:30am: right hemipalsy and aphasia (NIHSS 26)
- 12:00am : MRI showing superficial cortex and lenticular nucleus, caudate nucleus DWI restriction (ASPECT 4) and left MCA occlusion

Case 4 :

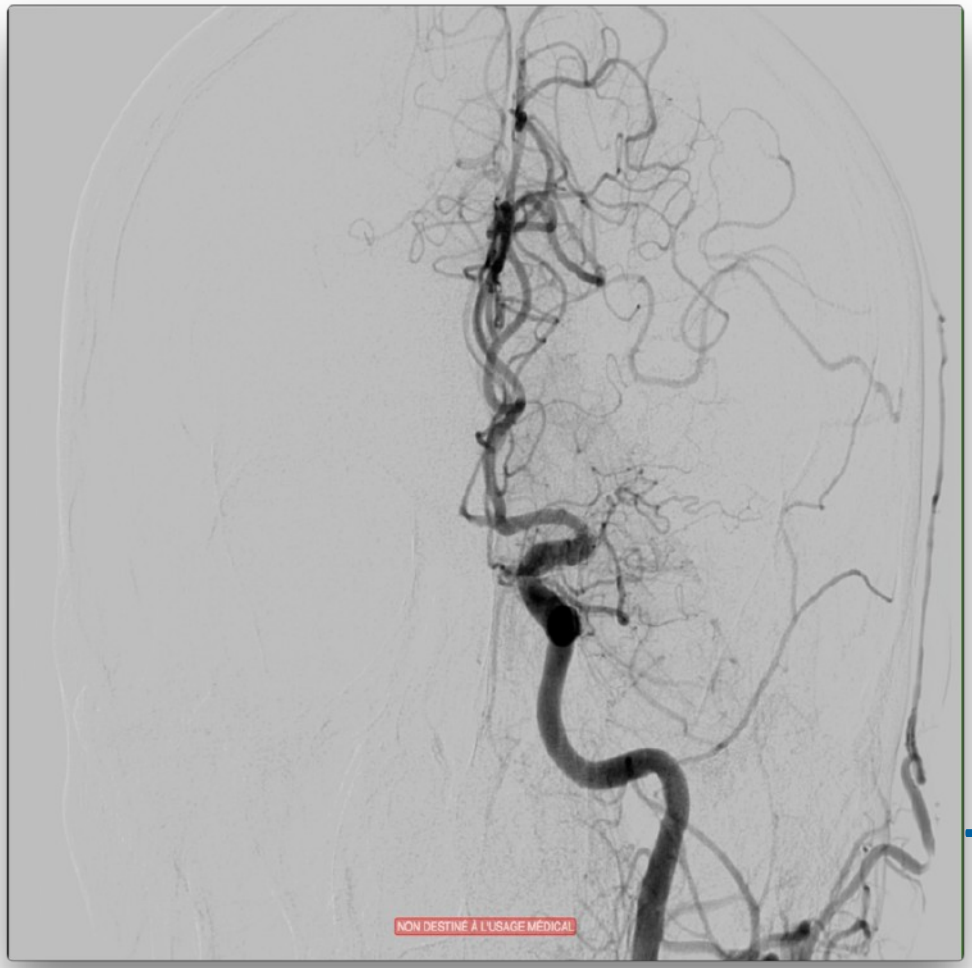


- 74 YO male
- History of atrial fibrillation (treatments unknown)

December 11, 2015 :

- 10:30am: right hemipalsy and aphasia (NIHSS 26)
- 12:00am : MRI showing superficial cortex and lenticular nucleus, caudate nucleus DWI restriction (ASPECT 4) and left MCA occlusion

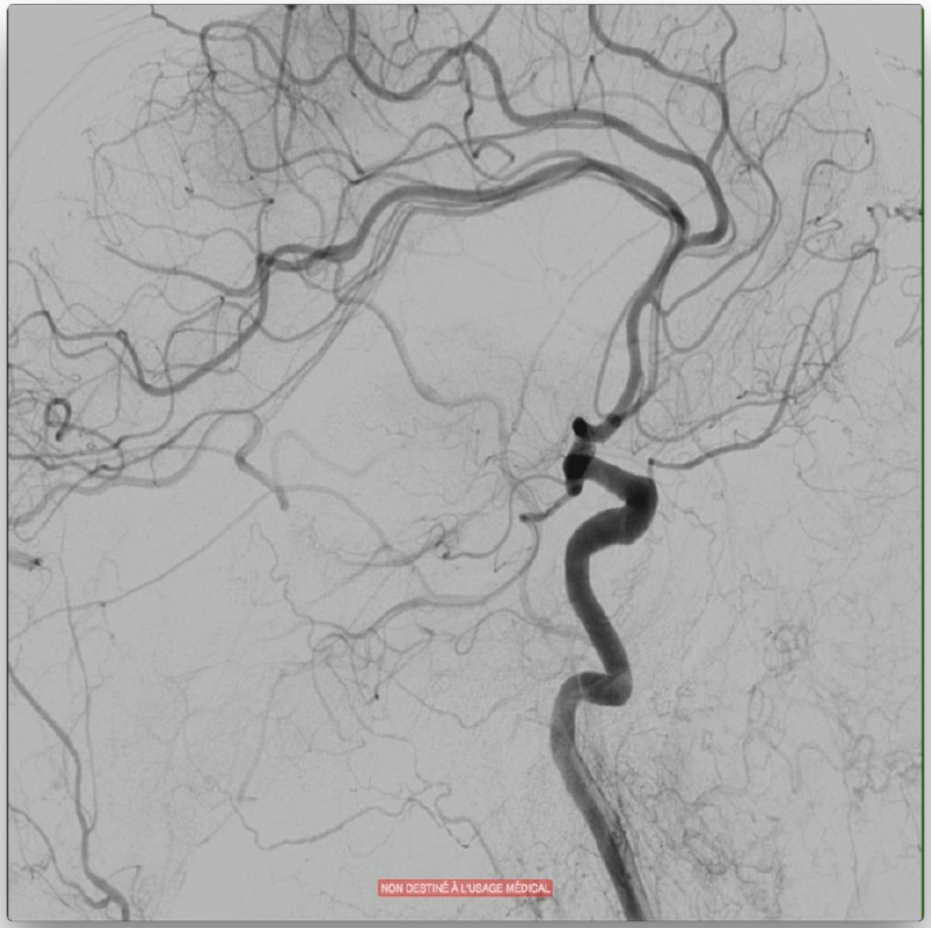
Case 4 :



- Thrombolysis
- ADAPT
- M1 occlusion
- Neuron Max 6F/ ACE64/ 3Max /Synchro14
- 2 aspirations

TICI 2b

Case 4 :

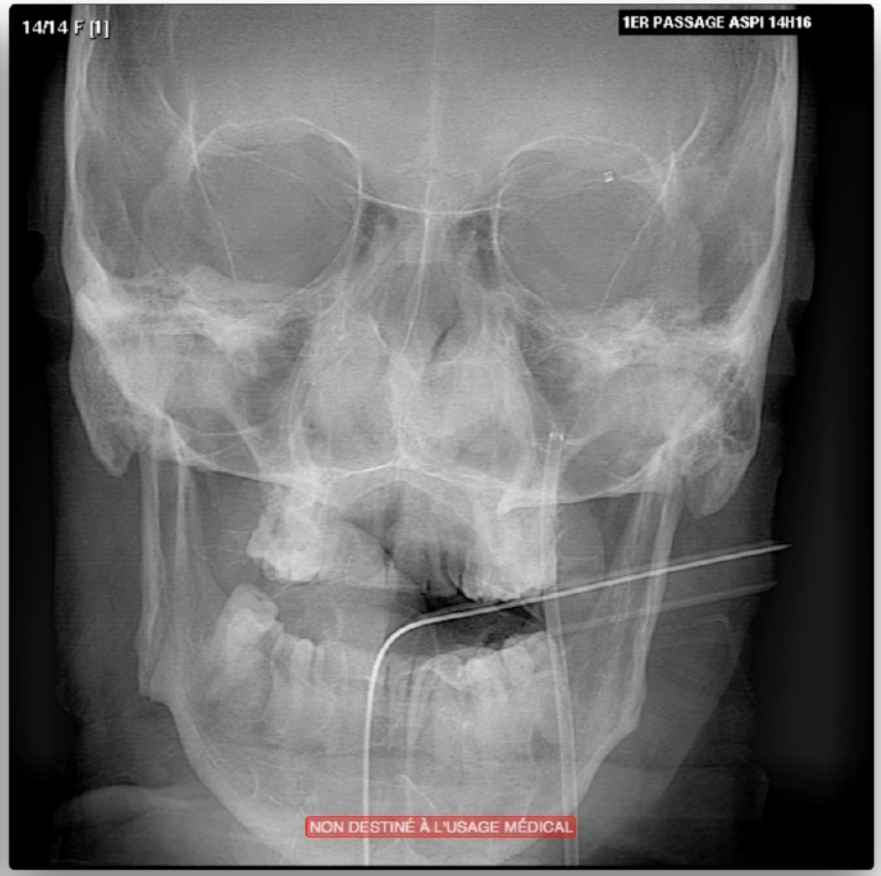


- Thrombolysis
- ADAPT
- M1 occlusion
- Neuron Max 6F/ ACE64/ 3Max /Synchro14
- 2 aspirations

TICI 2b

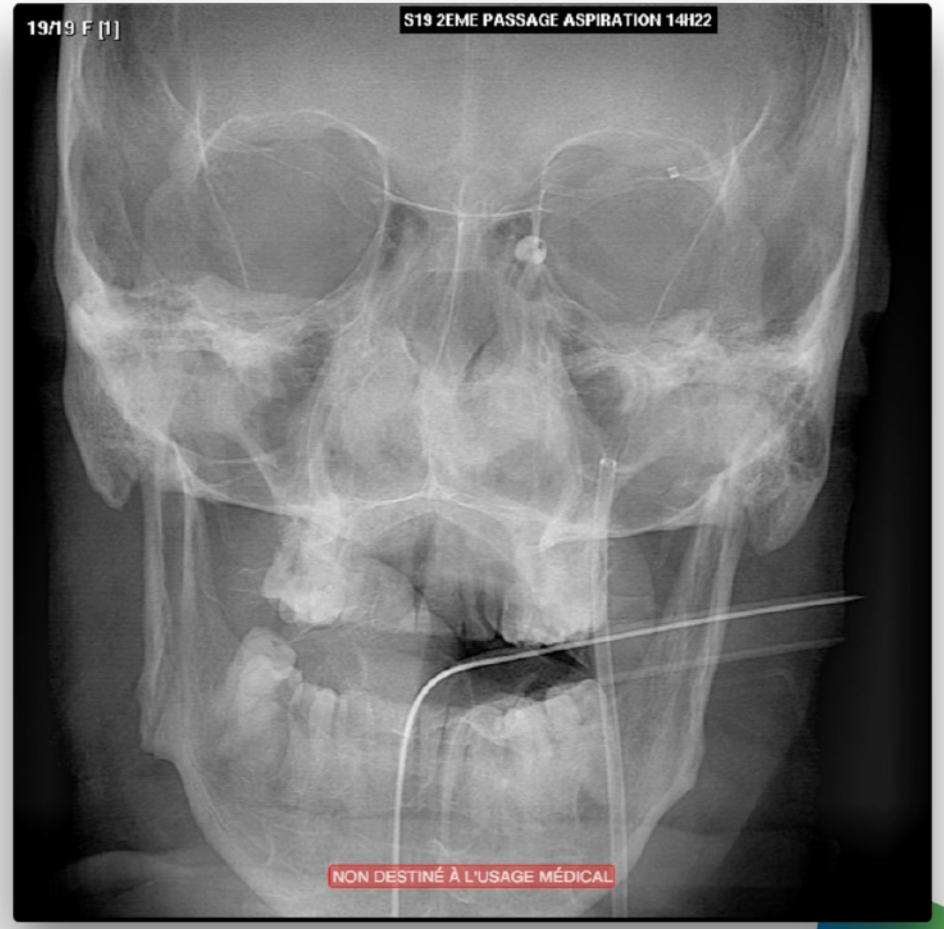
Case 4 :


NON DESTINÉ À L'USAGE MÉDICAL

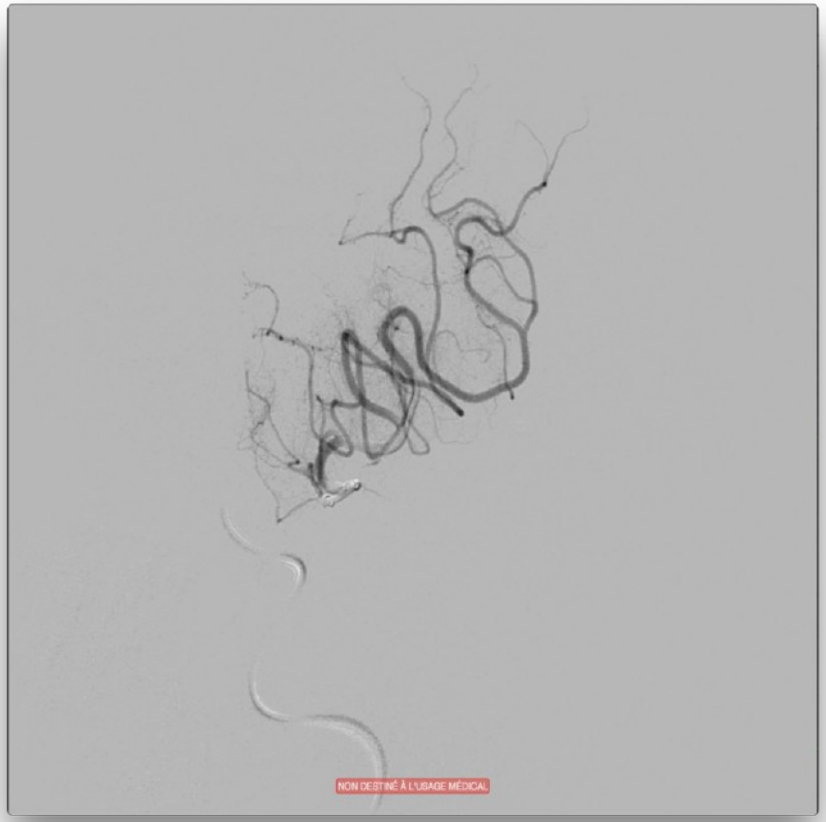

14/14 F [1]
1ER PASSAGE ASPI 14H16
NON DESTINÉ À L'USAGE MÉDICAL

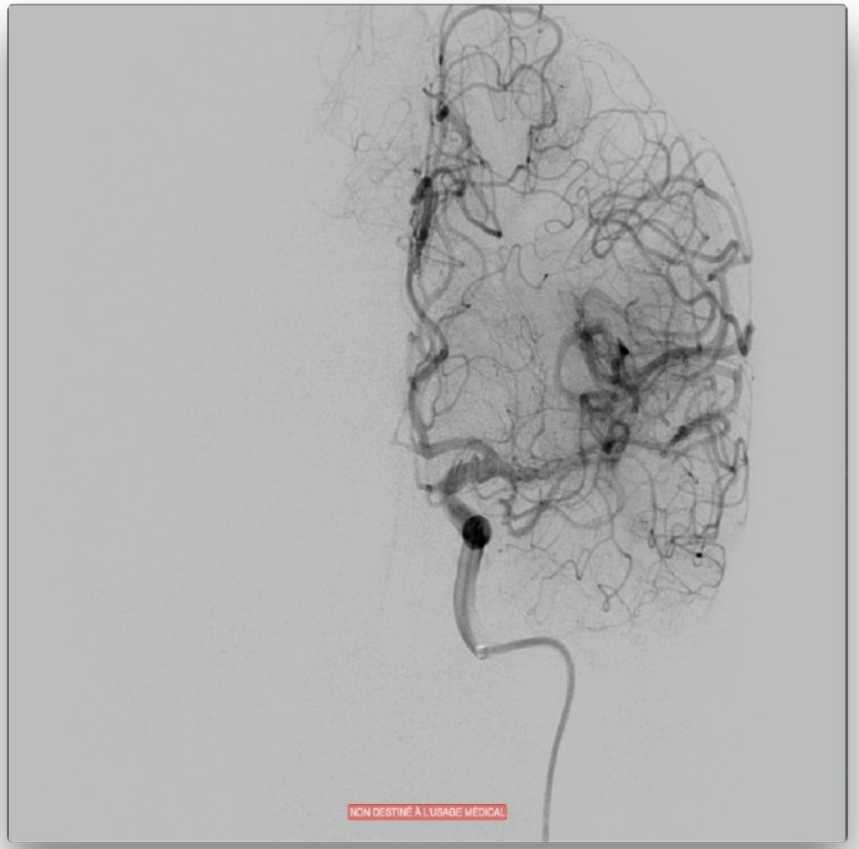
Case 4 :

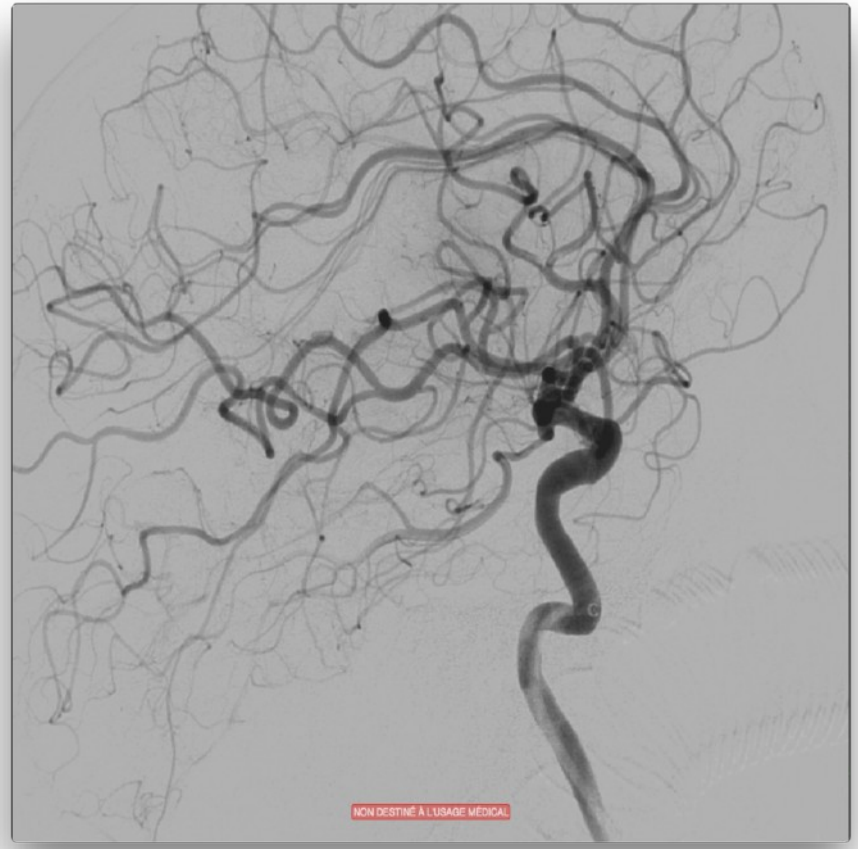

NON DESTINÉ À L'USAGE MÉDICAL


19/19 F [1]
S19 2EME PASSAGE ASPIRATION 14H22
NON DESTINÉ À L'USAGE MÉDICAL


NON DESTINÉ À L'USAGE MÉDICAL


NON DESTINÉ À L'USAGE MÉDICAL

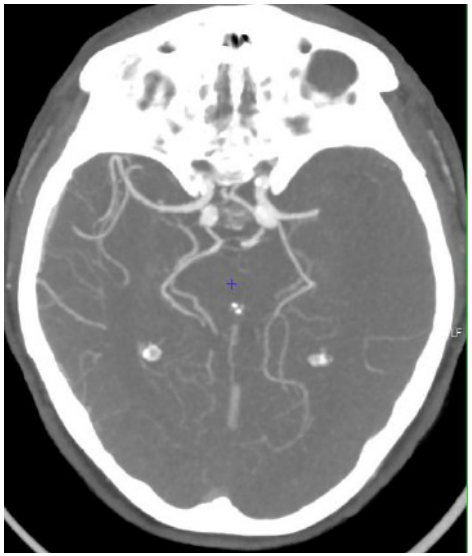

NON DESTINÉ À L'USAGE MÉDICAL


NON DESTINÉ À L'USAGE MÉDICAL

Case 4 :

- **Time from groin puncture to recanalization : 49 min**
- **3 months Outcome :mRS 2**

Case 5 LOOSDREGT JEANNINE

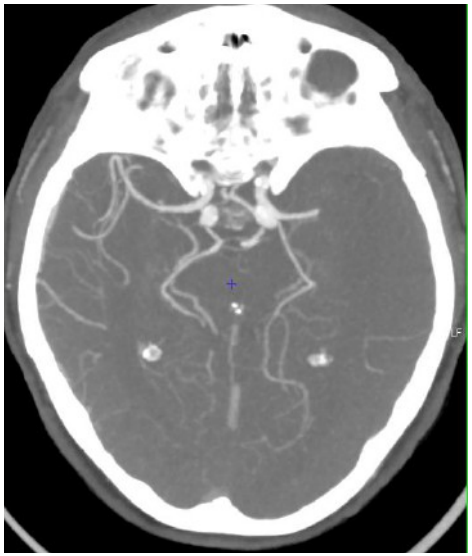


- 82 YO male
- Medical history unknown

November 21, 2015 :

- 8:30pm: right hemipalsy and aphasia (NIHSS 18)
- 9:40am : CT with angioCT showing left MCA occlusion

Case 5

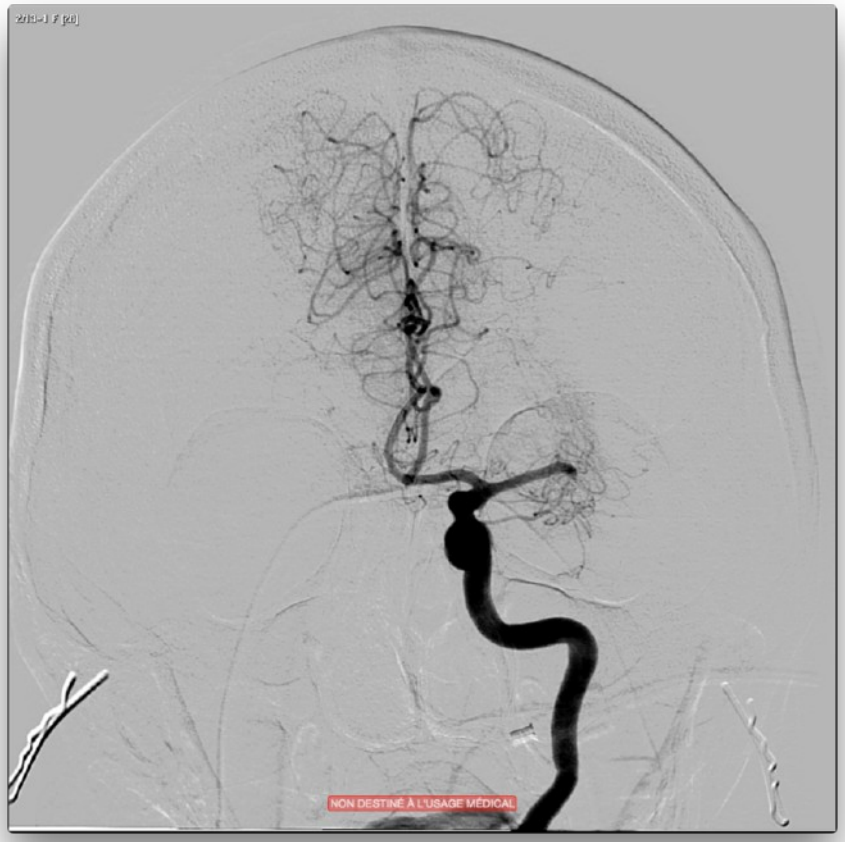


- 82 YO male
- Medical history unknown

November 21, 2015 :

- 8:30pm: right hemipalsy and aphasia (NIHSS 18)
- 9:40am : CT with angioCT showing left MCA occlusion (CT ASPECT 10)

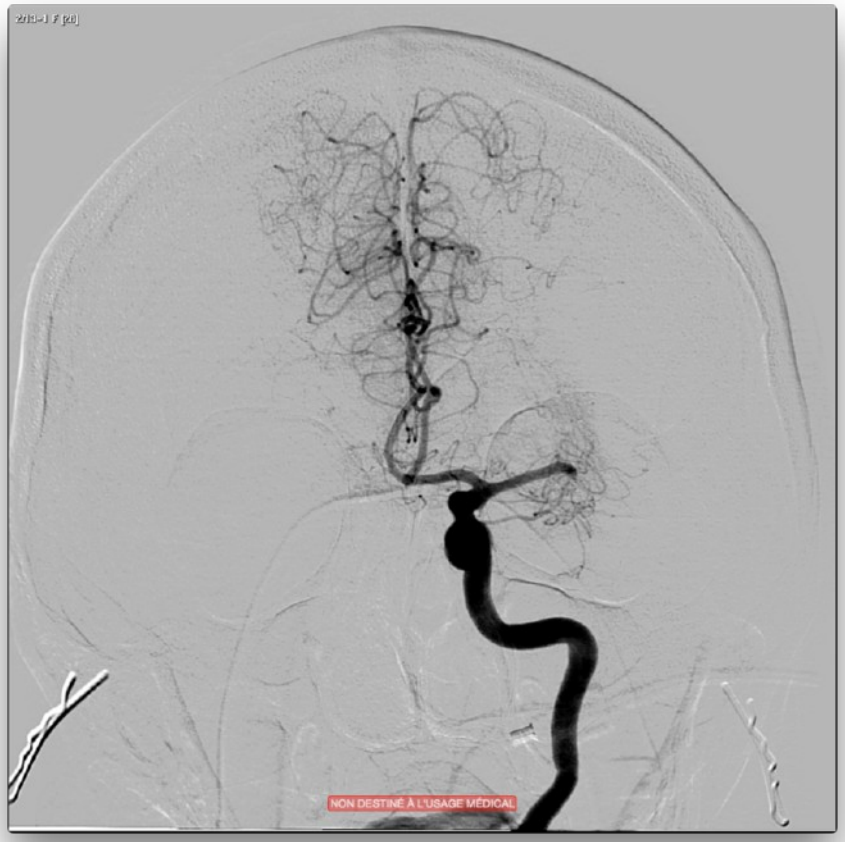
Case 5



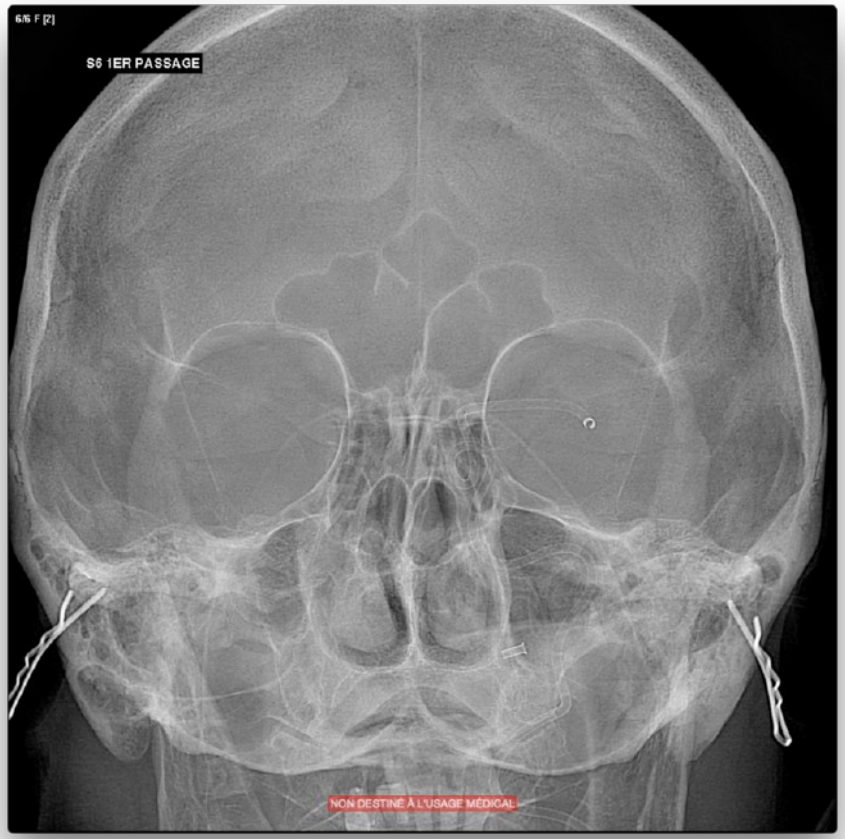
- Thrombolysis
- ADAPT
- M1 occlusion
- Neuron Max 6F/ ACE64/ 3Max /Synchro14
- 1 aspiration

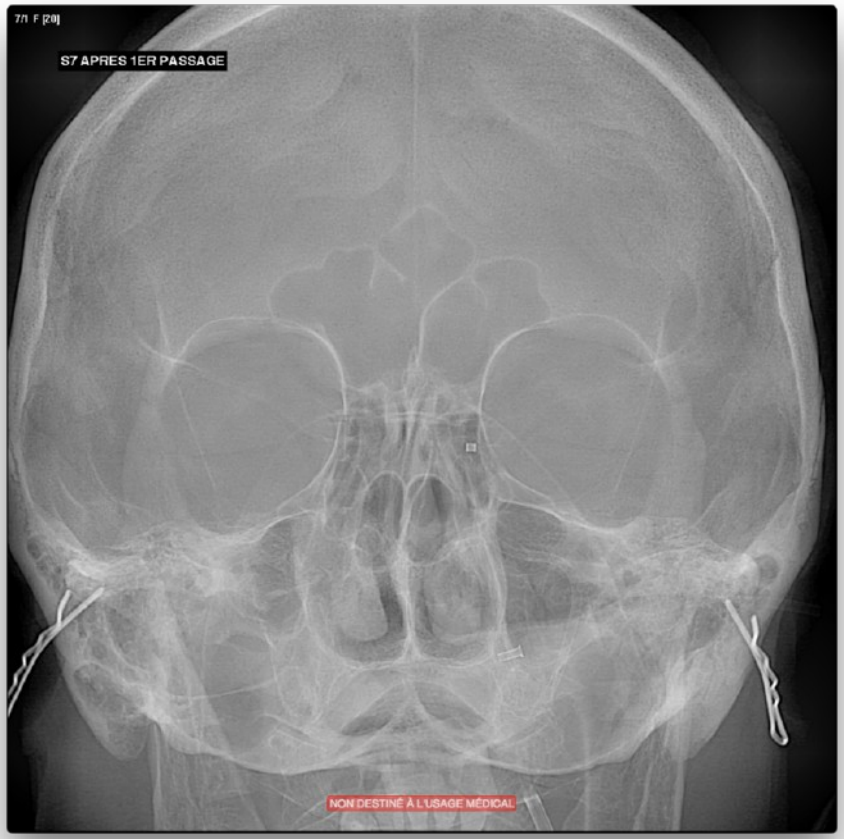
TICI 3

Case 5



Case 5


S6 1ER PASSAGE
NON DESTINÉ À L'USAGE MÉDICAL

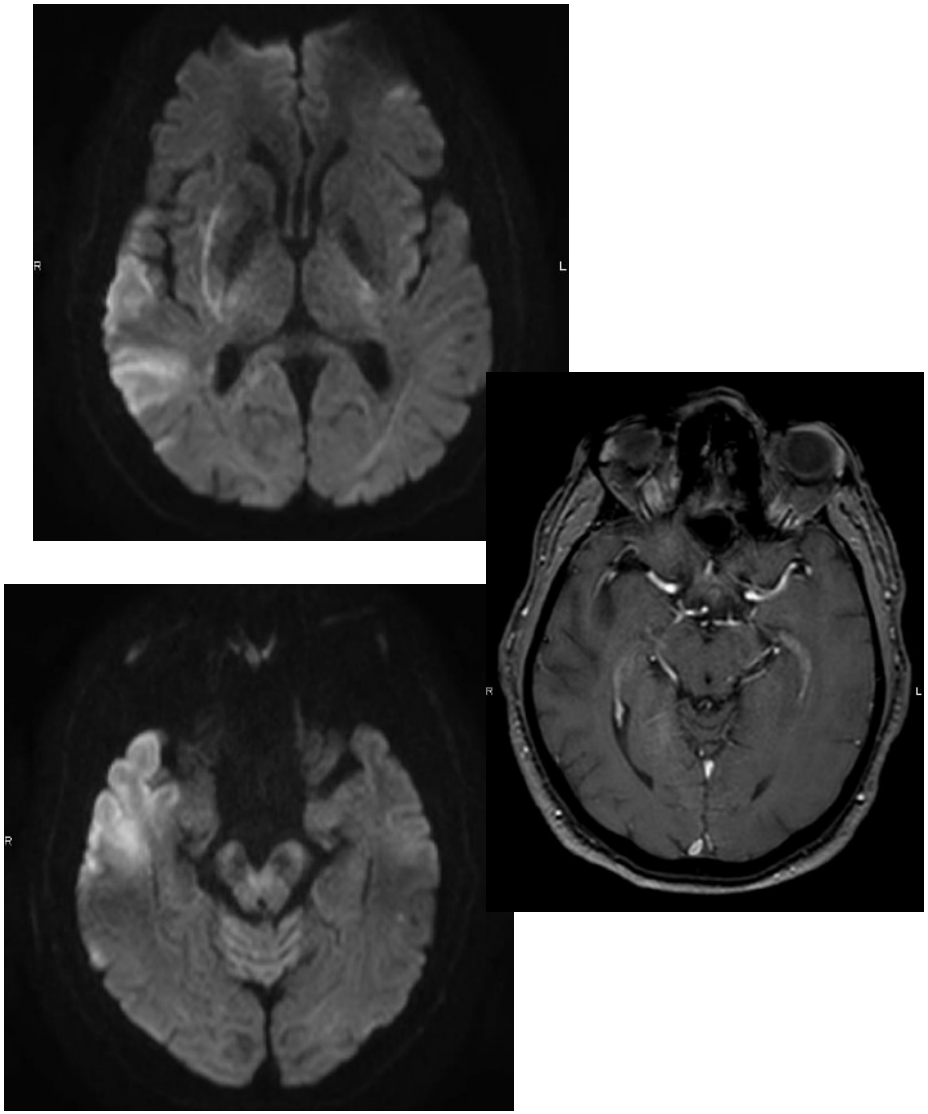

S7 APRES 1ER PASSAGE
NON DESTINÉ À L'USAGE MÉDICAL

Case 5

Case 5 :

- **Time from groin puncture to recanalization : 21 min**
- **3 months Outcome : mRS 3**

Case 6 Mastak mustafa tahir

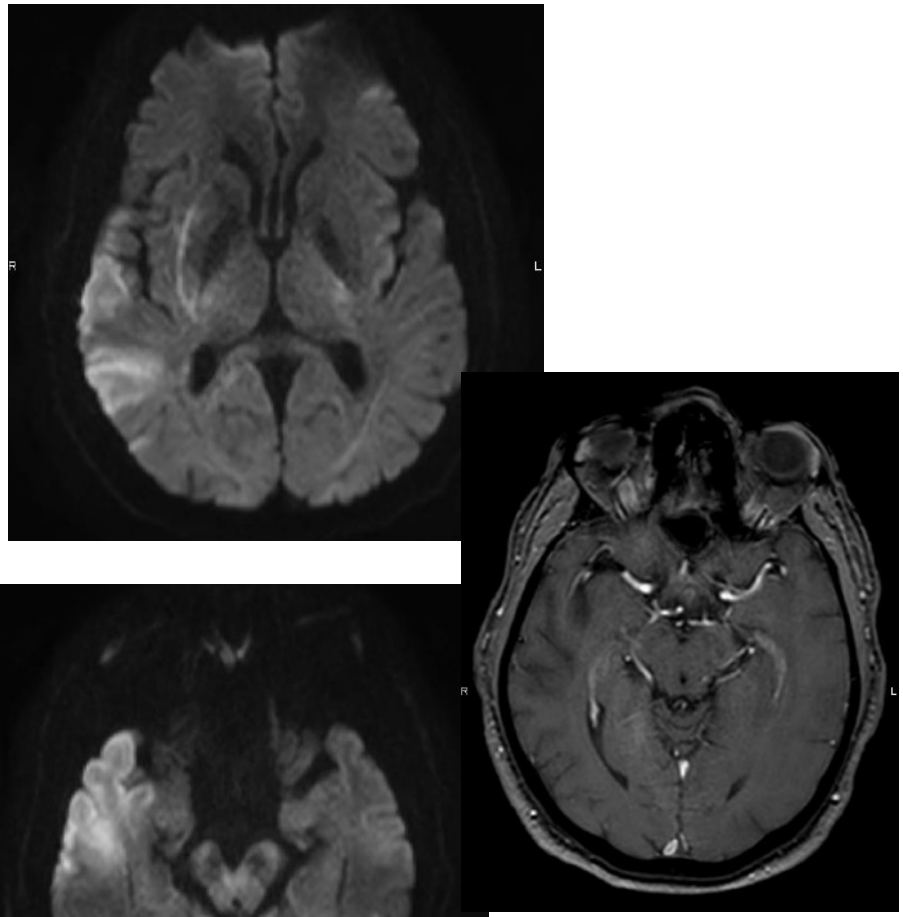


- 60 YO male
- Medical history unknown

November 118, 2015 :

- 7:30am: left hemipalsy and aphasia (NIHSS 13)
- 9:37am : MRI showing right superficial and deep DWI restriction (ASPECT 6) and right MCA occlusion

Case 6

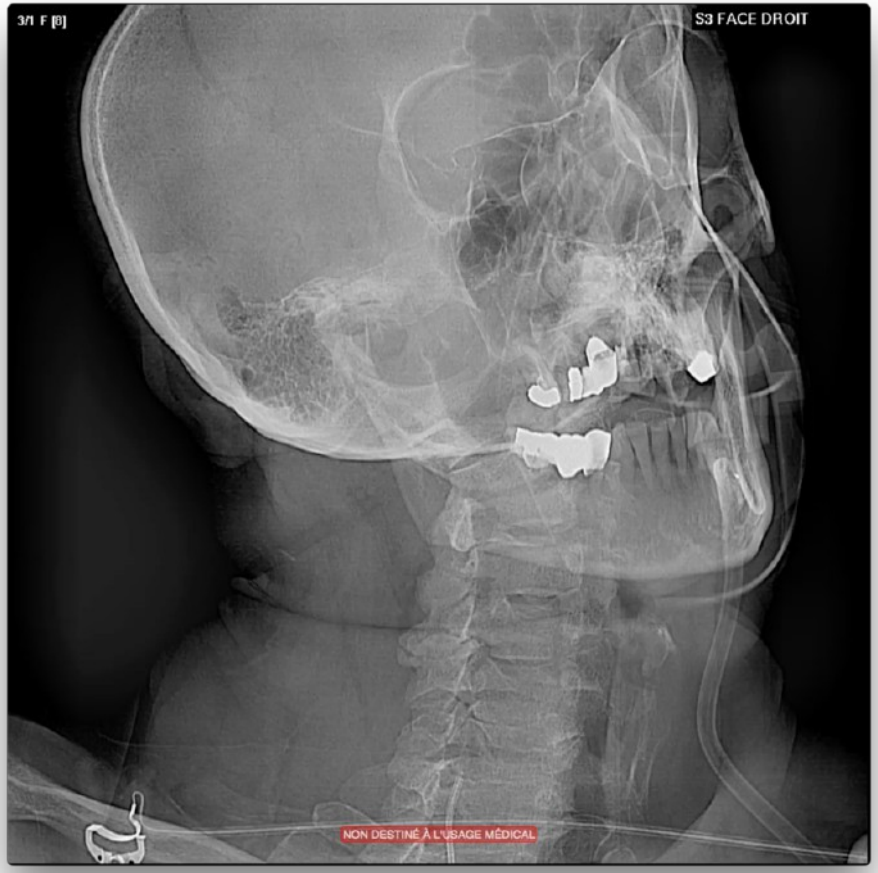


- 60 YO male
- Medical history unknown

November 18, 2015 :

- 7:30am: left hemipalsy and aphasia (NIHSS 13)
- 9:37am : MRI showing right superficial and deep DWI restriction (ASPECT 6) and right MCA occlusion

Case 6

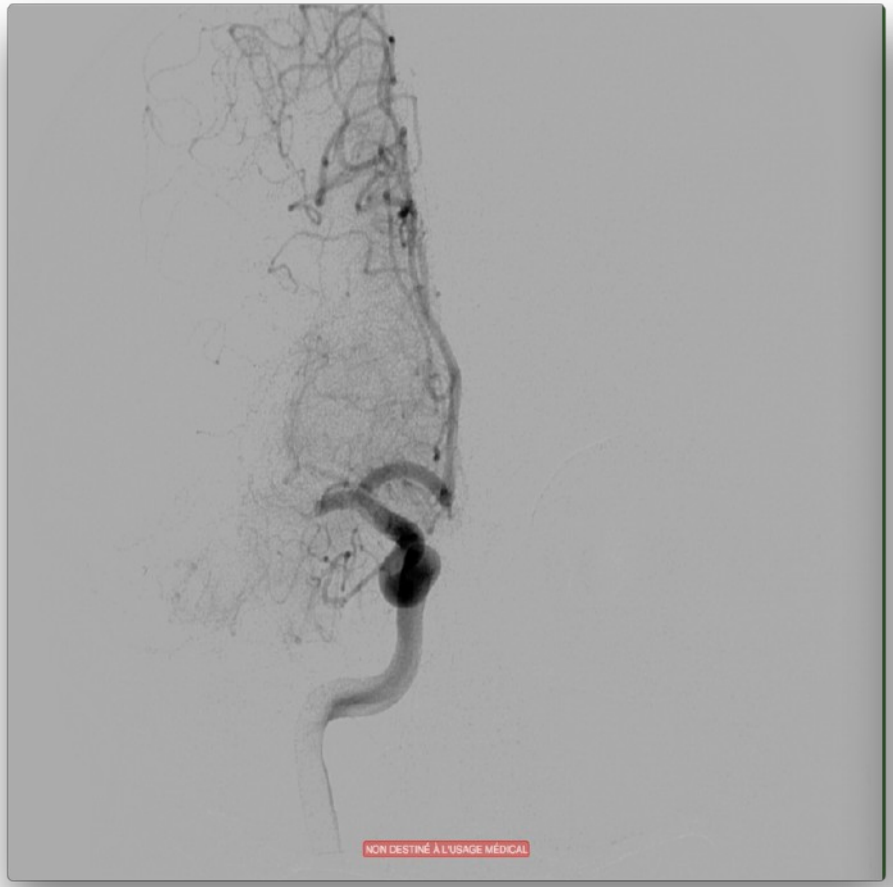


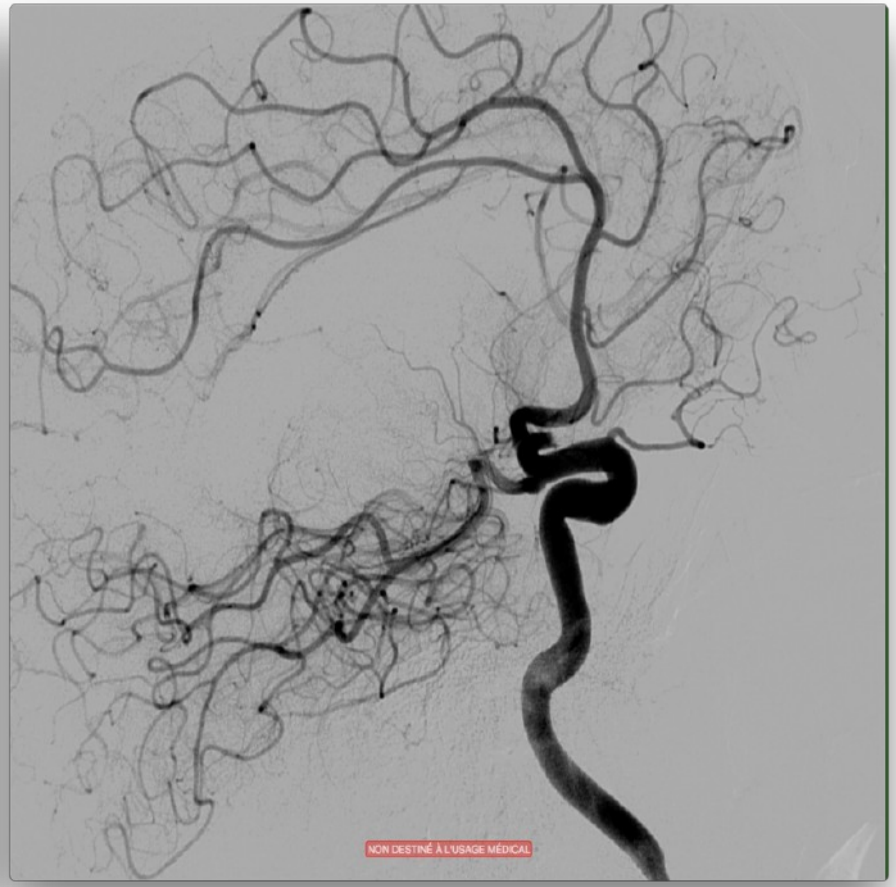
- Thrombolysis
- ADAPT
- M1 occlusion
- Neuron Max 6F/ 5Max 64/ 3Max /Synchro14
- 2 aspirations

TICI 3

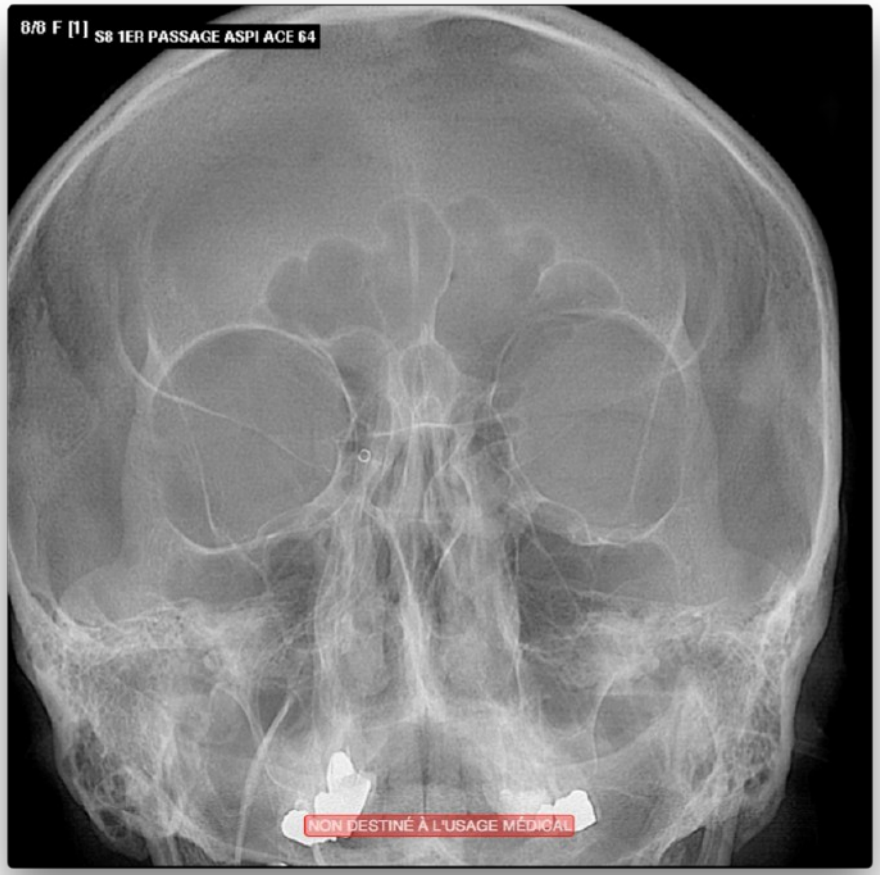
Case 6

Case 6



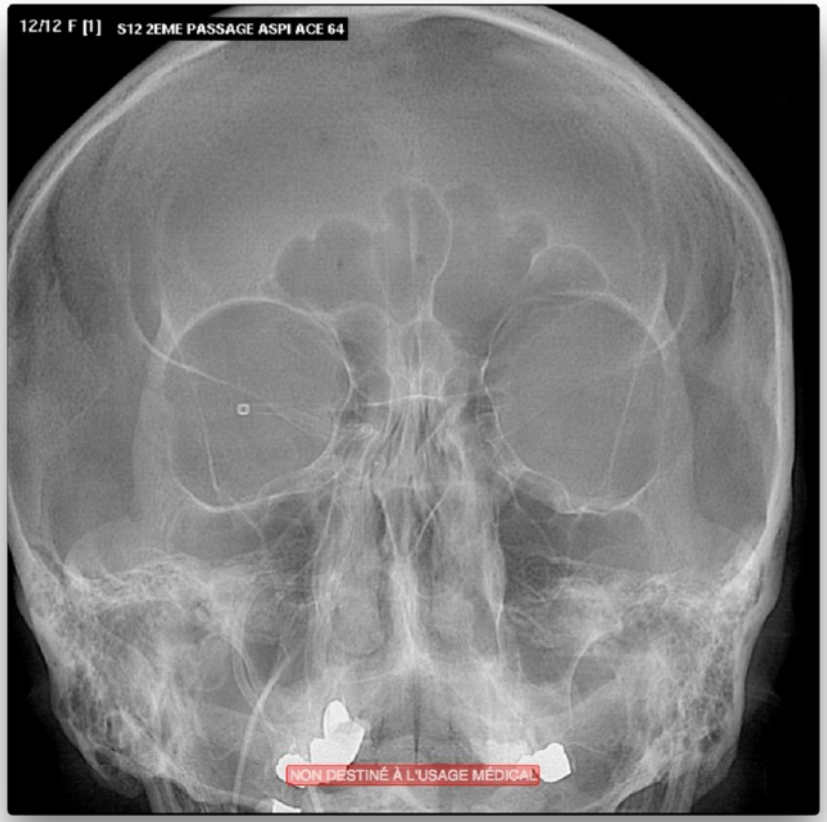


Case 6

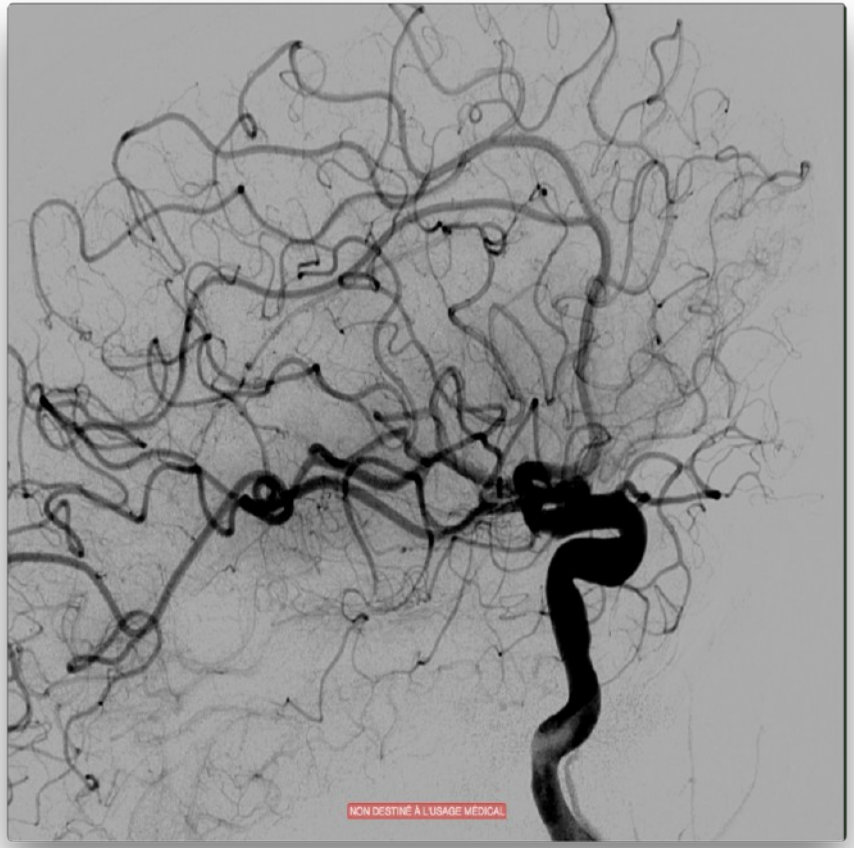

8/8 F [1] S8 1ER PASSAGE ASPI ACE 64
NON DESTINÉ À L'USAGE MÉDICAL


NON DESTINÉ À L'USAGE MÉDICAL

Case 6


12/12 F [1] S12 2EME PASSAGE ASPI ACE 64
NON DESTINÉ À L'USAGE MÉDICAL

Case 6



Case 6 :

- **Time from groin puncture to recanalization : 37 min**
- **3 months Outcome : mRS 0**

Case 7 Mellas Ouerdia

- 79 YO female
- History of atrial fibrillation (pradaxa)

December 1st, 2015 :

- 9:00am: right hemipalsy and aphasia (NIHSS 22)
- 10:57am : CT showing left MCA occlusion and deep nucleus hypodensity (CT ASPECT 8)

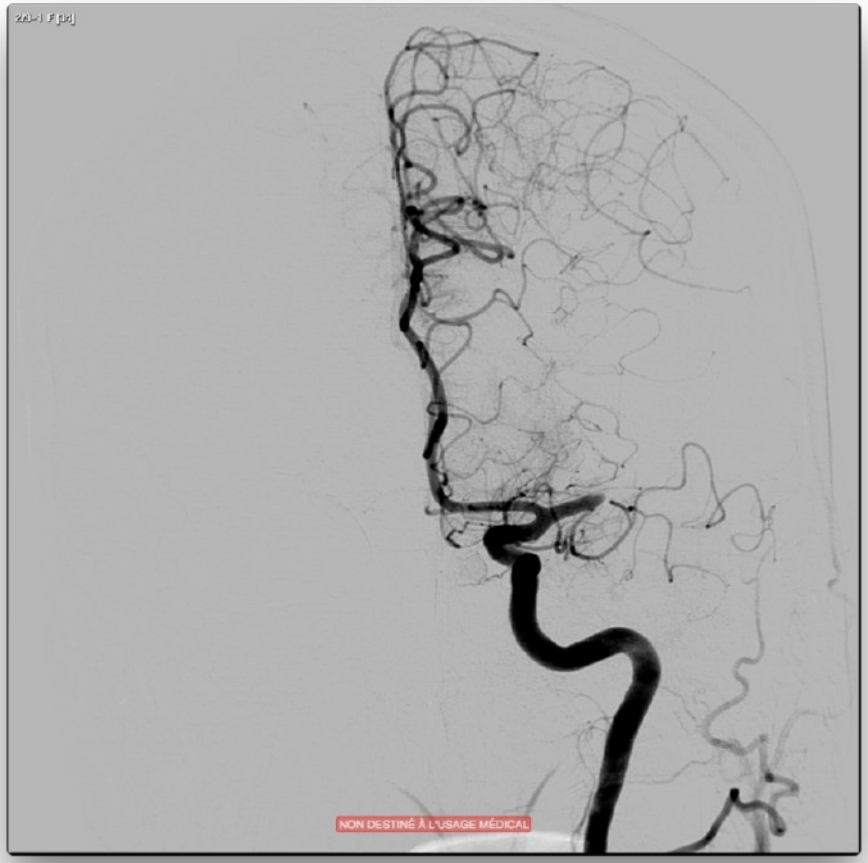
Case 7

- 79 YO female
- History of atrial fibrillation (pradaxa)

December 1st, 2015 :

- 9:00am: right hemipalsy and aphasia (NIHSS 22)
- 10:57am : CT showing left MCA occlusion and deep nucleus hypodensity (CT ASPECT 8)

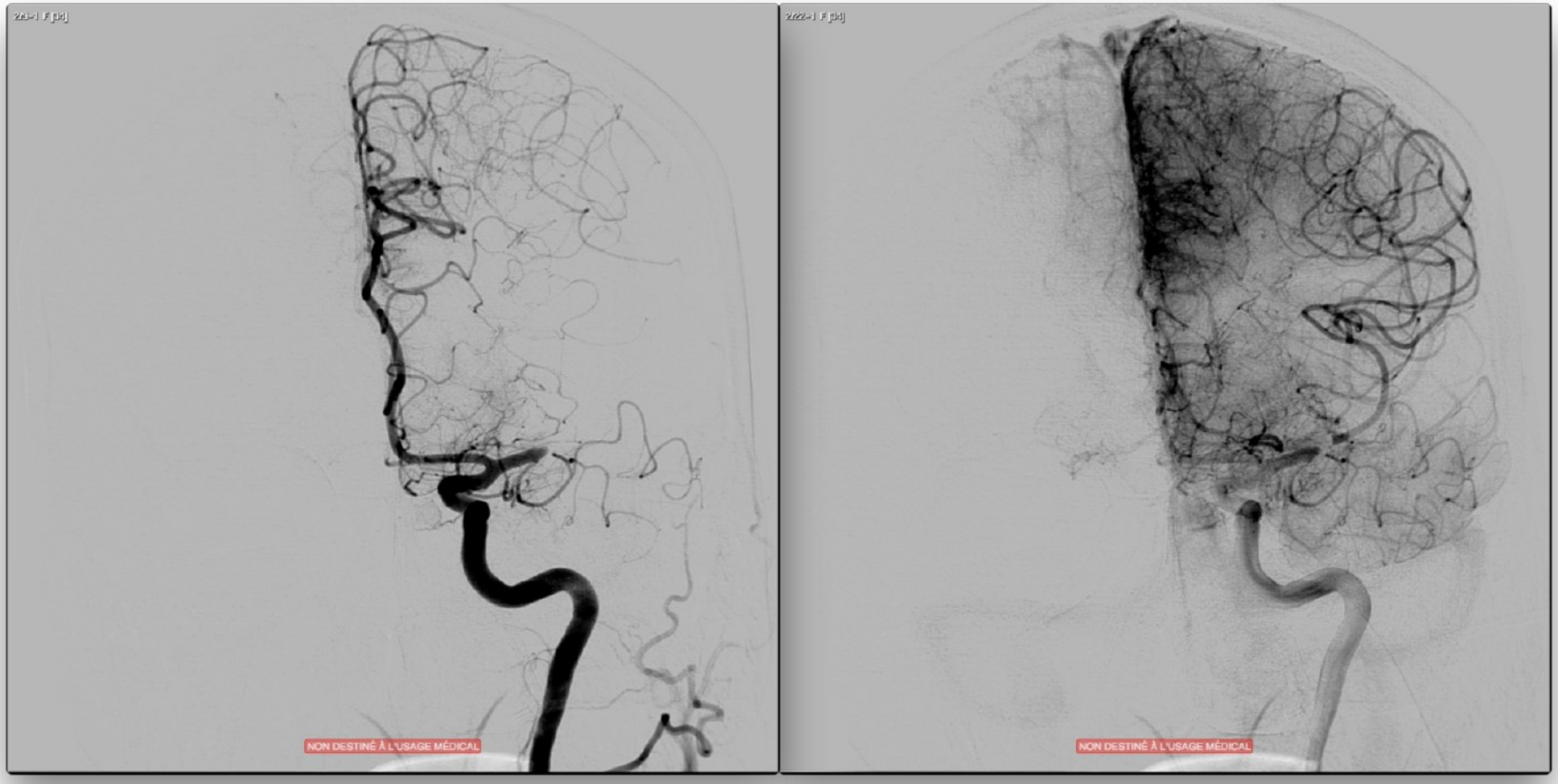
Case 7:



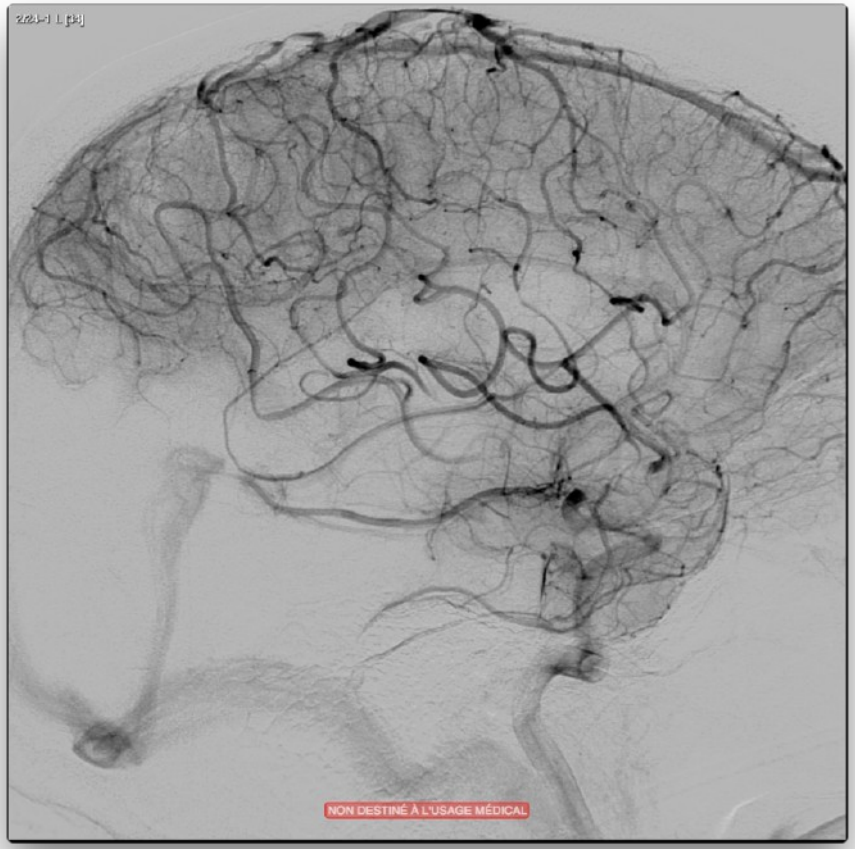
- No thrombolysis
- ADAPT
- M1 occlusion (then M2-3 occlusion)
- Neuron Max 6F/ 5Max ACE/ 3 Max /Synchro14
- 2 aspirations

TICI 2B

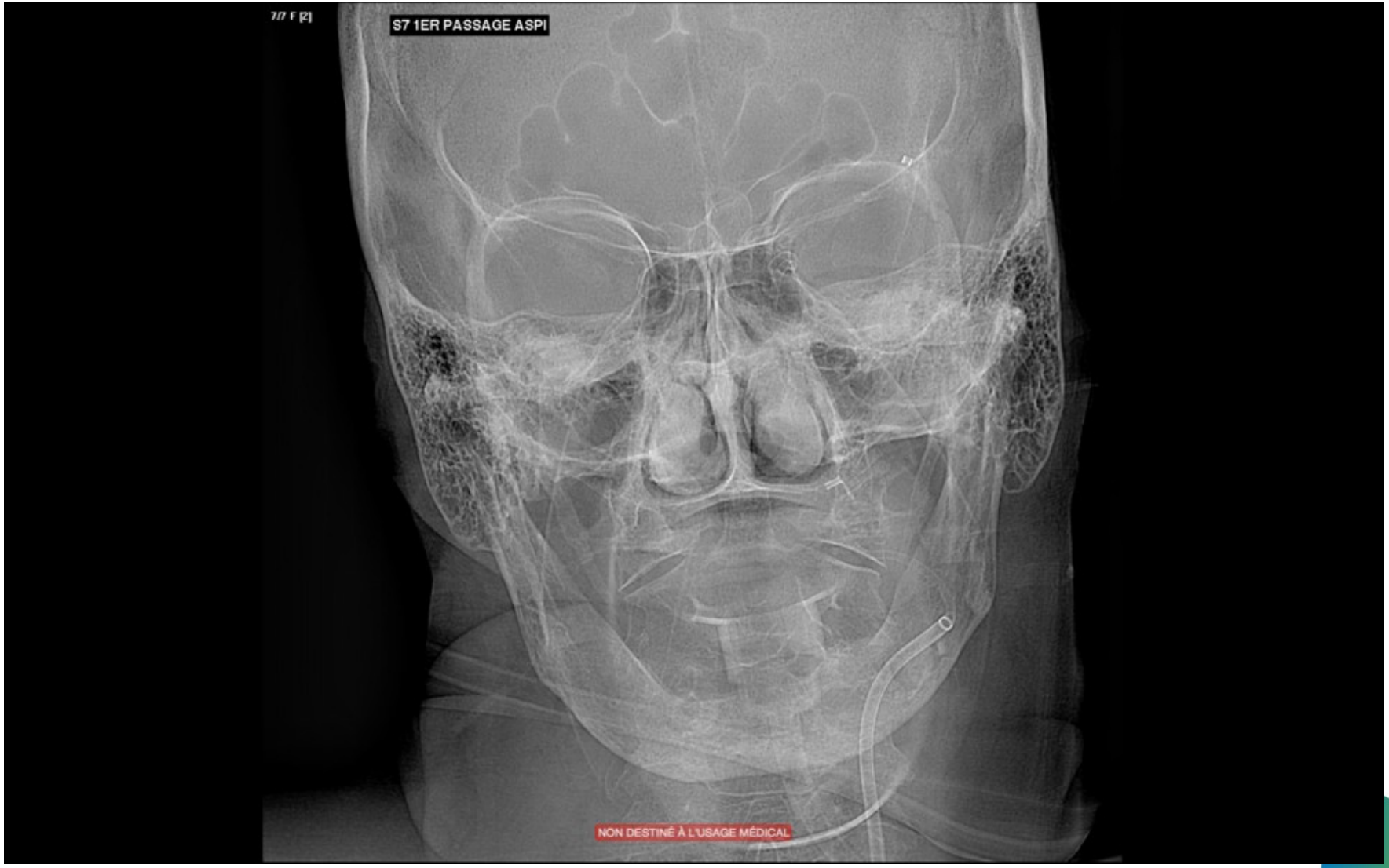
Case 7



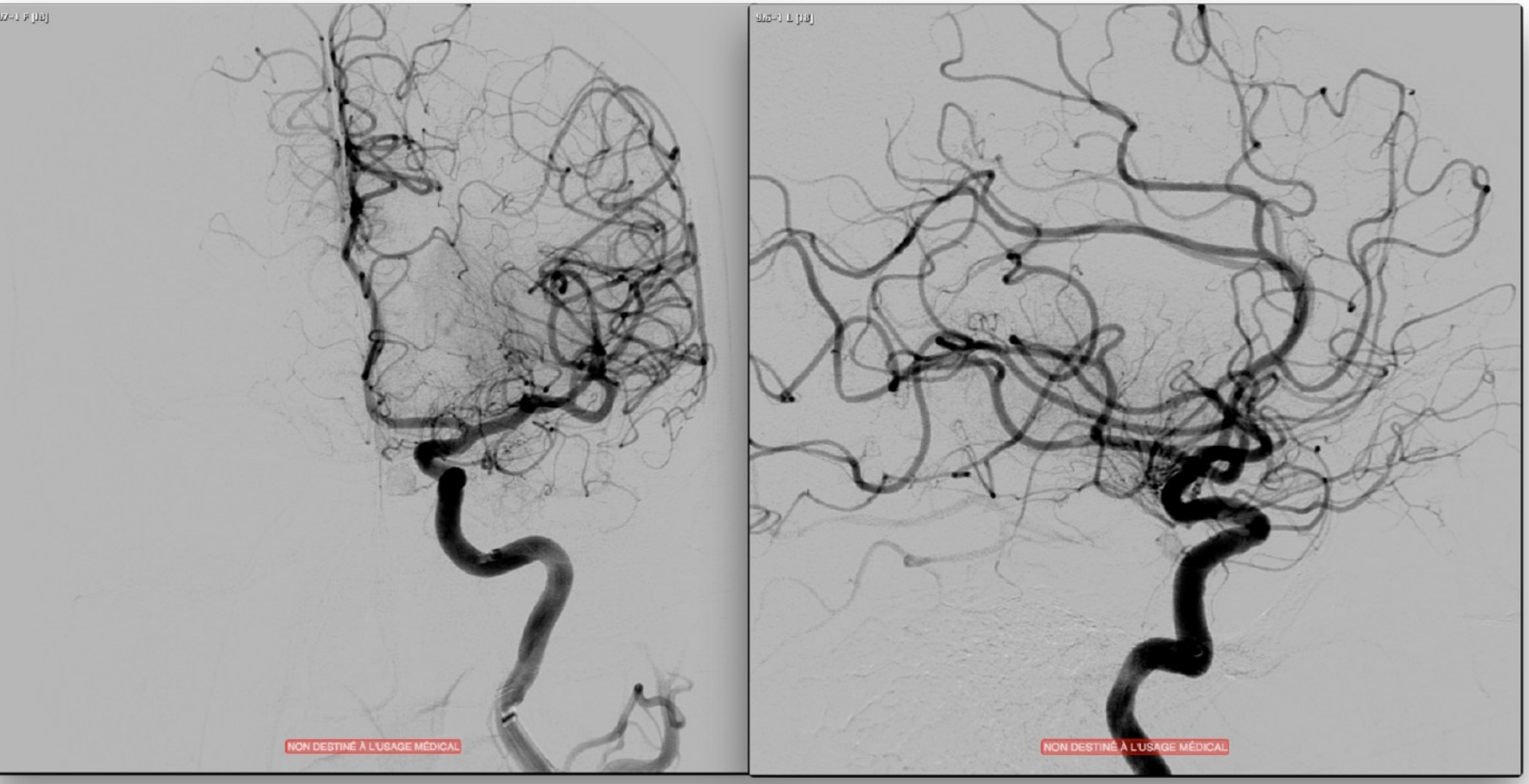
Case 7



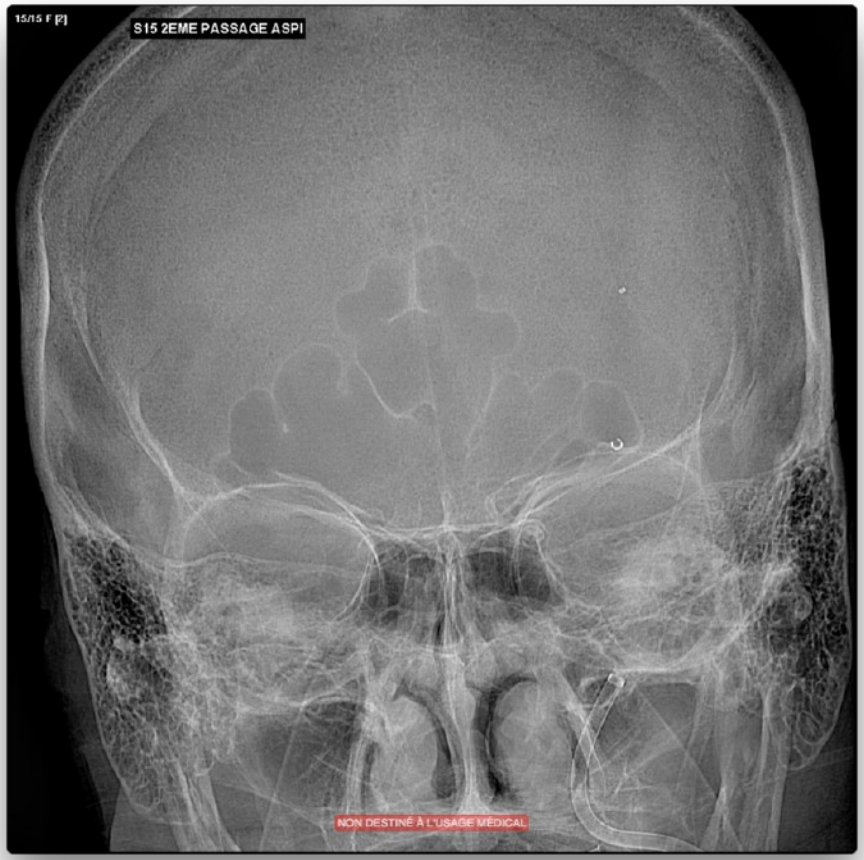
Case 7



Case 7

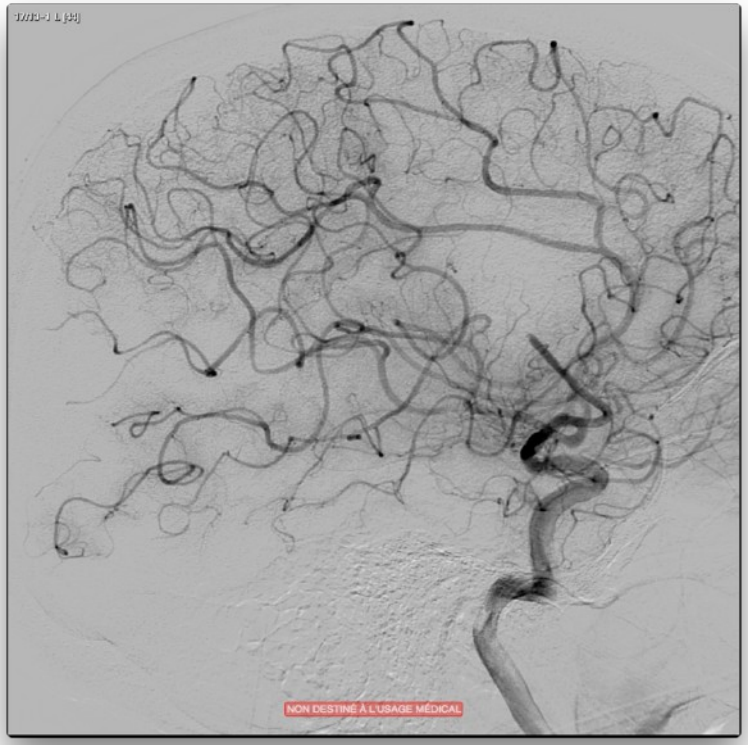


Case 7


S15 2EME PASSAGE ASPI
NON DESTINÉ À L'USAGE MÉDICAL

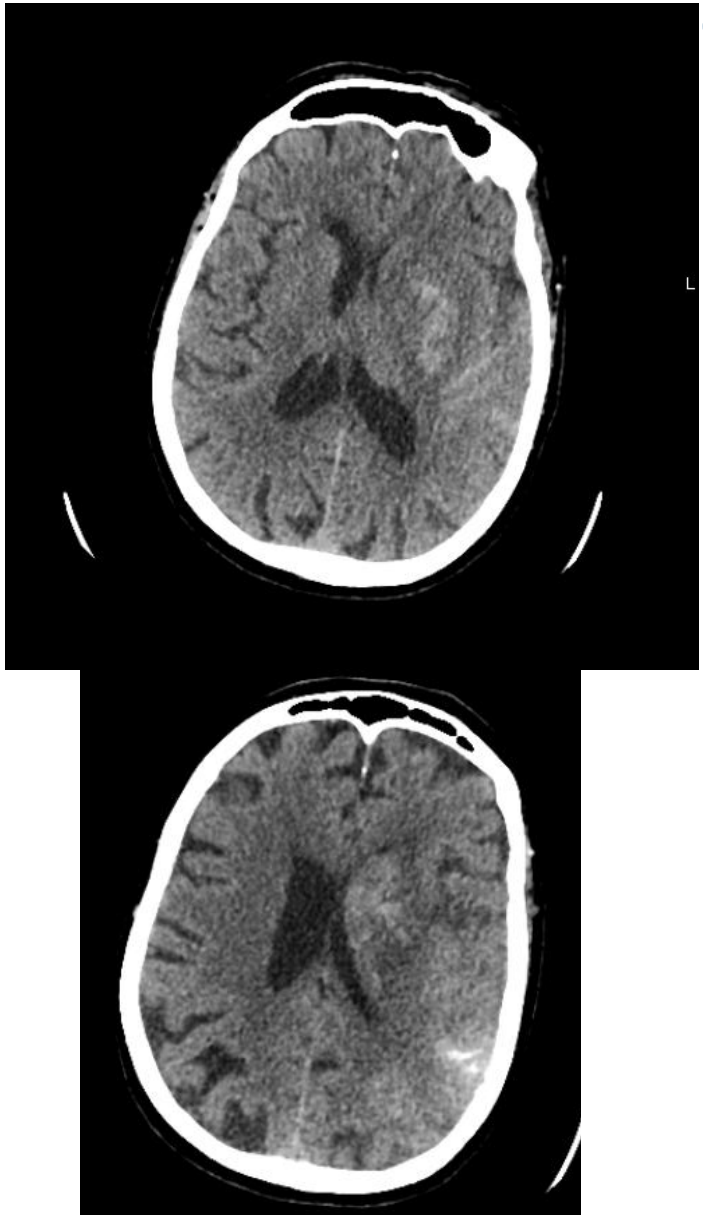

S15 2EME PASSAGE ASPI
NON DESTINÉ À L'USAGE MÉDICAL

Case 7



Case 7

Case 7



- **Post endovascular treatment CT :**

- left SAH

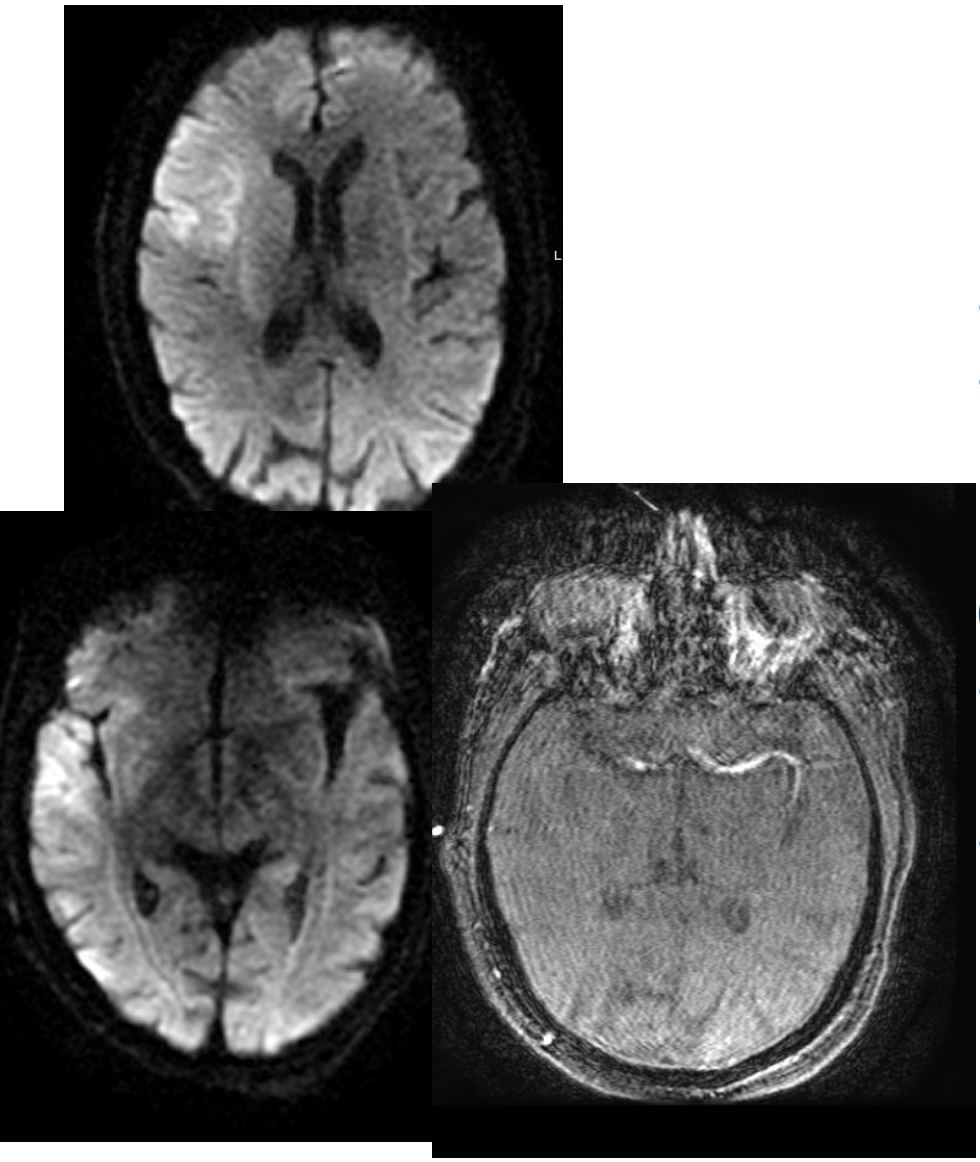
- Oedema

- Mass effet

Case 7 :

- **Time from groin puncture to recanalization : 15 min**
- **3 months Outcome : mRS 0**

Case 8 : (dufosse) Meunier Monique

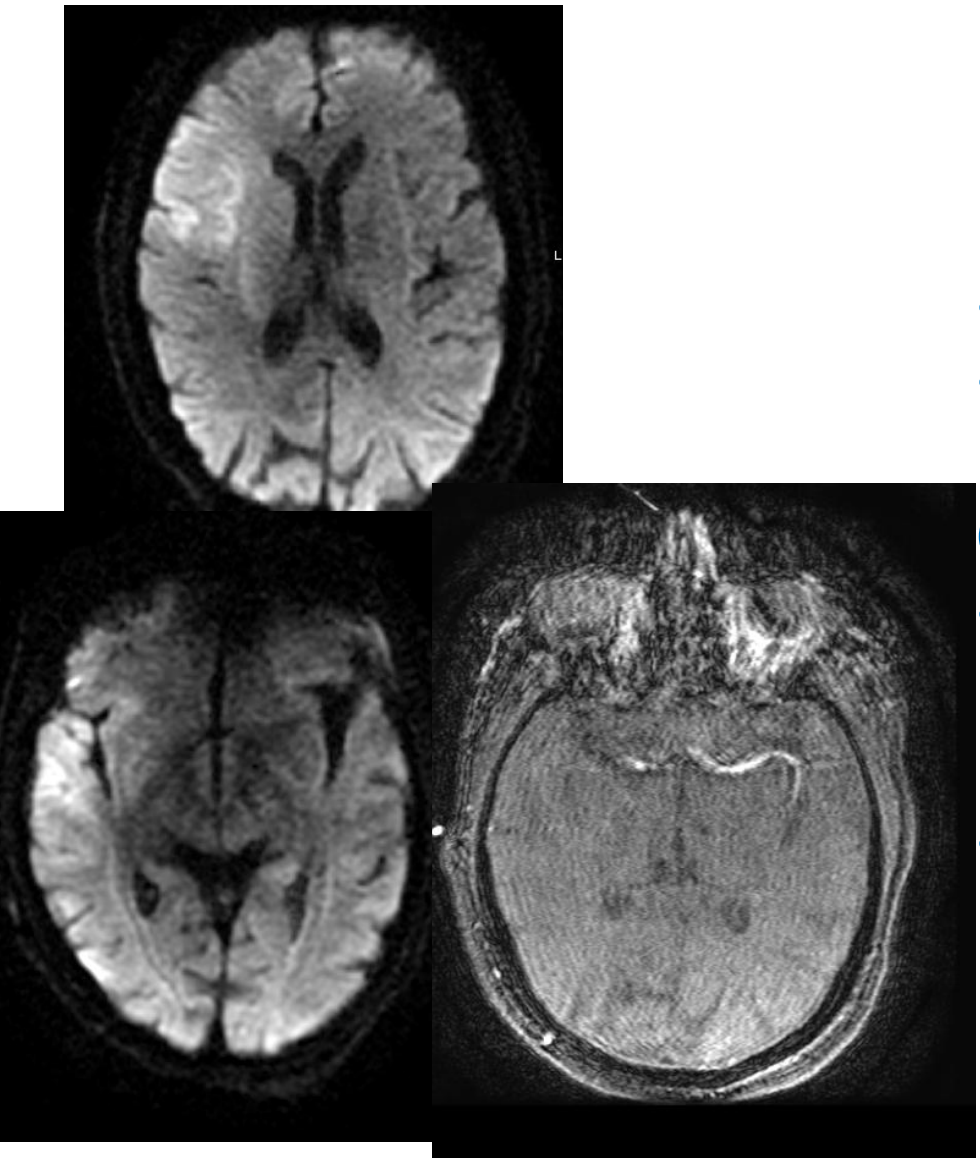


- 66 YO female
- History of High BP, dyslipidemia, obesity, diabete

October 13, 2015 :

- 3:40pm: left hemipalsy and dysarthria
- 5:18pm : MRI showing right superficial and deep DWI restriction (ASPECT 3) and right MCA occlusion

Case 8 :



- 66 yo woman
- HTN, dyslipidemia, obesity, diabetes

October 13, 2015 :

- 3:40pm: left hemiparesis and dysarthria (NIHSS 14)
- 5:18pm : MRI showing right superficial and deep DWI restriction (ASPECT 3) and right M1 occlusion

Case 8 :

- Thrombolysis
- ADAPT
- M1 occlusion
- Neuron Max 6F/ 5Max ACE/ 3 Max/Synchro14

1 aspiration in M1

2 aspirations in M2

1 Trevo 3x20mm in distal M2

TICI 3

Case 8 :

Case 8 :

Case 8 : after 1st aspiration

Case 8 : 2nd aspiration

Case 8 : after 2nd aspiration

Case 8 : 3rd aspiration

Case 8 : after 3rd aspiration

Case 8 : after 3rd aspiration
SWITCH to TREVO

Case 8 :
TREVO 1st

Case 8 : after 1st TREVO

Case 8 :
TREVO 2nd

Case 8 :
TREVO 2nd control

Case 8 :
after 2nd TREVO

Case 8 :

- **Time from groin puncture to TICI 3 recanalization : 47 min**
- **3 months Outcome : mRS 5**

ADAPT *take Home* Message

- **ADAPT alone provide TICI 2b/3 revascularization in 60% of cases**
- **ADAPT + other techniques (Stent retrievers) provide TICI 2b/3 revascularization in 83% of cases**
- **An isolated MCA occlusion is the most favorable situation for ADAPT in anterior circulation strokes**