



Thrombolyse et Thrombectomie

Atelier numéro 2

JOURNEE AVC 16 JUIN 2016

Rivka Bendrihem , Florent Braud, Julien Cogez – CHU de Caen

Hélène Raoult – CHU de Rennes

Anne Guilbert – CH Alençon

Damien Sineux – Samu 50

Christian Marie – Coordination AVC

Cas n° 1

- ▶ Mr L, 69 ans, droitier, habitant à Villers-Bocage
- ▶ Rankin 0
- ▶ ATCD: HTA, IDM
- ▶ TTT:
 - ▶ Kardegic 75mg 1 / j
 - ▶ Tahor 80mg 1 / j
 - ▶ Sotalec 80mg 0,5 x2 / j
 - ▶ Coaprovel 300mg 1 / j
 - ▶ Diffu K 1 / j

Admis pour déficit sensitivo-moteur hémicorporel gauche constaté à **6h00**, au réveil

PEC initiale par le SMUR, arrivée aux urgences à **7h28**

Cliniquement:

TA 145/69 mmHg, FC 56 bpm, SaO2 100%, Dextro 1,39

NIHSS 20:

Déficit sensitivo-moteur hémicorporel G, proportionnel

Dysarthrie

HLH gauche

Héminégligence

Déviaton du regard vers la droite

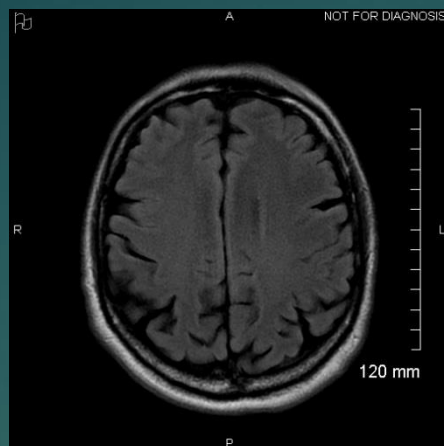
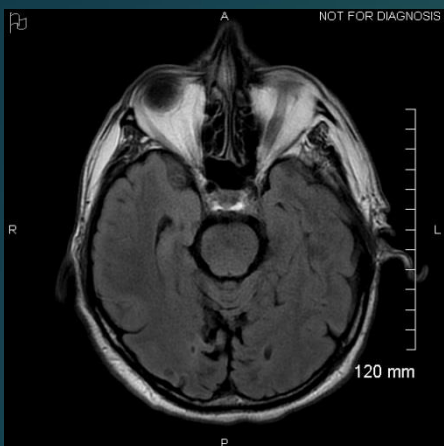
Anosognosie

Cas n° 1

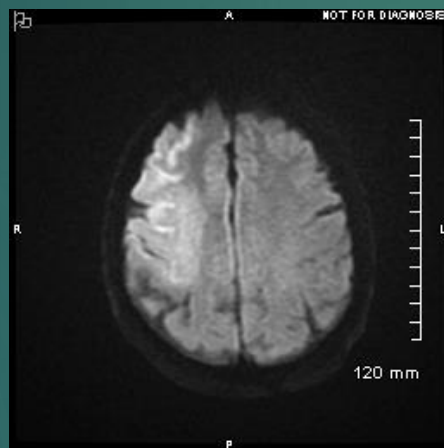
QUEL EXAMEN
DEMANDEZ-VOUS?

Cas n°1

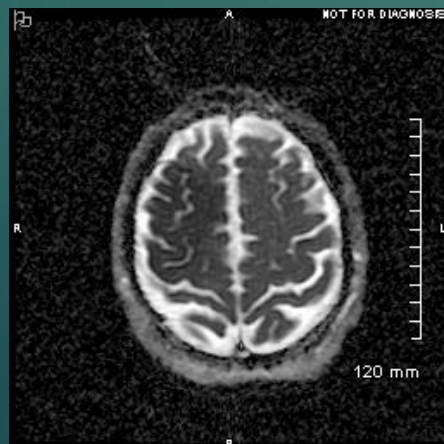
- ▶ IRM cérébrale sans IV réalisée à **7h30**, dans le cadre d'un AVC du réveil
- ▶ Protocole AVC: axial FLAIR, axial Diffusion avec ADC, axial T2*, 3D TOF



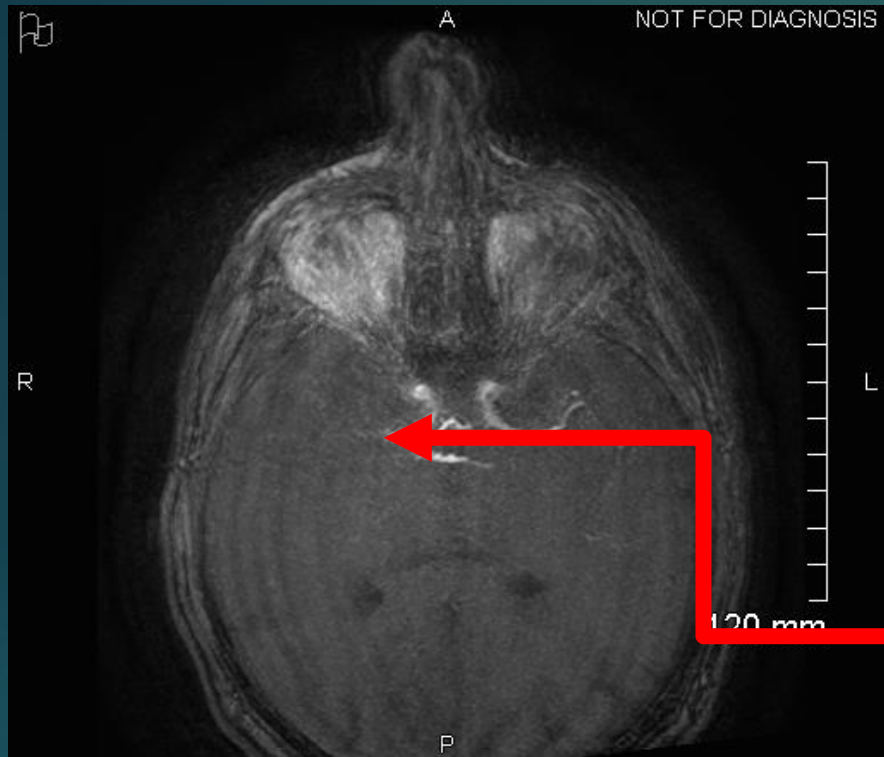
→ SEQUENCE FLAIR (sub) NORMALE



→ HYPER SIGNAL sur la séquence b1000

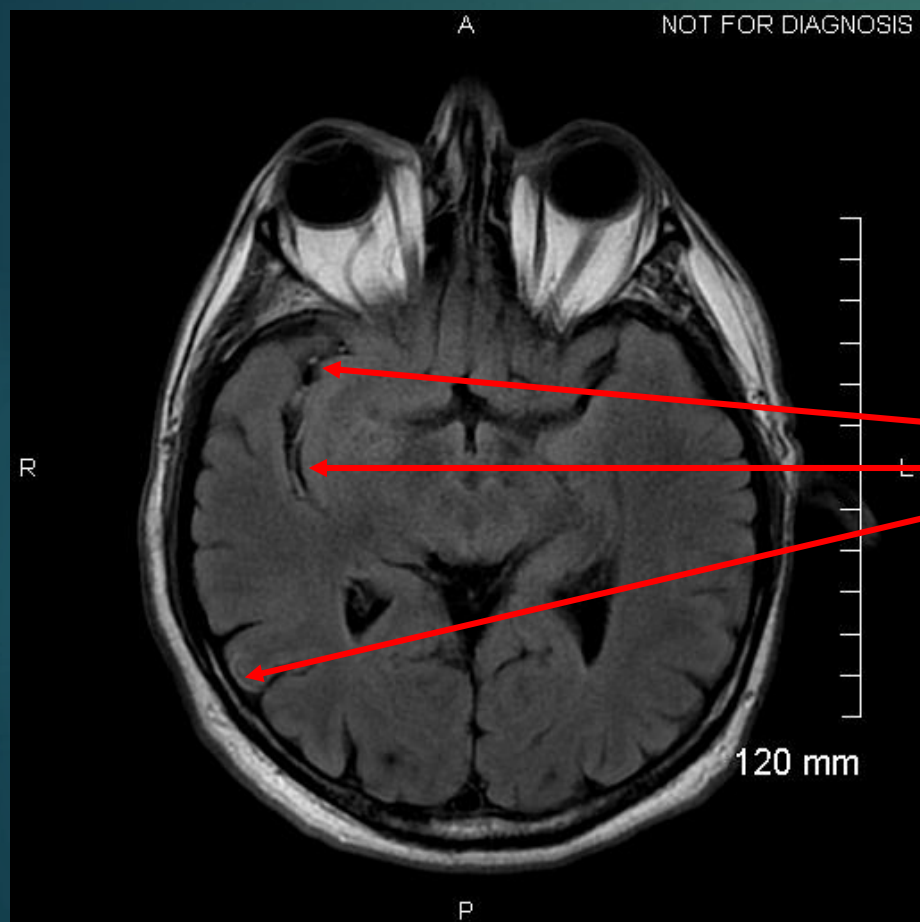


→ Restriction de l'ADC

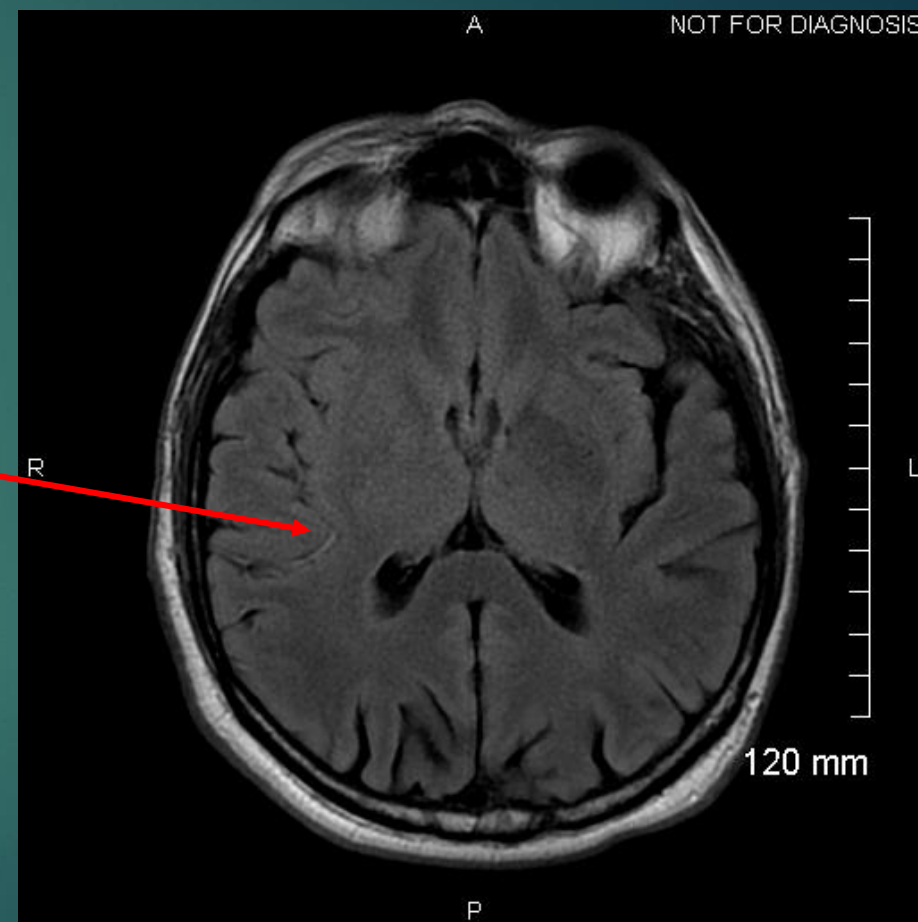


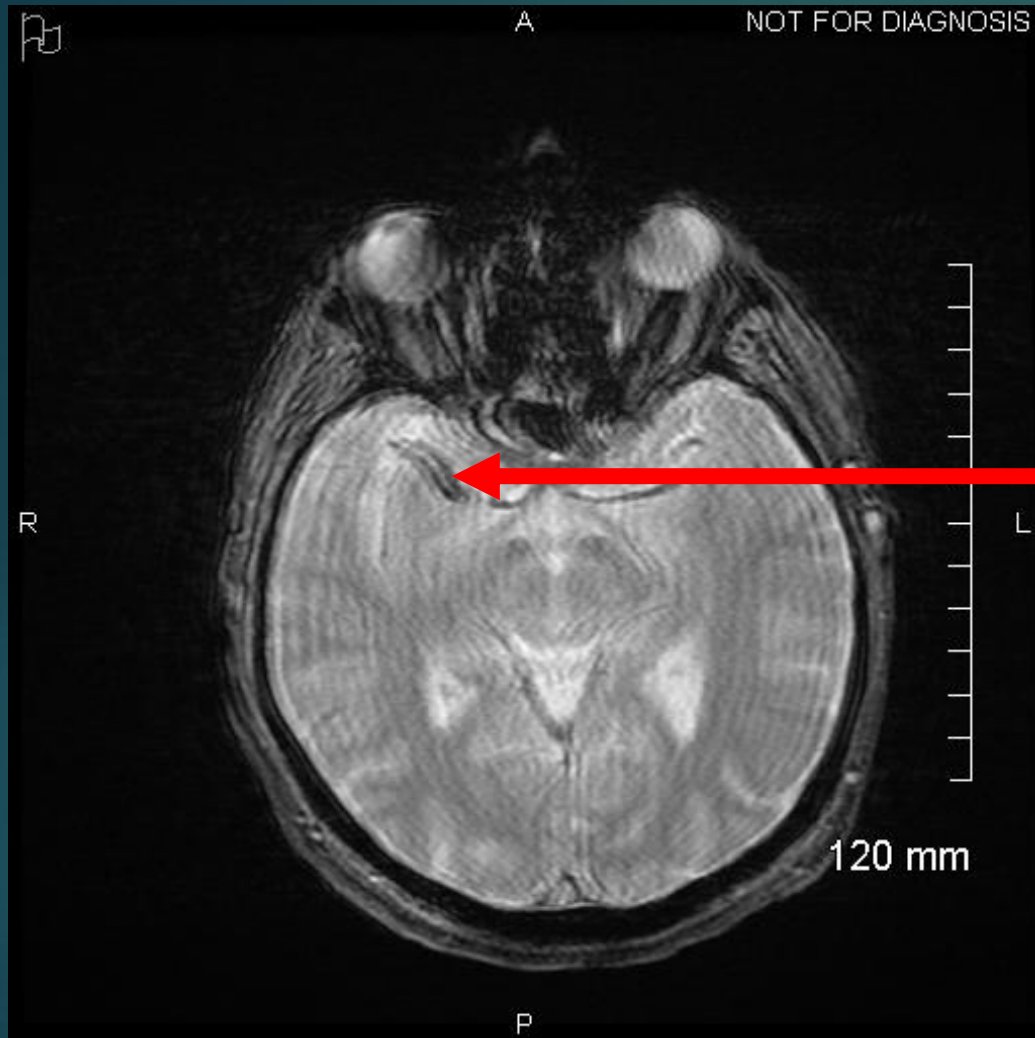
Occlusion proximale de
M1 droit

FLAIR (sub) NORMAL ?

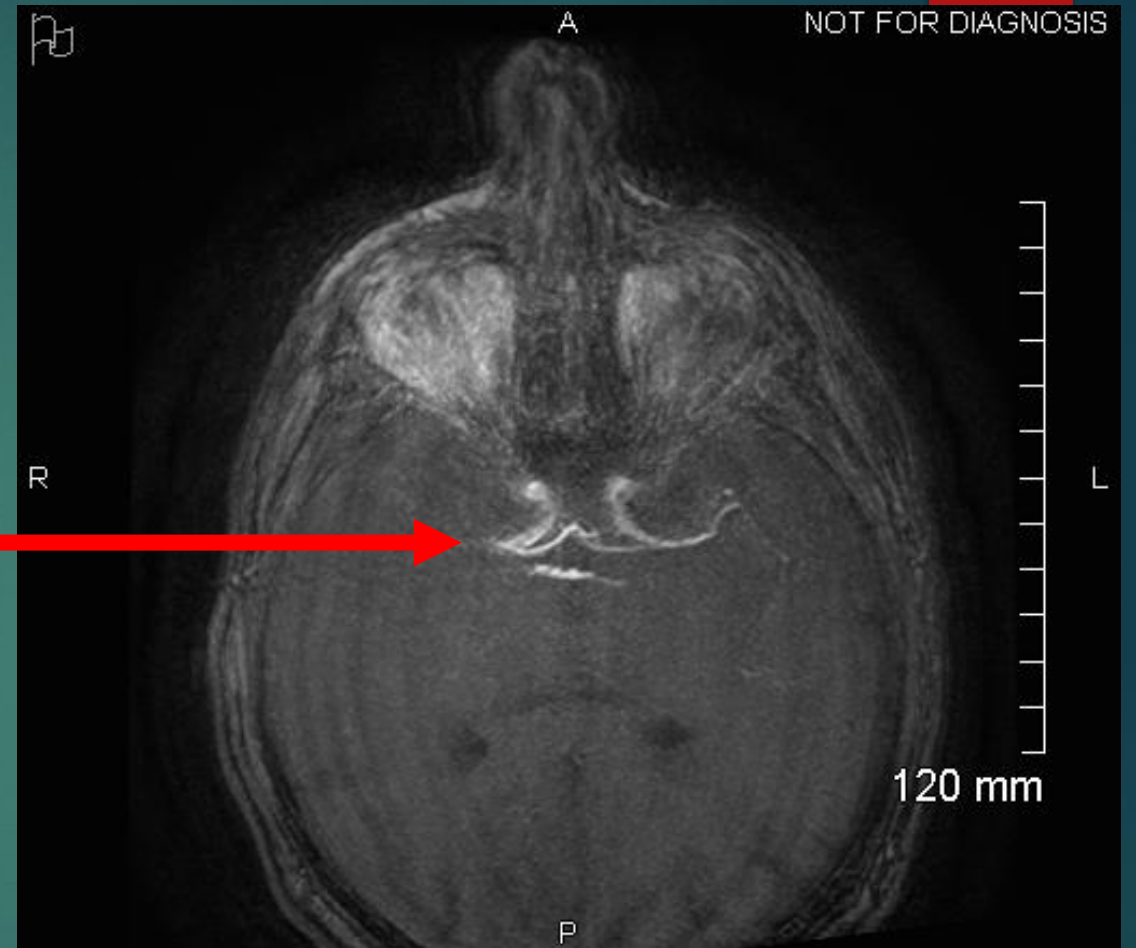


Hypersignal au
sein des
segments M2-
M3-M4 de
l'artère
sylvienne droite
traduisant un
ralentissement
du flux





Pas de remaniement
hémorragique
notable...



Thrombus en hyposignal
T2*

Cas n°1

▶ **AU TOTAL:**

- ▶ AVC ischémique sylvien total droit
- ▶ Aigu, avec mismatch FLAIR-DIFFUSION, donc en théorie < 4h30
- ▶ Sur occlusion de M1 droit
- ▶ Sans remaniement hémorragique

QUELLE EST VOTRE PRISE EN CHARGE?

Cas n° 1

- ▶ Fibrinolyse IV débutée à **8h12**



DOOR TO NEEDLE = 44 minutes

ON EN RESTE LA?

AHA/ASA Guideline

2015 American Heart Association/American Stroke Association Focused Update of the 2013 Guidelines for the Early Management of Patients With Acute Ischemic Stroke Regarding Endovascular Treatment

A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association

The American Academy of Neurology affirms the value of this guideline as an educational tool for neurologists.

2. Patients should receive endovascular therapy with a stent retriever if they meet all the following criteria (*Class I; Level of Evidence A*). (New recommendation):
- a. Prestroke mRS score 0 to 1,
 - b. Acute ischemic stroke receiving intravenous r-tPA within 4.5 hours of onset according to guidelines from professional medical societies,
 - c. Causative occlusion of the ICA or proximal MCA (M1),
 - d. Age ≥ 18 years,
 - e. NIHSS score of ≥ 6 ,
 - f. ASPECTS of ≥ 6 , and
 - g. Treatment can be initiated (groin puncture) within 6 hours of symptom onset

Le patient répond à tous les critères:

Indication d'une thrombectomie mécanique

TRANSFERT EN SALLE DE NRI

Ponction AFC droite à **8h58**

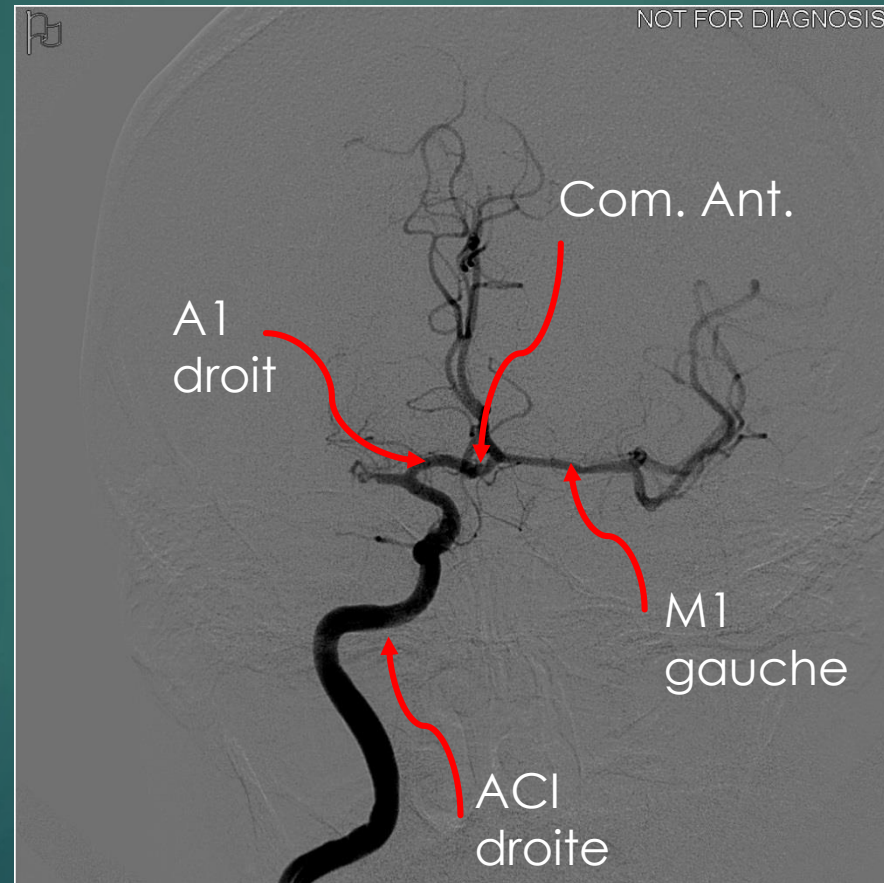


Soit 1h30 après arrivée au CHU

Artériographie pré-thérapeutique

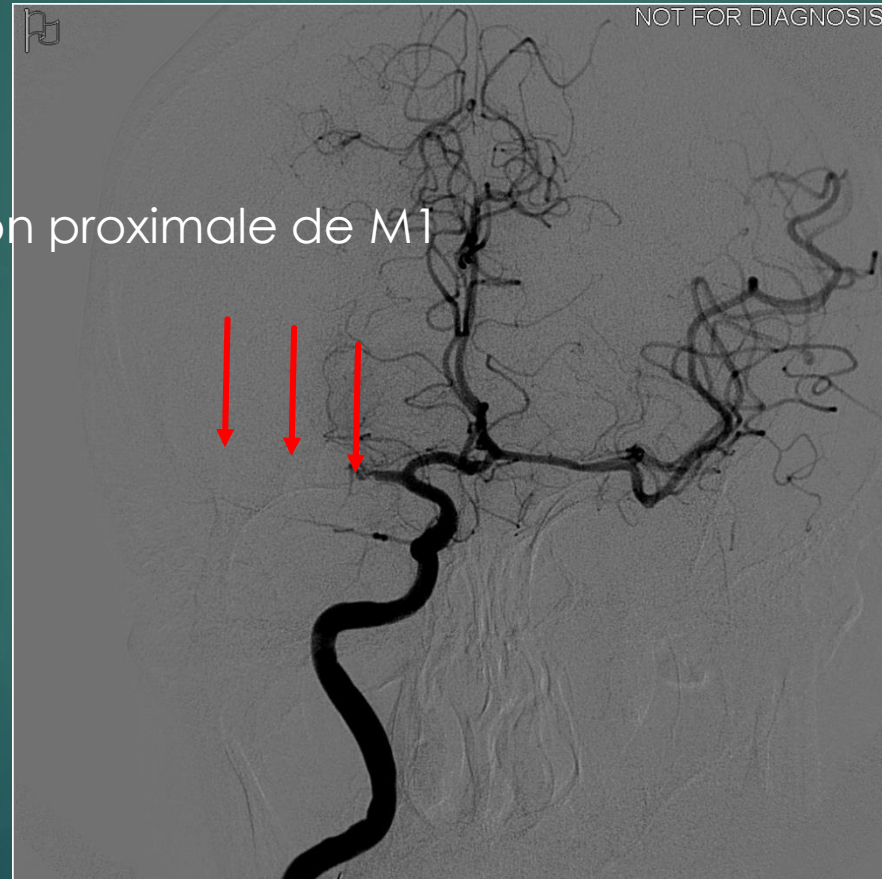


Artériographie pré-thérapeutique



Artériographie pré-thérapeutique

Occlusion proximale de M1
droit



Artériographie pré-thérapeutique



Artériographie pré-thérapeutique



Artériographie pré-thérapeutique

Défaut de
parenchymographie
étendu dans le territoire
sylvien droit



Artériographie pré-thérapeutique



Artériographie pré-thérapeutique

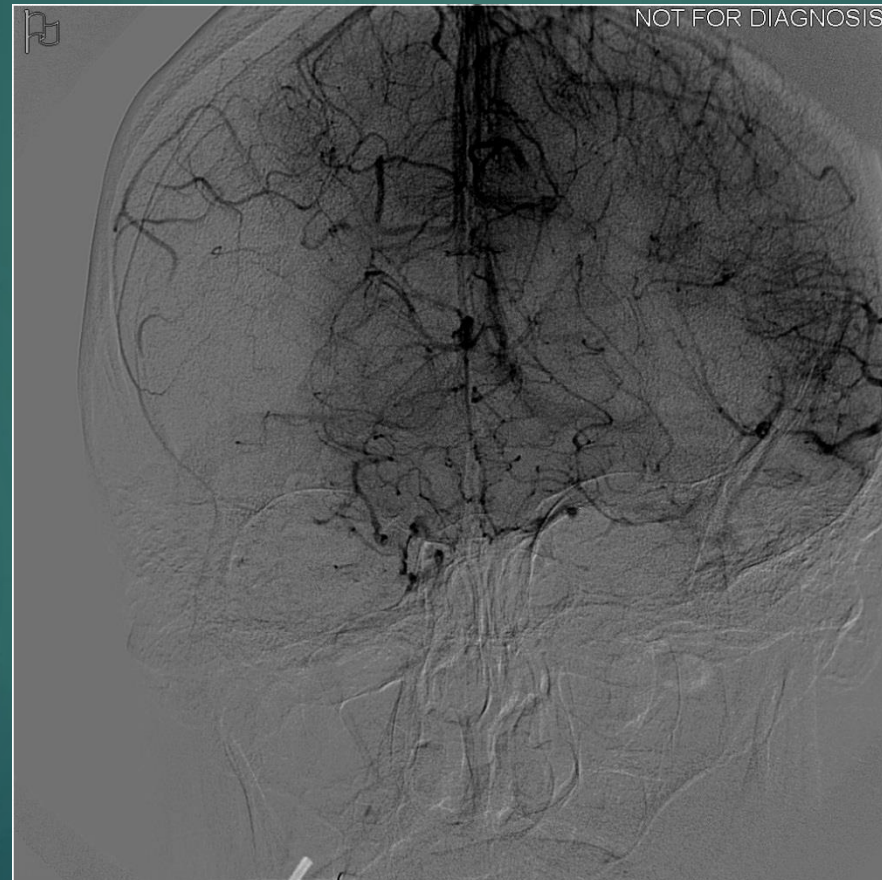


Artériographie pré-thérapeutique

Tentative de
compensation via des
anastomoses piales
issues de la cérébrale
antérieure



Artériographie pré-thérapeutique



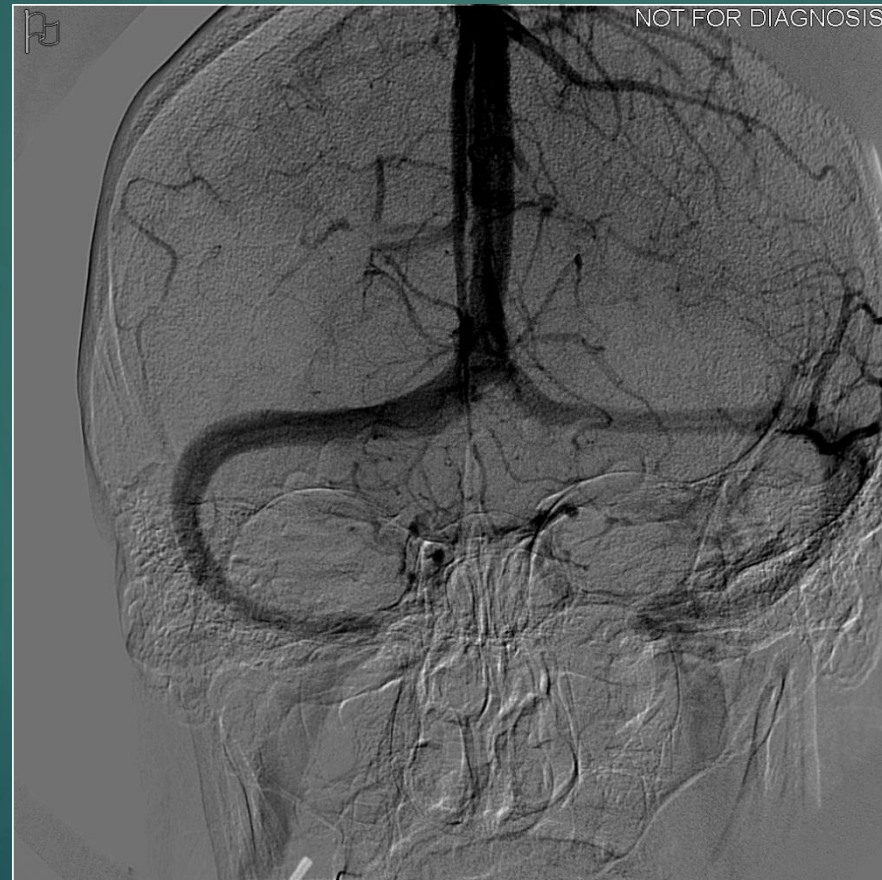
Artériographie pré-thérapeutique

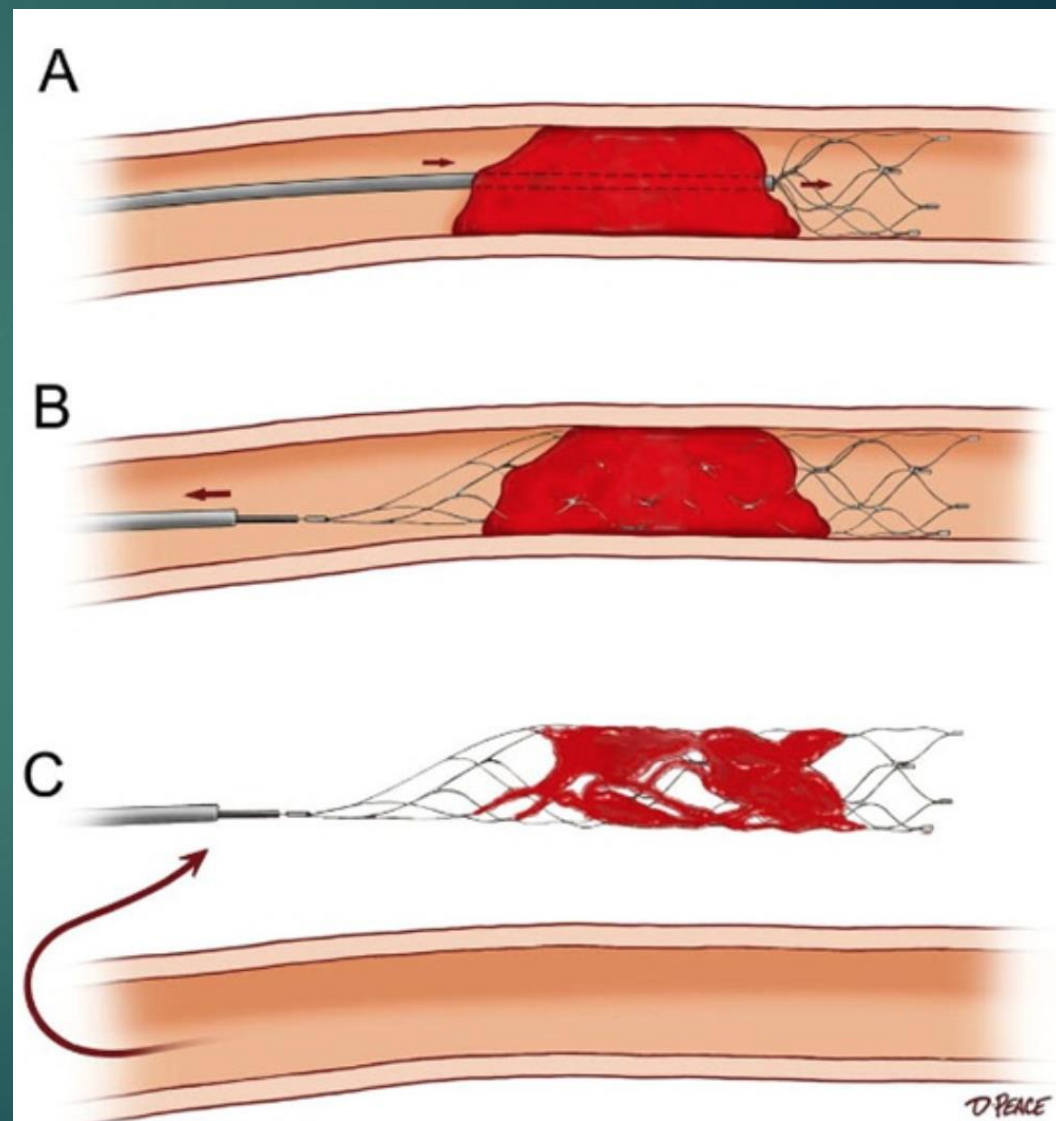
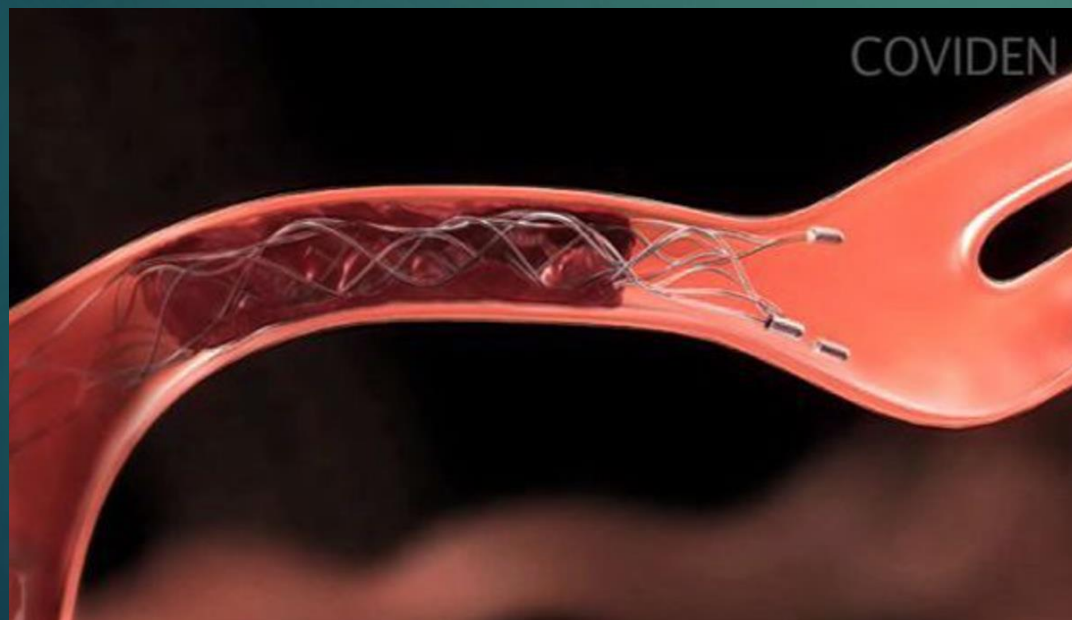
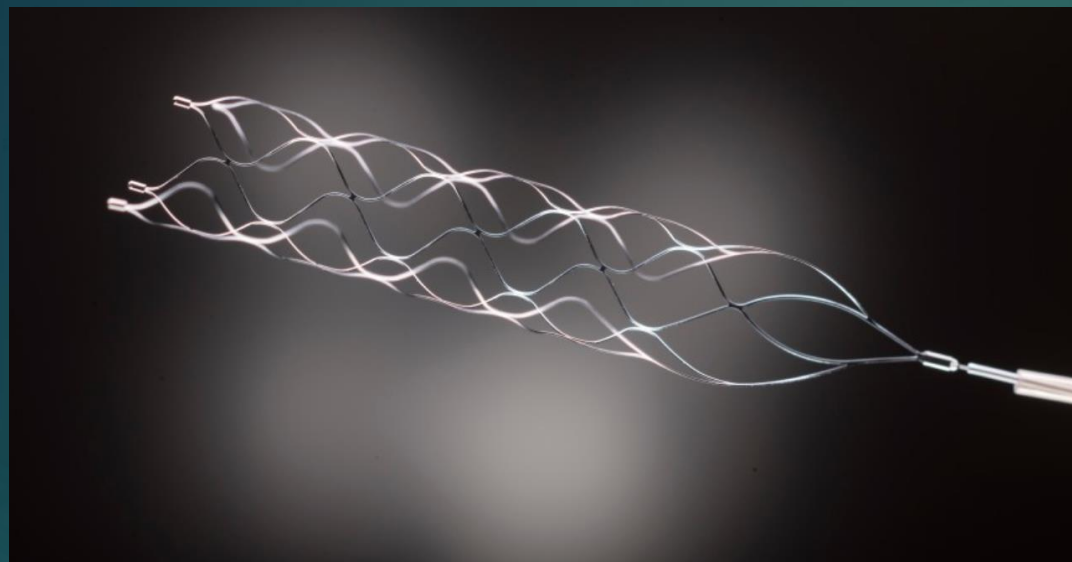


Artériographie pré-thérapeutique

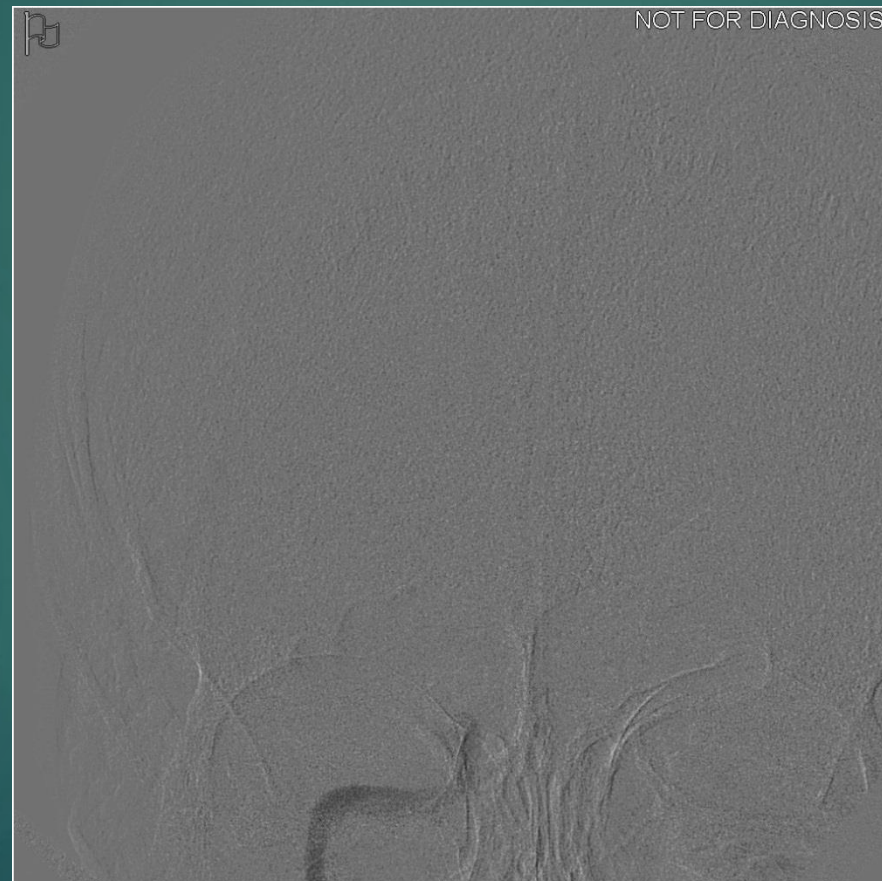


Artériographie pré-thérapeutique





Contrôle



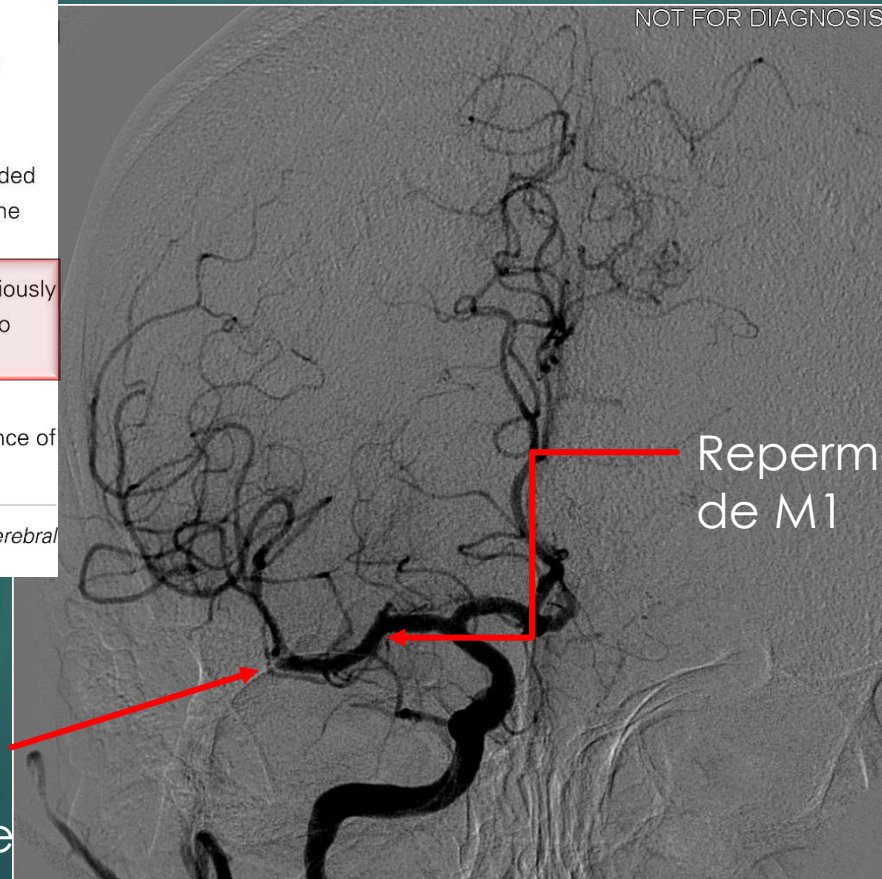
Contrôle



Contrôle

mTICI grades	Definitions
Grade 0	No perfusion
Grade 1	Antegrade reperfusion past the initial occlusion, but limited distal branch filling with little or slow distal reperfusion
Grade 2a	Antegrade reperfusion of less than half of the occluded target artery previously ischemic territory (e.g., in one major division of the MCA and its territory)
Grade 2b	Antegrade reperfusion of more than half of the previously occluded target artery ischemic territory (e.g., in two major divisions of the MCA and their territories)
Grade 3	Complete antegrade reperfusion of the previously occluded target artery ischemic territory, with absence of visualized occlusion in all distal branches

MCA indicates middle cerebral artery; and mTICI is modified treatment in cerebral ischemia scale.



Persistence
d'une
occlusion
d'une petite
branche
temporale

Reperméabilisation
de M1

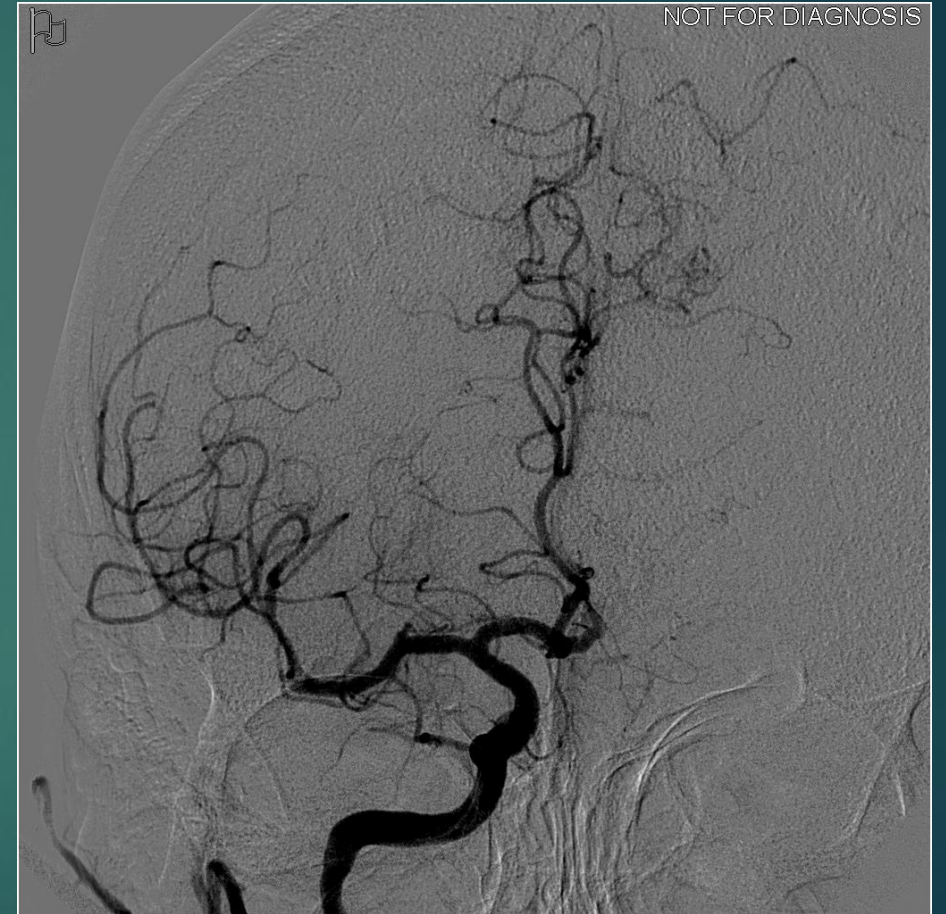
AHA/ASA Guideline

2015 American Heart Association/American Stroke Association Focused Update of the 2013 Guidelines for the Early Management of Patients With Acute Ischemic Stroke Regarding Endovascular Treatment
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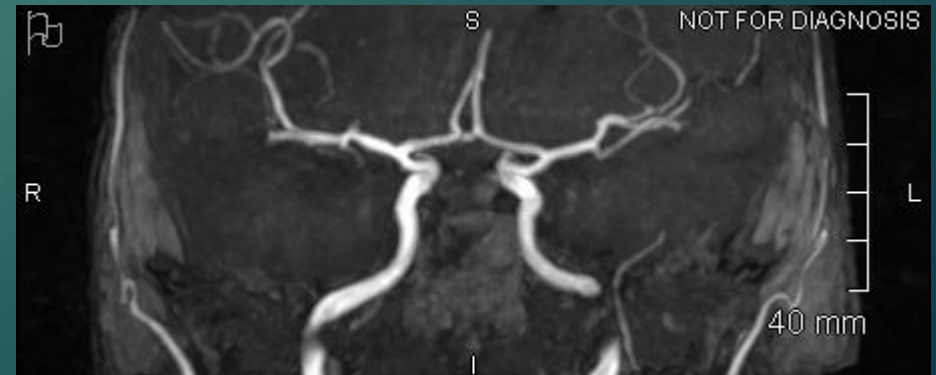
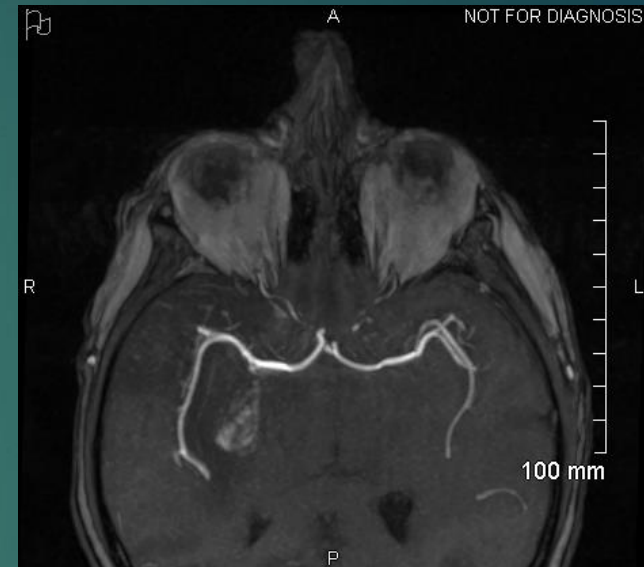
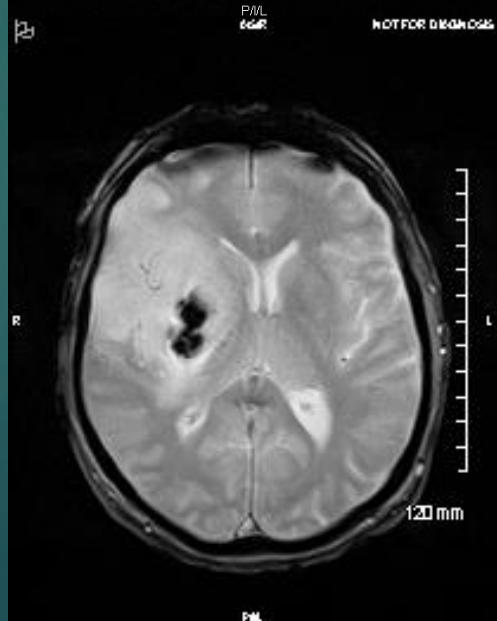
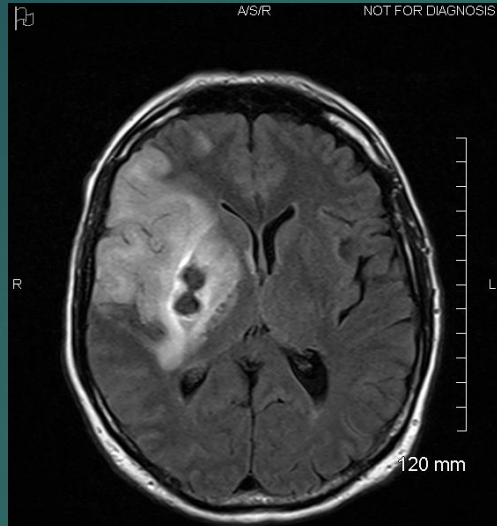
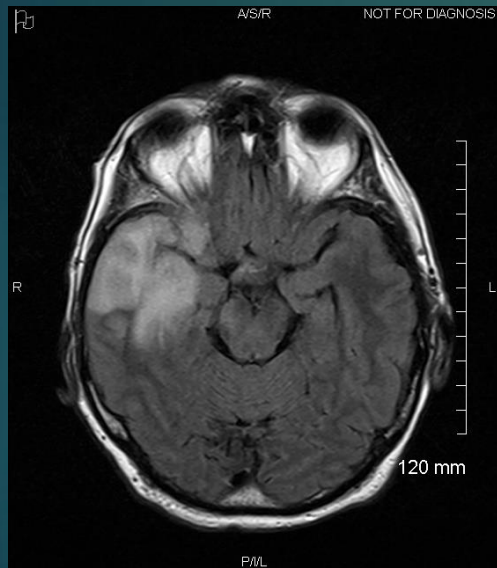
The American Academy of Neurology affirms the value of this guideline as an educational tool for neurologists.

As with intravenous r-tPA, reduced time from symptom onset to reperfusion with endovascular therapies is highly associated with better clinical outcomes. To ensure benefit, reperfusion to TICI grade 2b/3 should be achieved as early as possible and within 6 hours of stroke onset (Class I; Level of Evidence B-R). (Revised from the 2013 guideline)

Contrôle



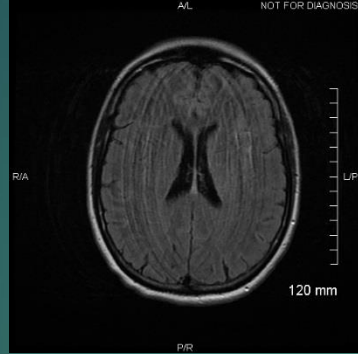
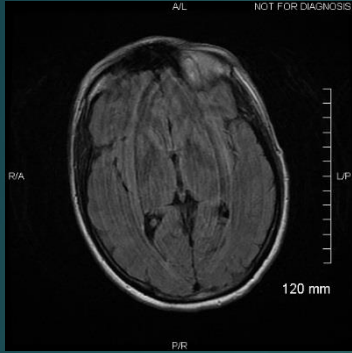
IRM de contrôle



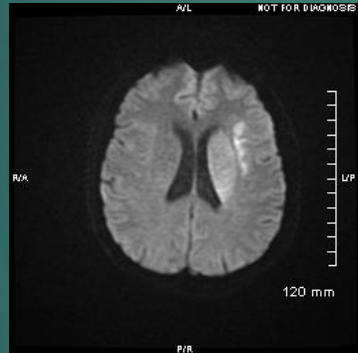
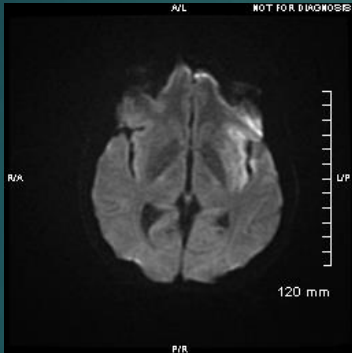
Cas n° 2

- ▶ Mme D, 51 ans, droitère, habitant Troarn
- ▶ Rankin 0
- ▶ ATCD: hypothyroïdie
- ▶ TTT:
 - ▶ Levothyrox (mauvaise observance)
- ▶ Hémiplégie droite et aphasie globale à **7h00** constatée par son mari
- ▶ Arrivée aux DATU du CHU à **8h56**
- ▶ Cliniquement:
 - ▶ NIHSS 24
 - ▶ Hémiplégie droite complète
 - ▶ HLH droite
 - ▶ Aphasie

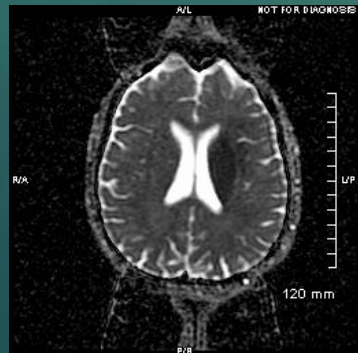
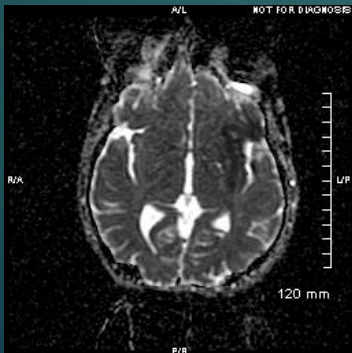
IRM cérébrale réalisée à 9h12



Pas d'hypersignal FLAIR

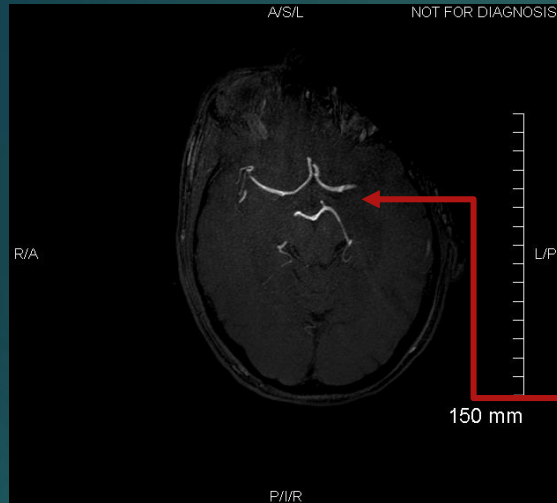


Hypersignal diffusion sylvien gauche

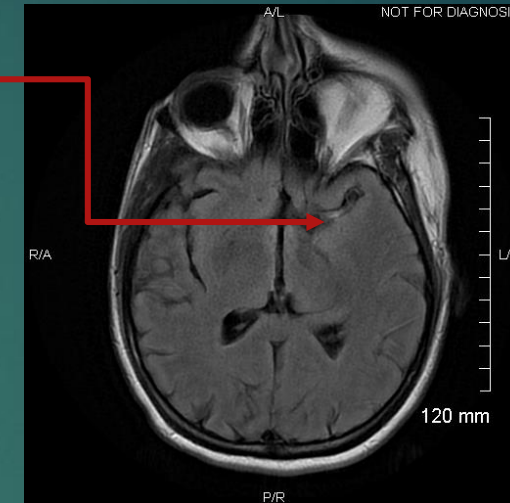


Restriction de l'ADC

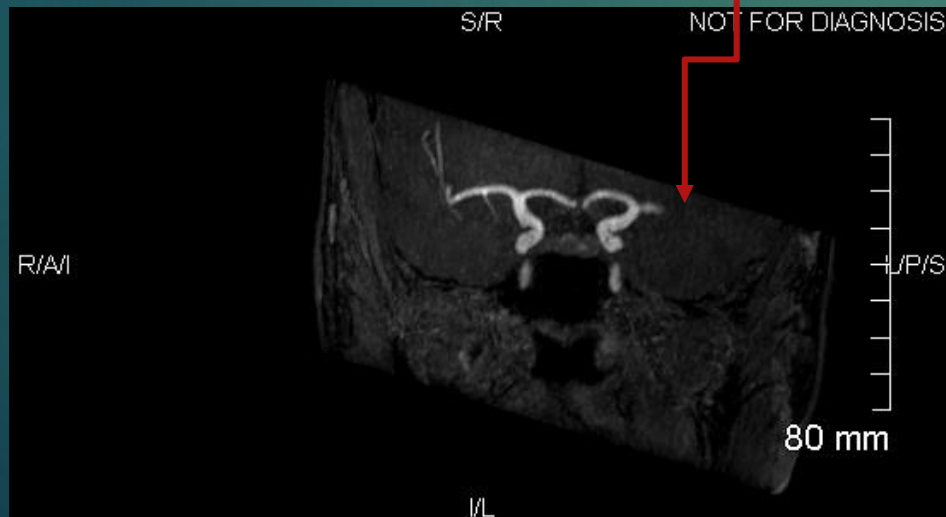
IRM cérébrale réalisée à 9h12



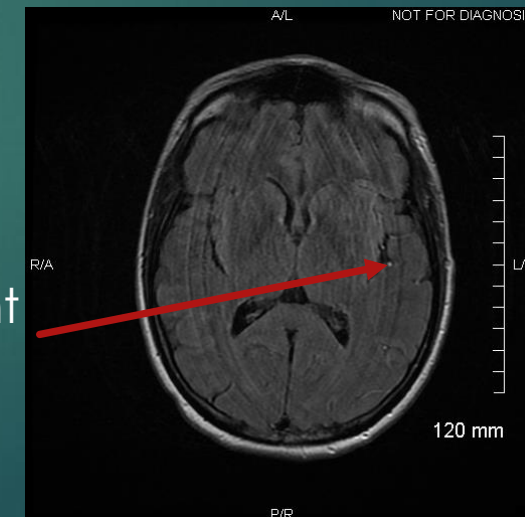
Thrombus en
hypersignal FLAIR



Occlusion de M1 gauche



Ralentissement
du flux



Cas n° 2

▶ **AU TOTAL:**

- ▶ AVC ischémique sylvien gauche
- ▶ Aigu, avec mismatch FLAIR-DIFFUSION
- ▶ Sur occlusion de M1 gauche
- ▶ Sans remaniement hémorragique

Cas n° 2

- ▶ Fibrinolyse IV débutée à **9h50**

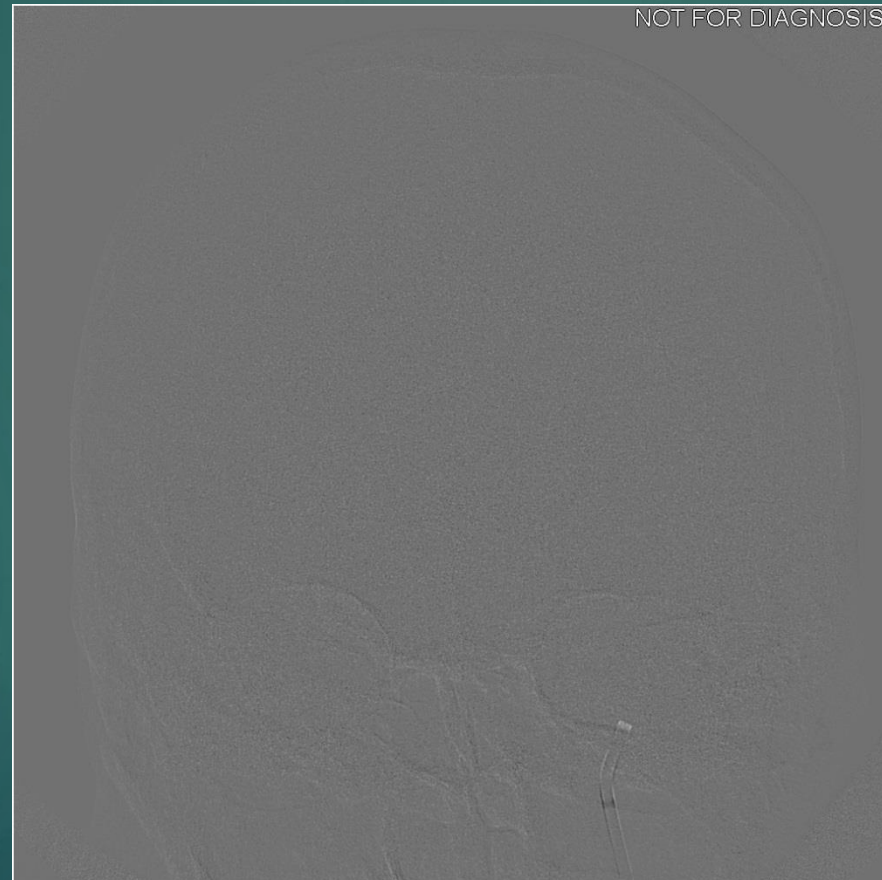


DOOR TO NEEDLE = 54 minutes

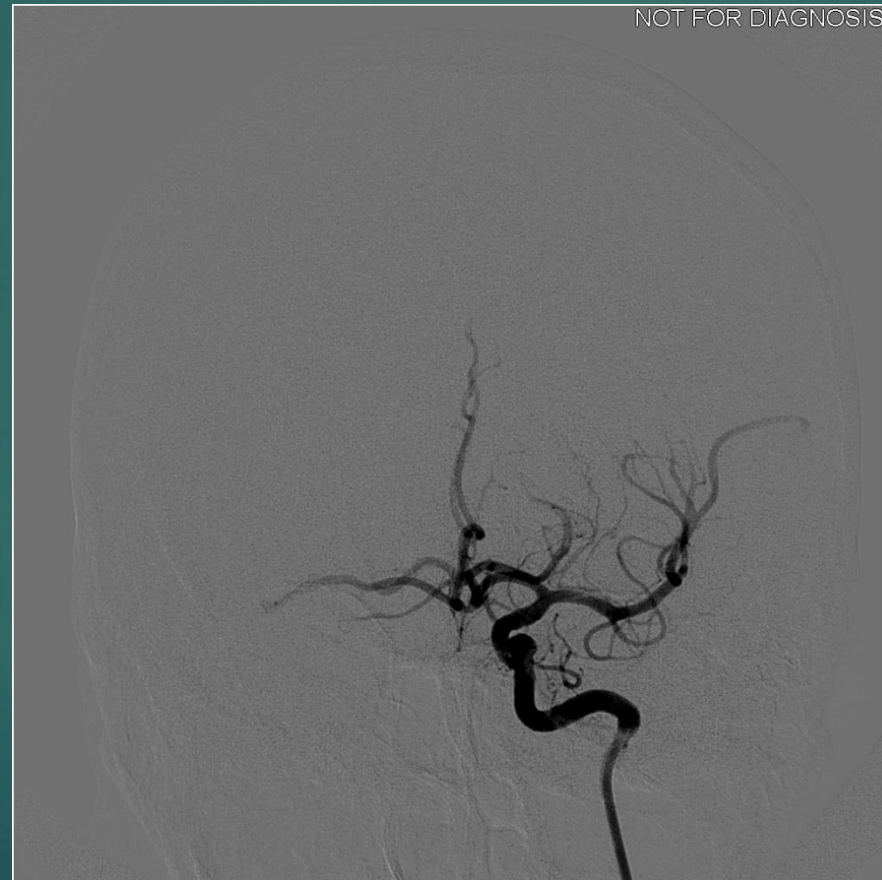
Cas n° 2

- Prise en charge en salle de NRI à **11h41** devant l'indication d'une thrombectomie mécanique:

Arteriographie



Arteriographie



Arteriographie



Arteriographie



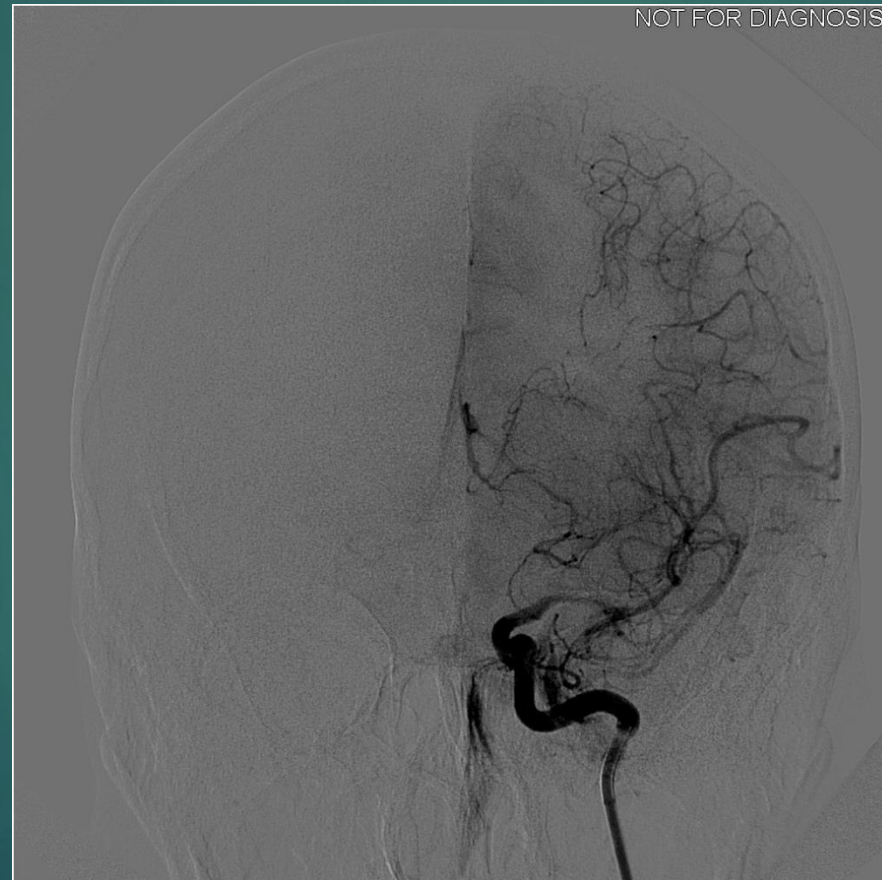
Arteriographie



Arteriographie



Arteriographie



Cas n° 2

- ▶ Arteriographie:
 - ▶ TICI 3
 - ▶ Recanalisation complète de l'artère sylvienne gauche
 - ▶ Aucun geste complémentaire à envisager
- ▶ Patiente sortante de neurologie à J+9, poursuite de la PEC en rééducation au CHU, puis en HDJ
- ▶ Revue en consultation à M+4, mRS = 3, persistance d'un déficit droit aux trois étages à 4/5 avec spasticité

Cas n° 2

► Recanalisation sur thrombolyse seule:

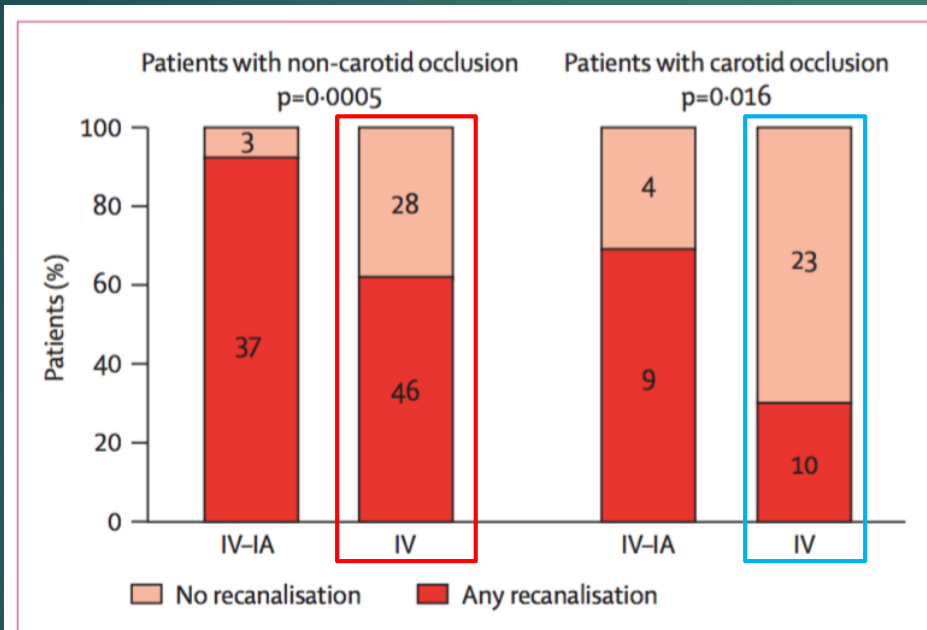


Figure 2: Frequency of recanalisation status according to therapeutic group and site of occlusion

Number of patients in each stratum are shown. IV-IA=intravenous-endovascular treatment. IV=intravenous treatment.

Comparison of intravenous alteplase with a combined intravenous–endovascular approach in patients with stroke and confirmed arterial occlusion (RECANALISE study): a prospective cohort study

Mikael Mazighi, Jean-Michel Serfaty, Julien Labreuche, Jean-Pierre Laissy, Elena Meseguer, Philippa C Lavallée, Lucie Cabrejo, Tarik Slaoui, Céline Guidoux, Bertrand Lapergue, Isabelle F Klein, Jean-Marc Olivot, Gai Raphaeli, Christiane Gohin, Elisabeth Schouman Claeys, Pierre Amarenco, on behalf of the REcanalisation using Combined intravenous Alteplase and Neurointerventional ALgorithm for acute Ischemic Stroke (RECANALISE) investigators

Among patients in the IV group, the rate of recanalisation was 30% for carotid occlusion compared with 62% for any other location ($p < 0.0001$). The corresponding partial

Pourquoi la thrombectomie?

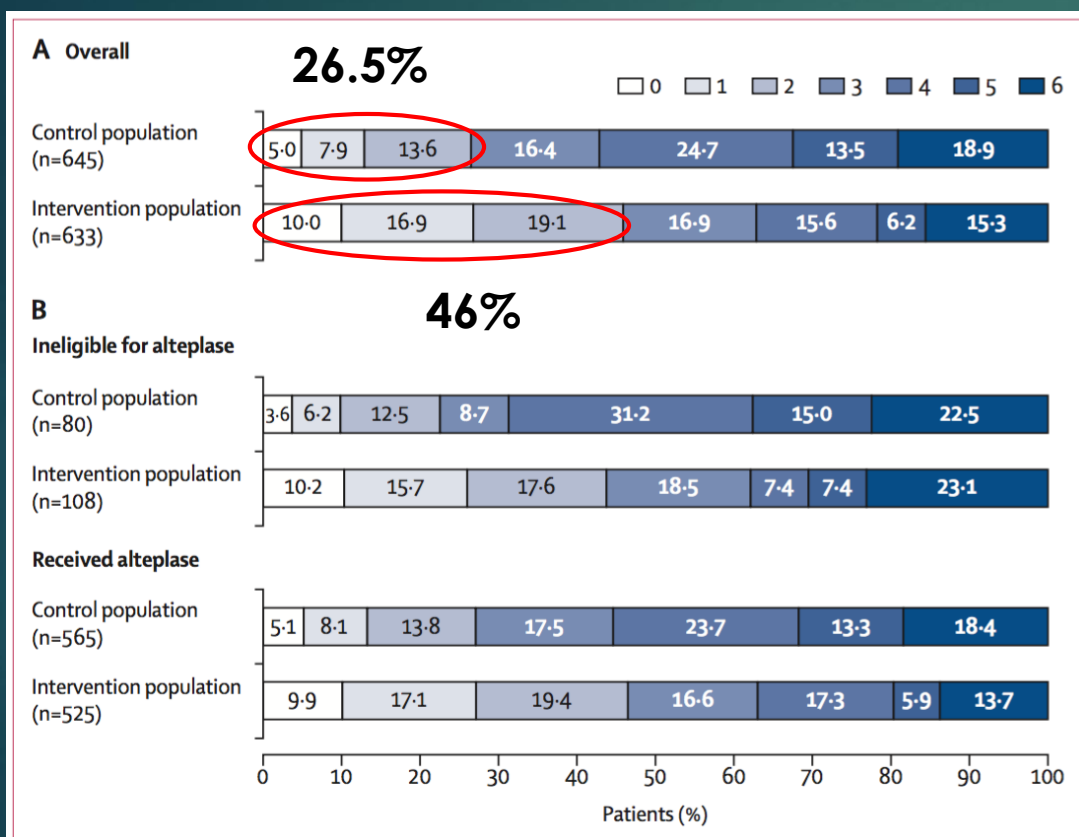


Figure 1: Scores on the modified Rankin Scale at 90 days

Distribution of scores at 90 days in the intervention and control groups in the overall trial population (A) and for patients treated with, or ineligible for, intravenous alteplase (B). Distributions for other subgroups shown in appendix pp 5–11.

Endovascular thrombectomy after large-vessel ischaemic stroke: a meta-analysis of individual patient data from five randomised trials

Mayank Goyal, Bijoy K Menon, Wim H van Zwam, Diederik W J Dippel, Peter J Mitchell, Andrew M Demchuk, Antoni Davalos, Charles B L M Majole, Aad van der Lugt, Maria A de Miquel, Geoffrey A Donnan, Yvo BW E M Roos, Alain Bonafe, Reza Jahan, Hans-Christoph Diener, Lucie A van den Berg, Elad I Levy, Olvert A Benkhmer, Vitor M Pereira, Jeremy Rempel, Monica Millan, Stephen M Davis, Daniel Roy, John Thornton, Luis San Roman, Marc Ribo, Debbie Baumer, Bruce Stouch, Scott Brown, Bruce CV Campbell, Robert J van Oostemburg, Jeffrey L Saver, Michael D Hill, Tudor G Jovin, for the HERMES collaborators

	Intervention population	Control population	Risk difference (%)	Rate ratio (95% CI)	Odds ratio (95% CI)	Adjusted rate ratio (95% CI)	Adjusted odds ratio (95% CI)
Symptomatic intracranial haemorrhage	4.4% (28/634)	4.3% (28/653)	0.1	1.06 (0.63–1.80); p=0.82	1.07 (0.62–1.83); p=0.81	1.07 (0.62–1.80); p=0.81	1.07 (0.62–1.84); p=0.81
Parenchymal haematoma type 2	5.1% (32/629)	5.3% (34/641)	–0.2	0.99 (0.61–1.61); p=0.97	0.99 (0.60–1.63); p=0.97	1.04 (0.64–1.69); p=0.88	1.04 (0.63–1.72); p=0.88
Mortality	15.3% (97/633)	18.9% (122/646)	–3.6	0.82 (0.63–1.07); p=0.15	0.77 (0.54–1.10); p=0.16	0.82 (0.62–1.08); p=0.15	0.73 (0.47–1.13); p=0.16

Data show the proportion of patients with outcome (n/N), unless otherwise stated.

Table 4: Safety outcomes at 90 days

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- Prestroke mRS score 0 to 1,
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- NIHSS score of ≥ 6 ,
- ASPECTS of ≥ 6 , and**
- Treatment can be initiated (groin puncture) within 6 hours of symptom onset



Endovascular thrombectomy after large-vessel ischaemic stroke: a meta-analysis of individual patient data from five randomised trials

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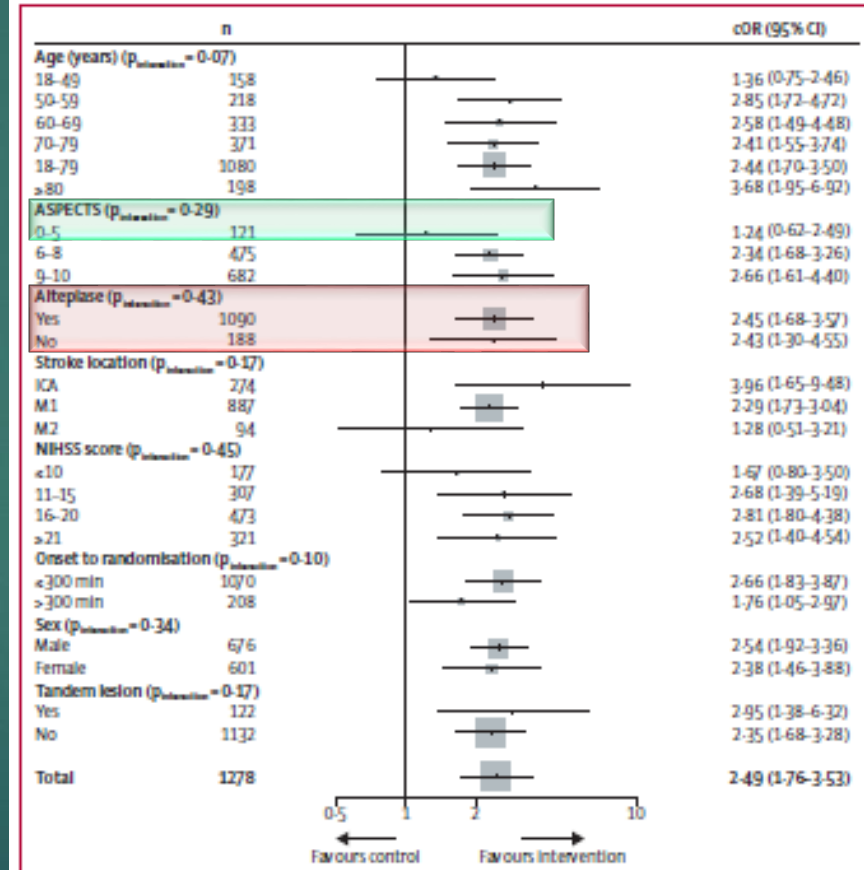


Figure 2: Forest plot showing adjusted treatment effect for mRS at 90 days in prespecified subgroups with p-values for heterogeneity across subgroups. cOR=common odds ratio. mRS=modified Rankin Scale. ASPECTS=Alberta Stroke Program Early CT score. ICA=internal carotid artery. M1=M1 segment of middle cerebral artery. M2=M2 segment of middle cerebral artery. NIHSS=National Institutes of Health Stroke Scale.



Thrombolyse et Thrombectomie

Atelier numéro 2

JOURNEE AVC 16 JUIN 2016

Rivka Bendrihem , Florent Braud, Julien Cogez – CHU de Caen

Hélène Raoult – CHU de Rennes

Anne Guilbert – CH Alençon

Damien Sineux – Samu 50

Christian Marie – Coordination AVC

Motif d'hospitalisation :

- ▶ Madame B. 88 ans
 - ▶ Autonome
 - ▶ Marche avec un déambulateur
 - ▶ Vit chez son fils
-
- ▶ Troubles de la parole avec déficit brachio facial gauche

Antécédents :

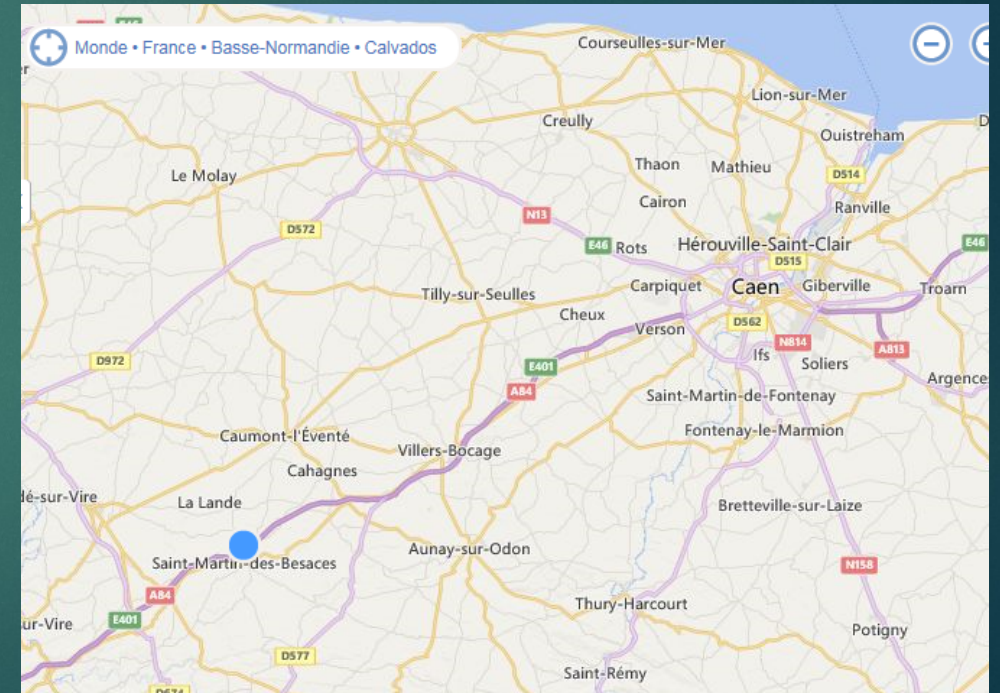
- ▶ FA
- ▶ HTA
- ▶ Dyslipidémie
- ▶ PTH droite
- ▶ hystérectomie

Traitements :

- ▶ PREVISCAN
- ▶ SIMVASTATINE
- ▶ ATENOLOL 50 ½ /j
- ▶ MOVICOL
- ▶ SPASFON
- ▶ DICLOFENAC
- ▶ PARACETAMOL

Anamnèse :

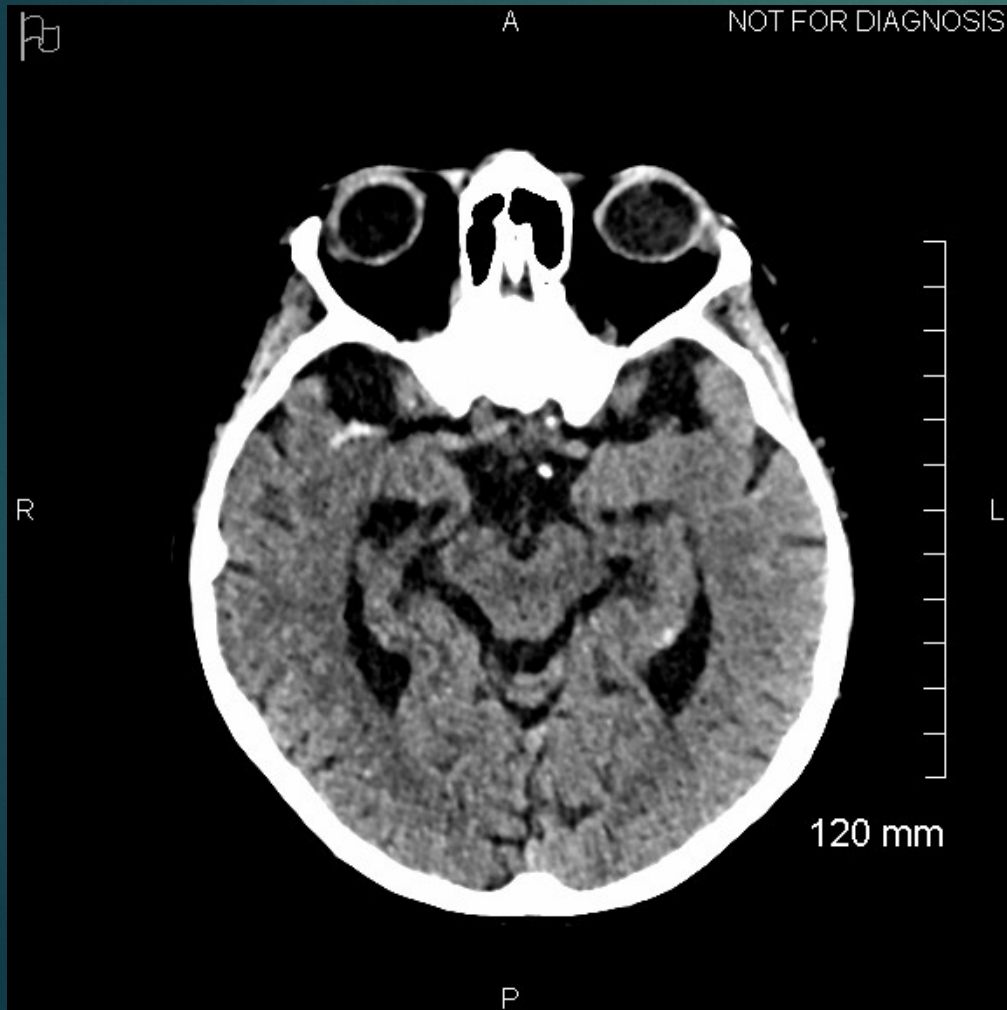
- ▶ 10h30 déficit brachio facial gauche et dysarthrie
- ▶ Arrivée DATU : 11h49
- ▶ NIHSS: 3
- ▶ ECG: ACFA





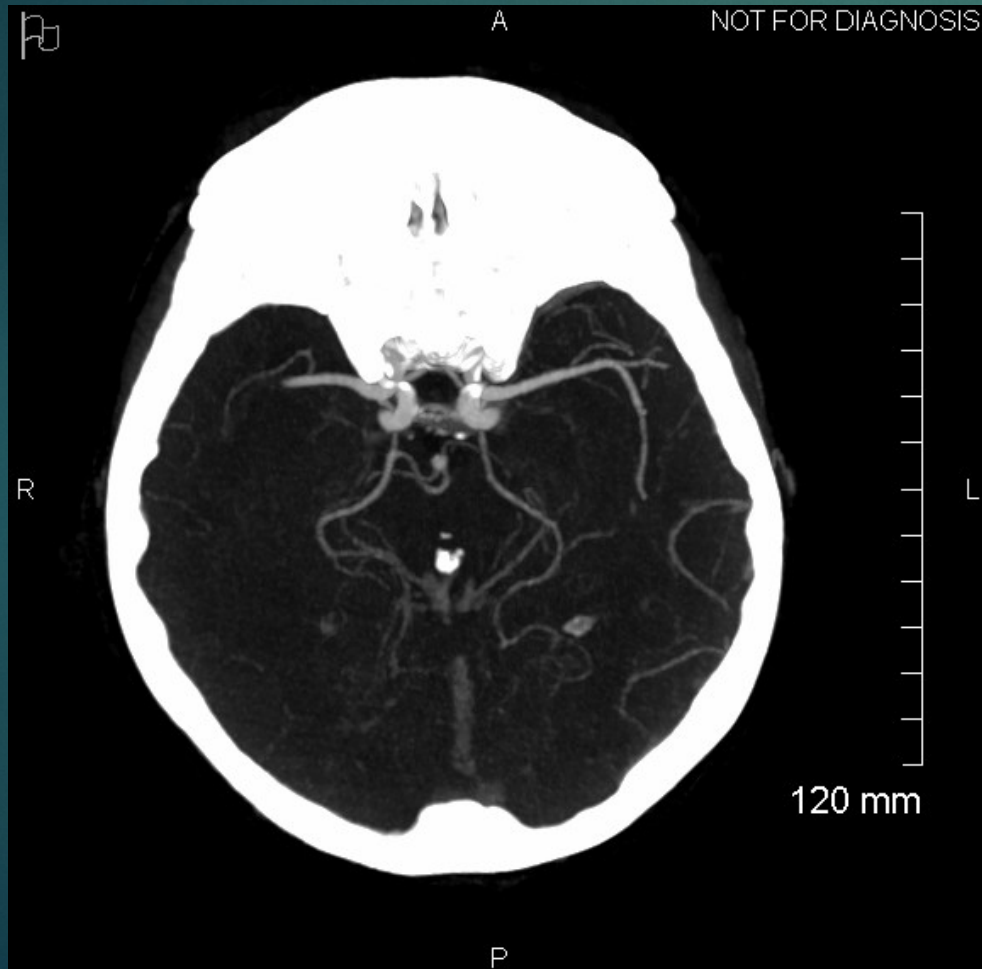
Quelle imagerie demandez vous?

Scanner cérébral à l'arrivée : J0 12H07



SIGNE DE LA TROP BELLE
ARTERE

Scanner cérébral J0 :





U.N.V. ?

Fibrinolyse?

Thrombectomie?

Fibrinolyse et thrombectomie?

Traitement médical :

- ▶ Actilyse IV 12h50
 - ▶ Soit 2h20 du début des symptômes
 - ▶ DTN : 61 min

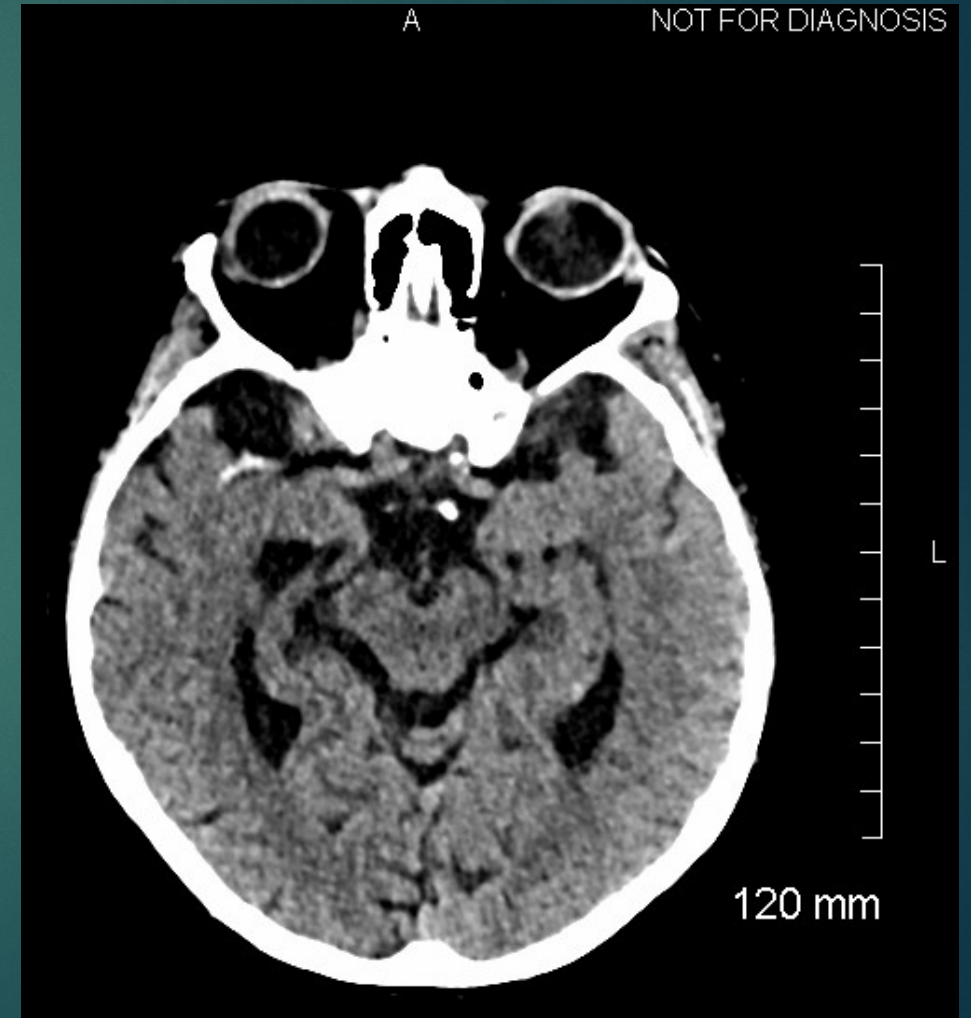
MAIS

- ▶ J0 13H10 aggravation de l'hémiplégie gauche, dysarthrie, HLH gauche, NIHSS 13

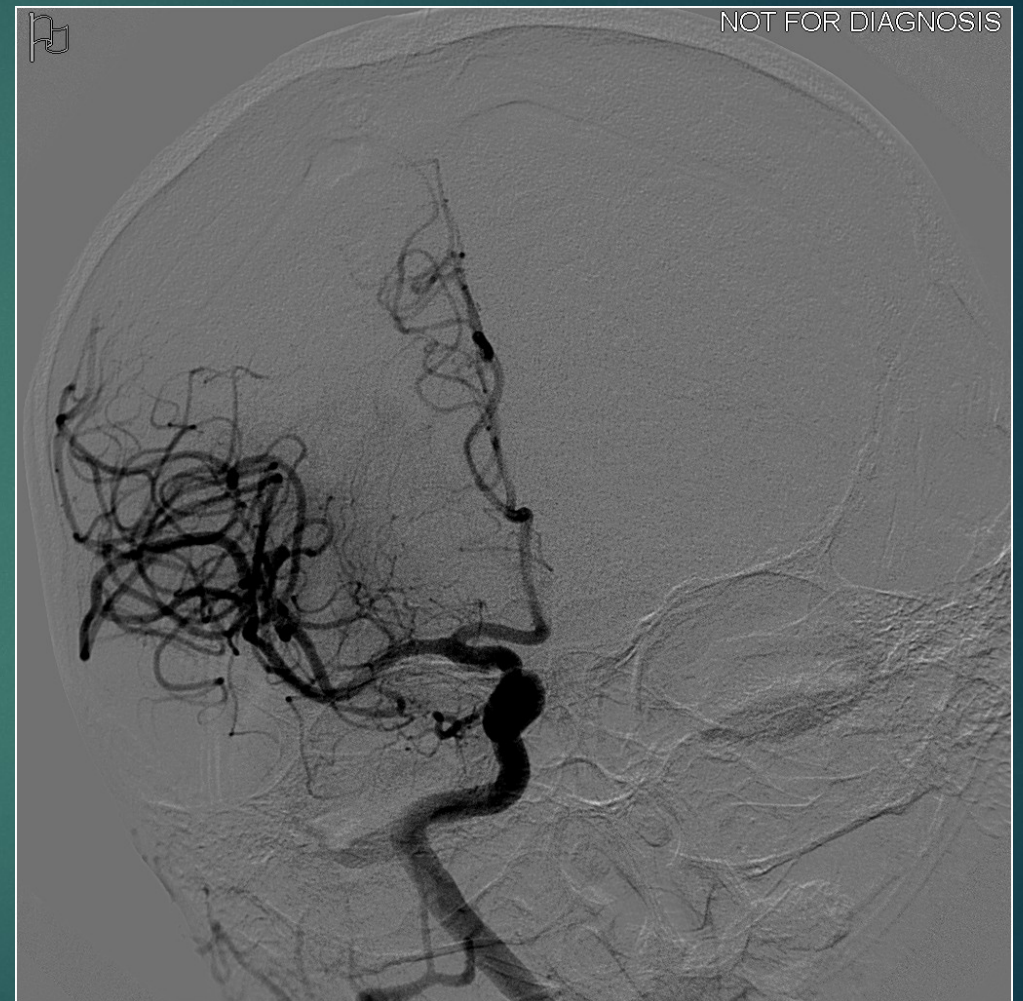
Quelle imagerie demandez vous?

MAIS

- ▶ Contrôle scanner post fibrinolyse
J0 13h25

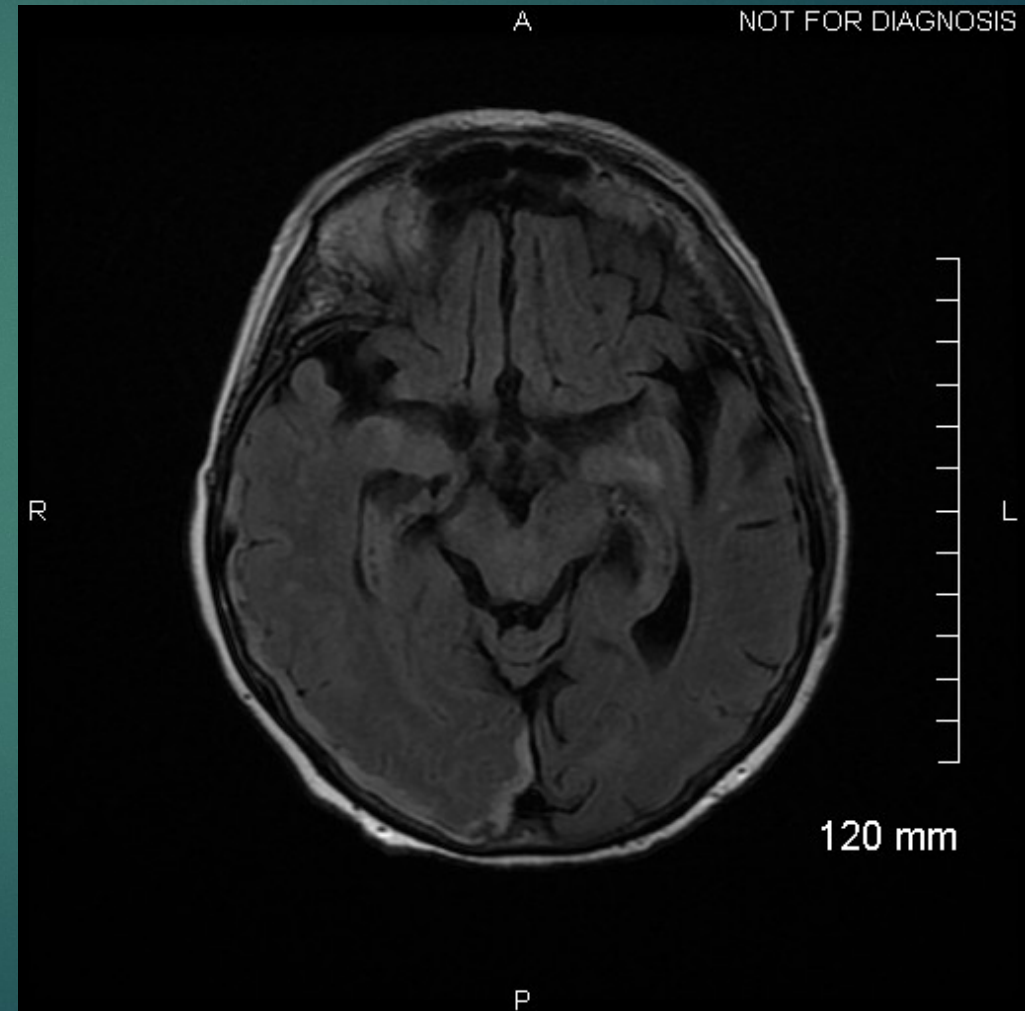
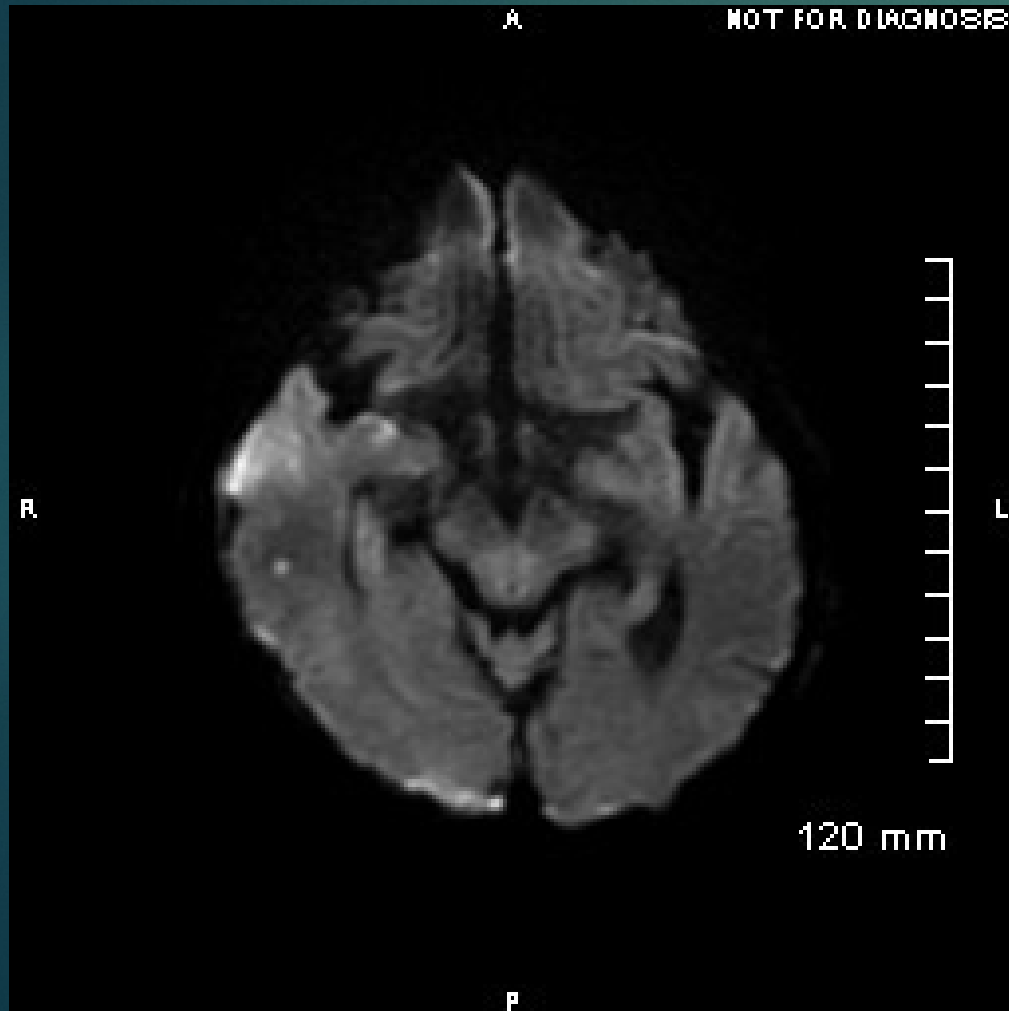


Artériographie J0 14h06

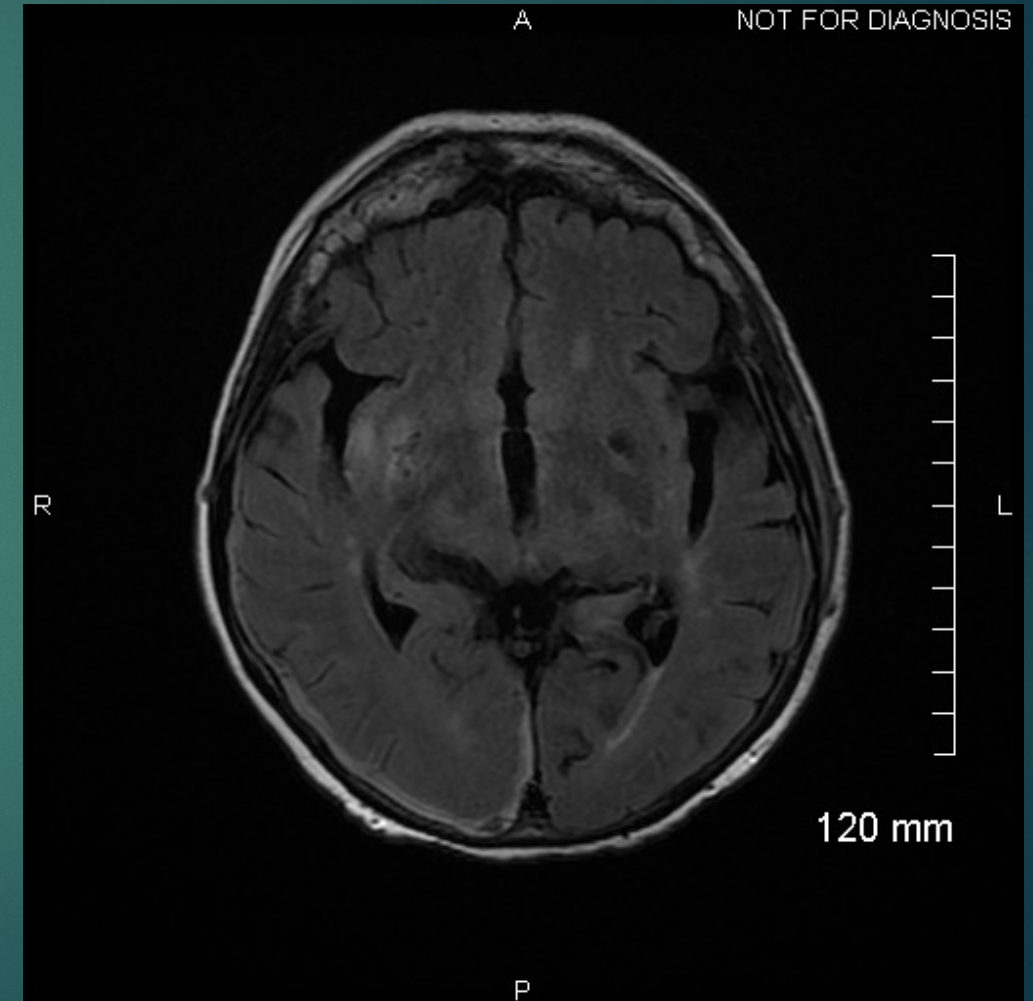
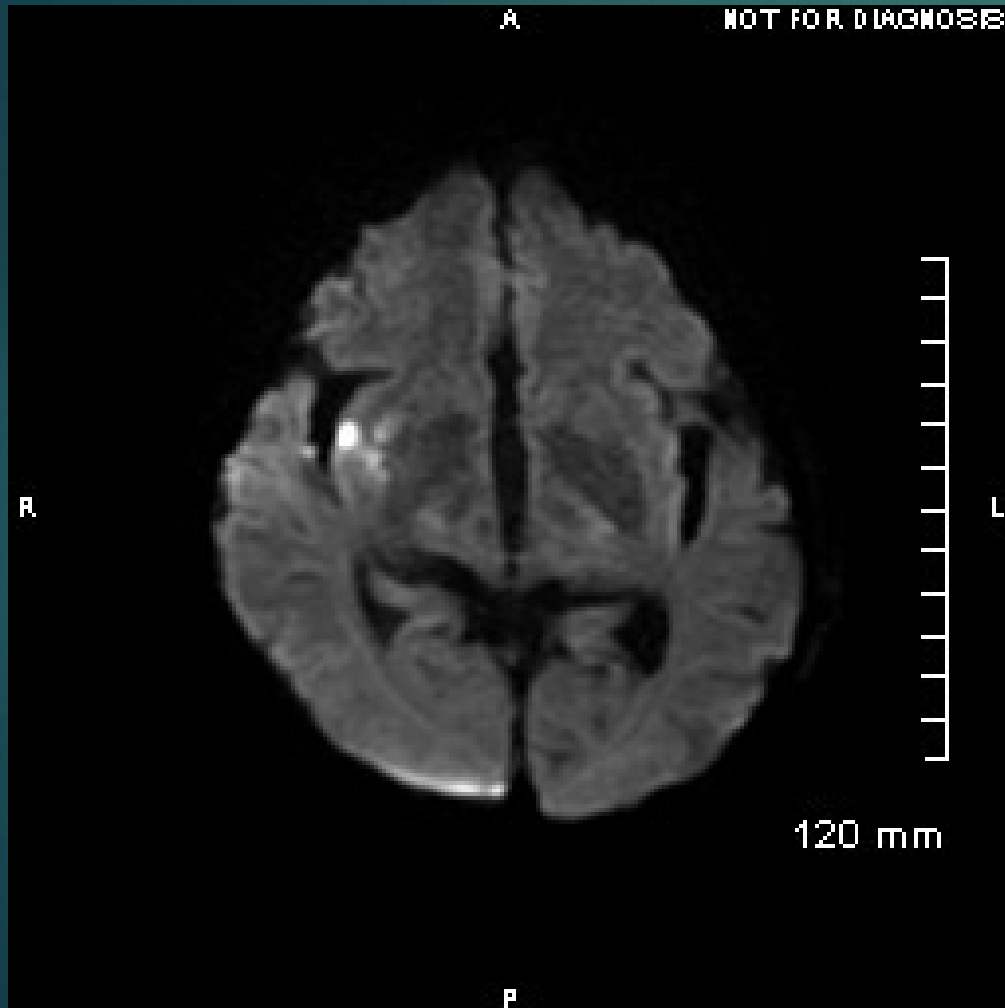


Recanalisation à 15h20 soit à 4 heures 50 min du début des signes.

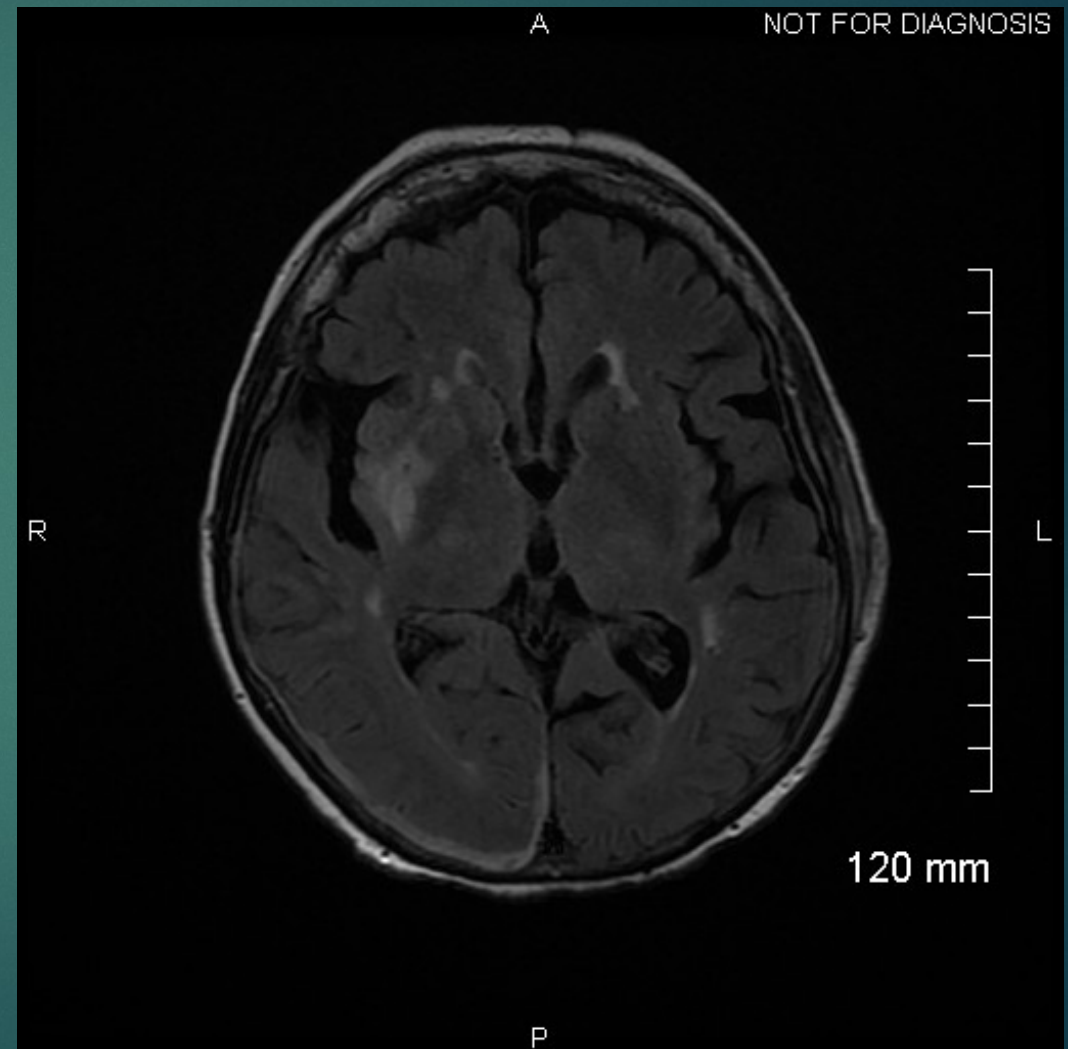
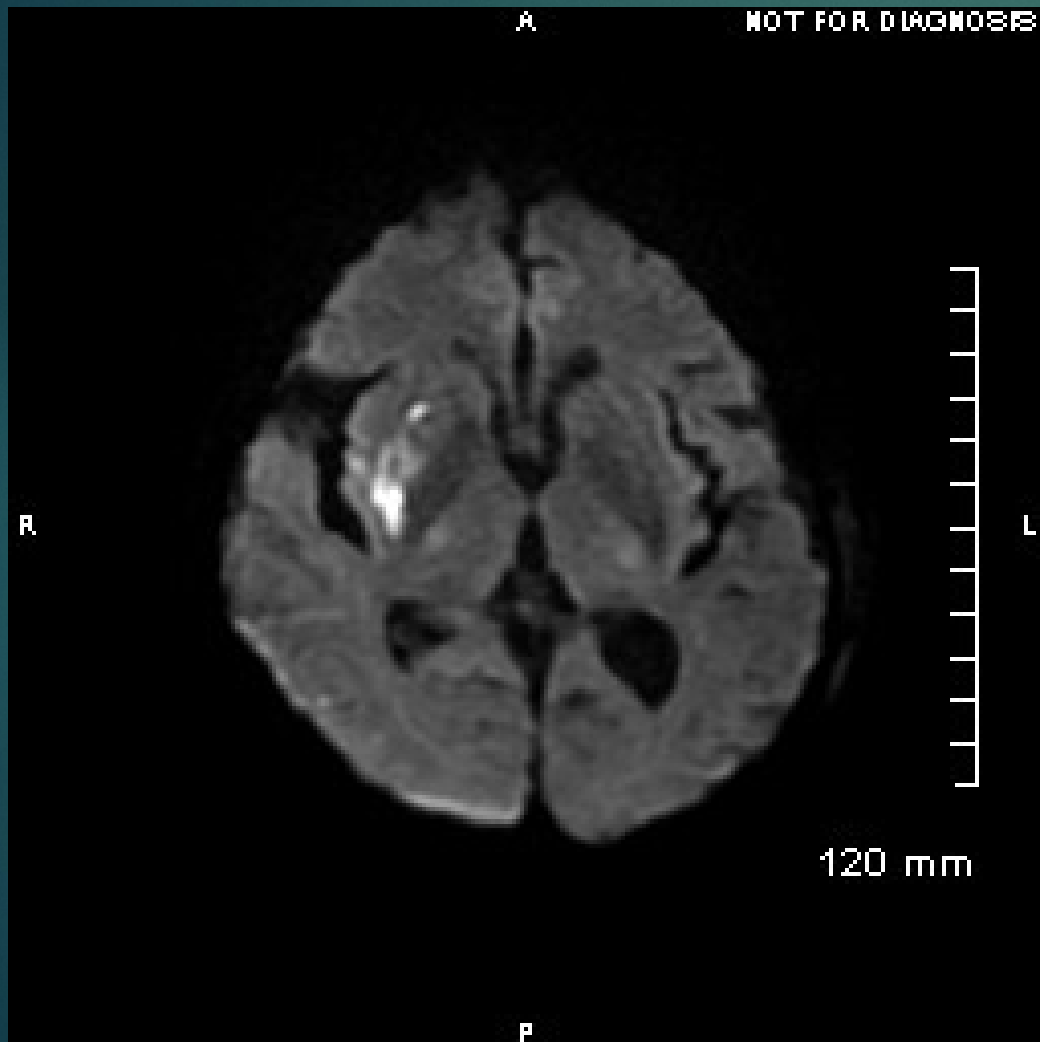
IRM à distance J4 :



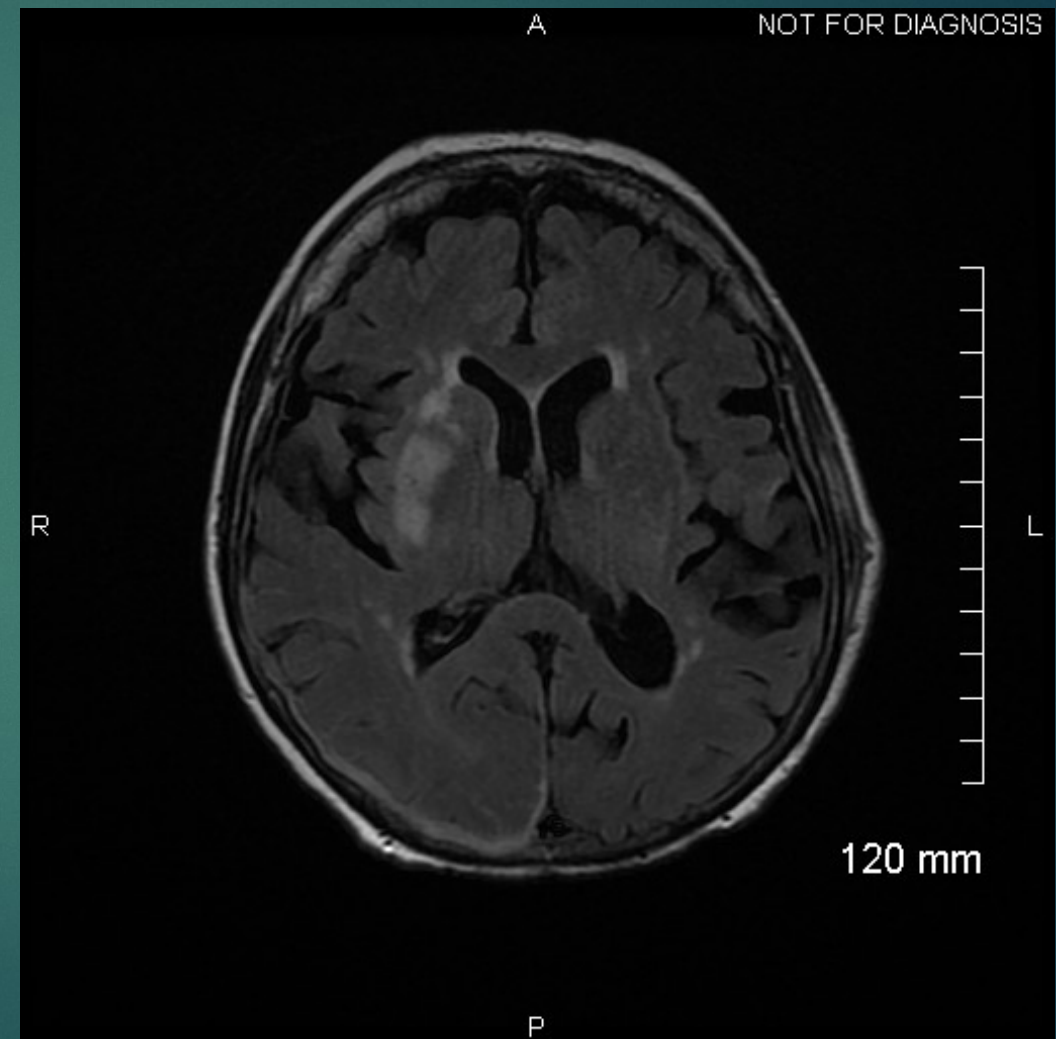
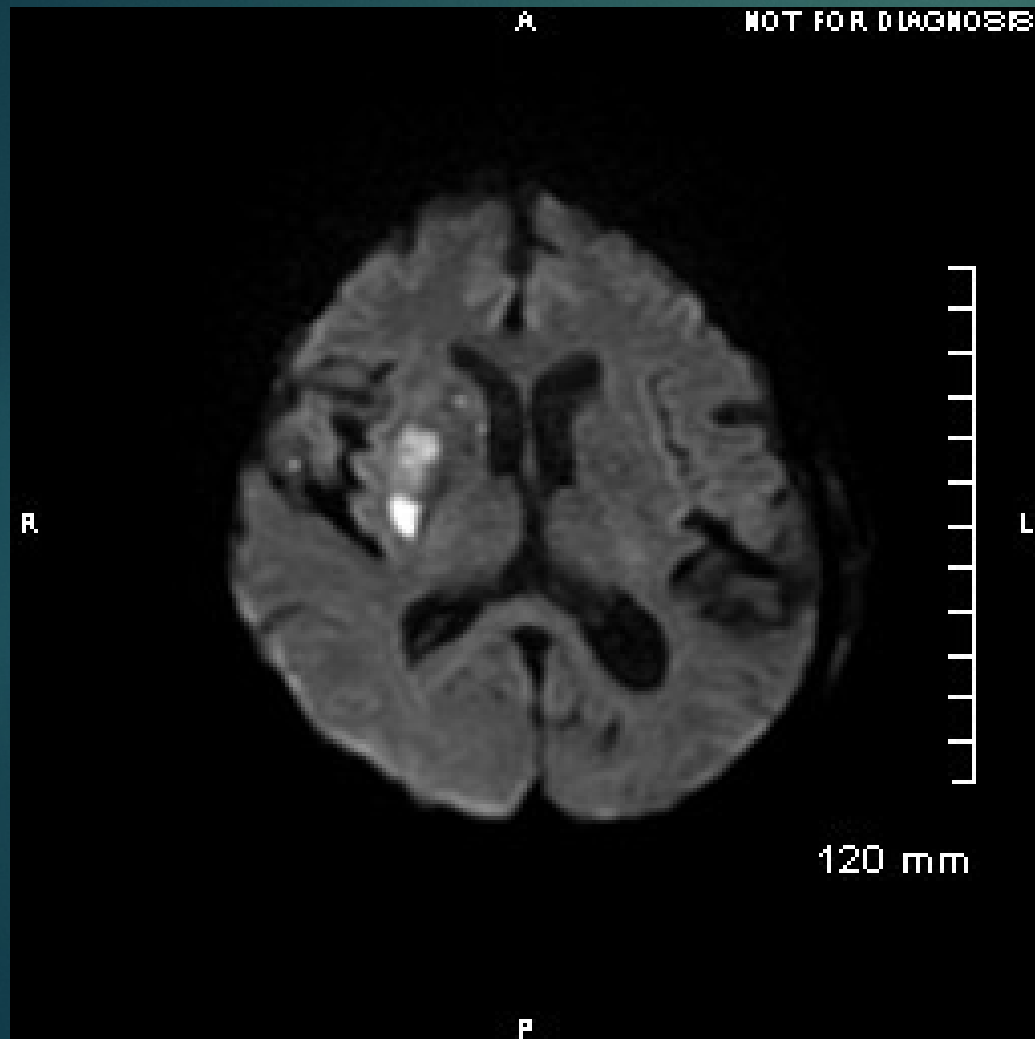
IRM à distance :



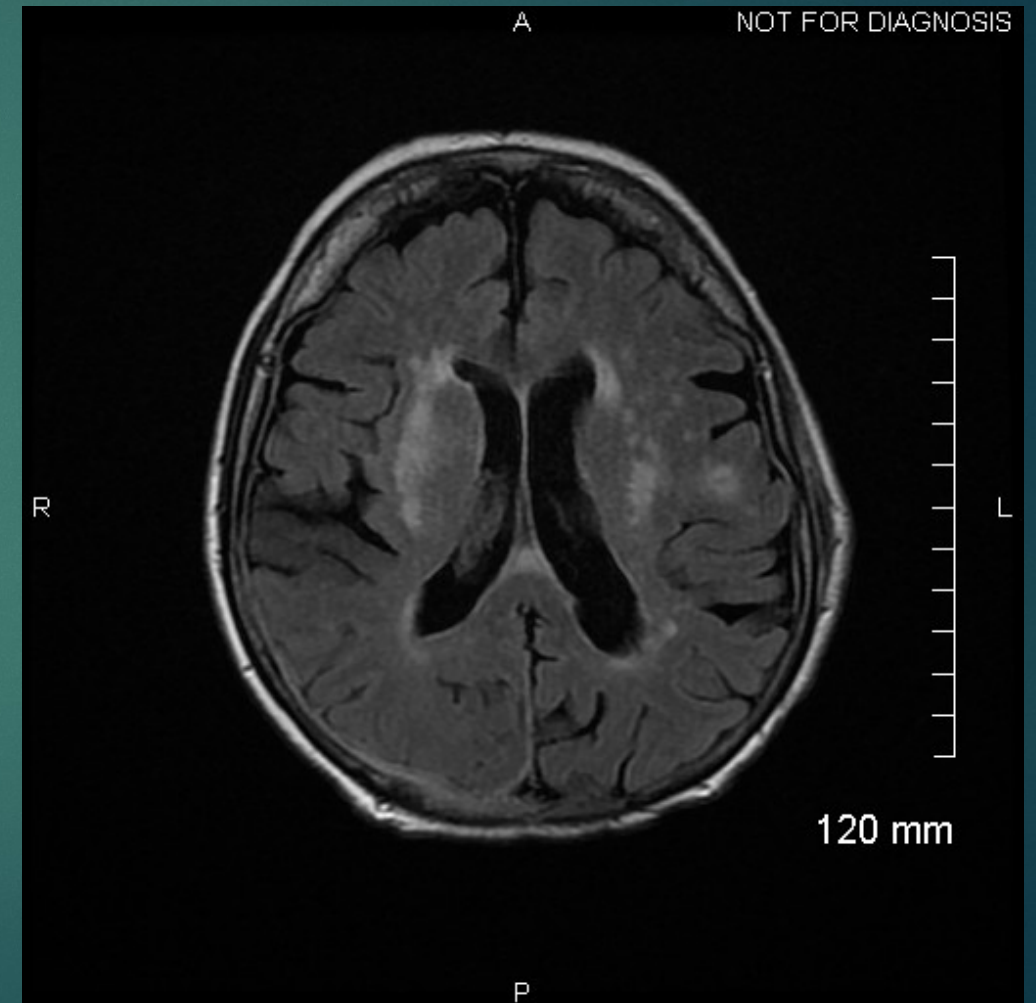
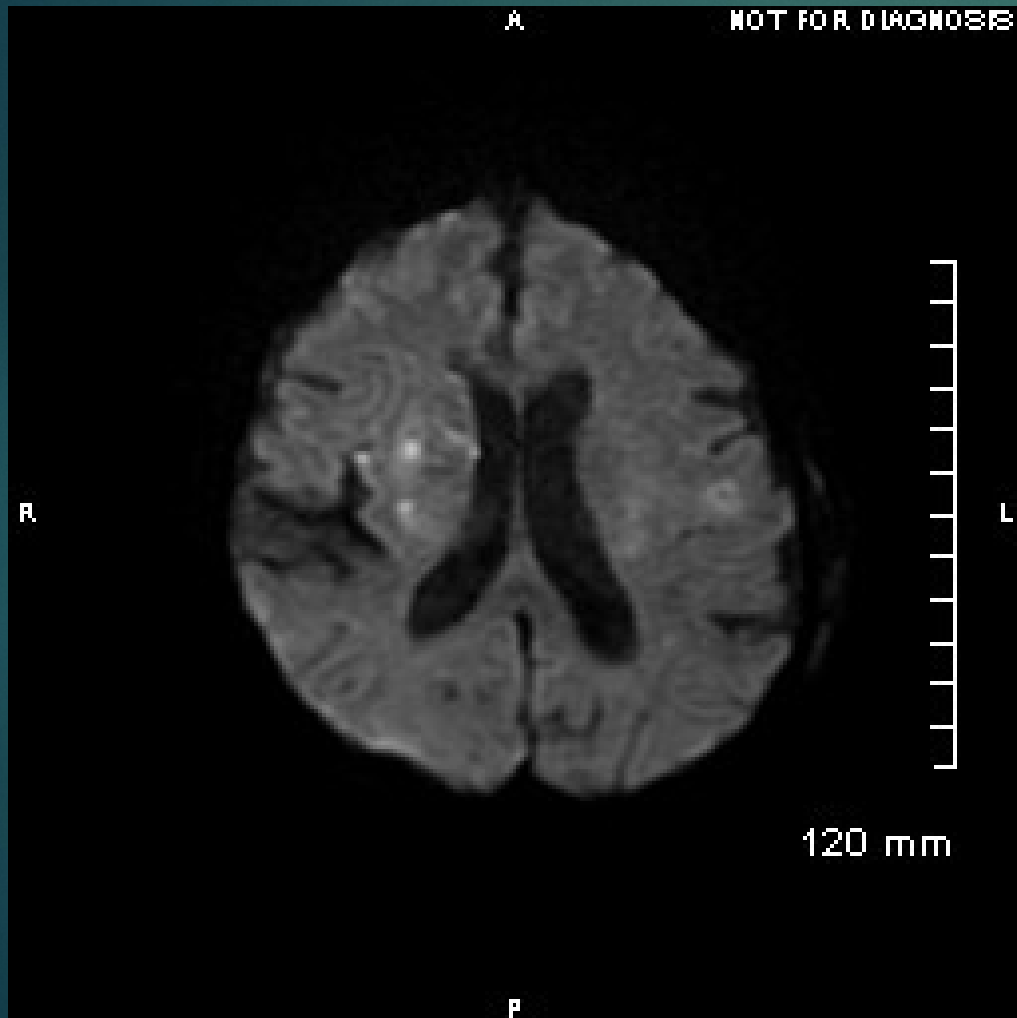
IRM a distance :



IRM à distance :



IRM à distance :



Evolution:

- ▶ Récupération complète du déficit moteur
- ▶ Persistance d'un hématome sous cutané au niveau du cuir chevelu côté gauche.
- ▶ NIHSS de sortie 0, Rankin 2
- ▶ Complication de la fibrinolyse: hématome sous dural occipital droit
- ▶ Introduction Dabigatran 110 mg à J12

Merci de votre attention



Thrombolyse et Thrombectomie

Atelier numéro 2

JOURNEE AVC 16 JUIN 2016

Rivka Bendrihem , Florent Braud, Julien Cogez – CHU de Caen

Hélène Raoult – CHU de Rennes

Anne Guilbert – CH Alençon

Damien Sineux – Samu 50

Christian Marie – Coordination AVC

Motif d'hospitalisation:

49 ans

Responsable en maintenance

3 enfants

► déficit de l'hémicorps gauche

Antécédents:

- ▶ Dyslipidémie
- ▶ Tabagisme sevré depuis 6 mois à 20 PA
- ▶ AOMI chez le père

Traitement : aucun

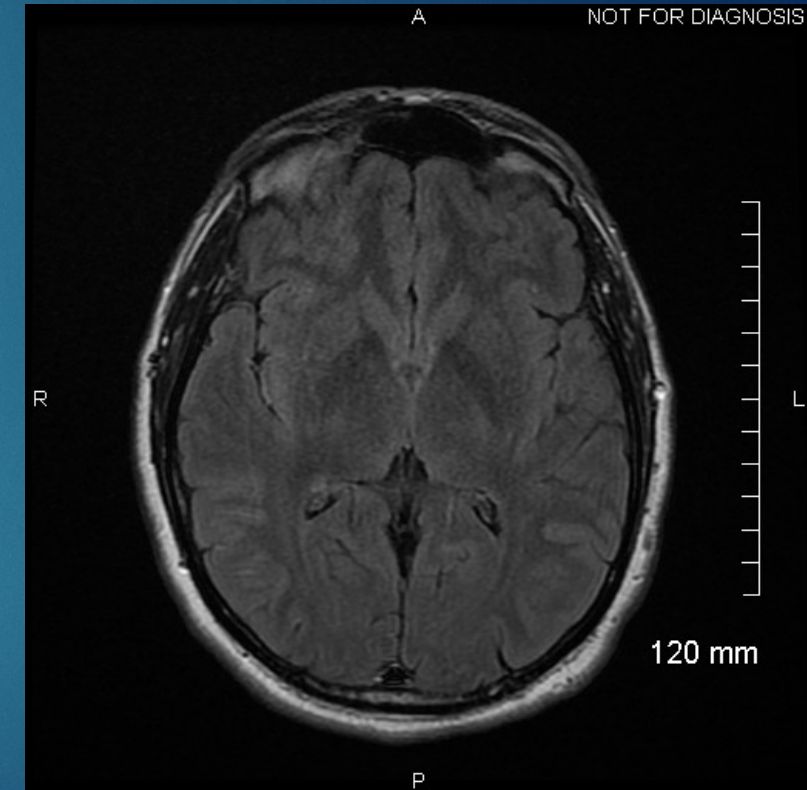
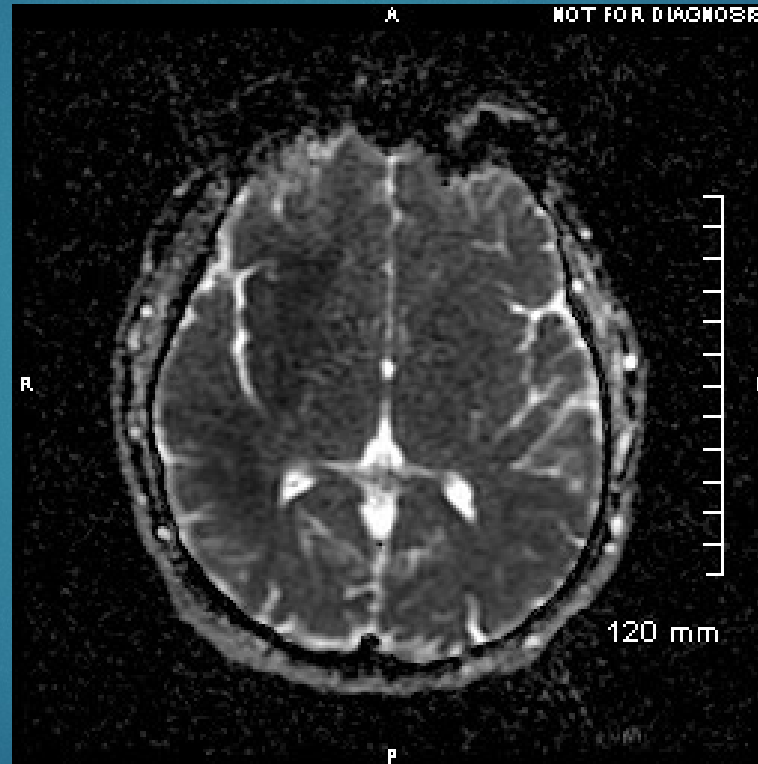
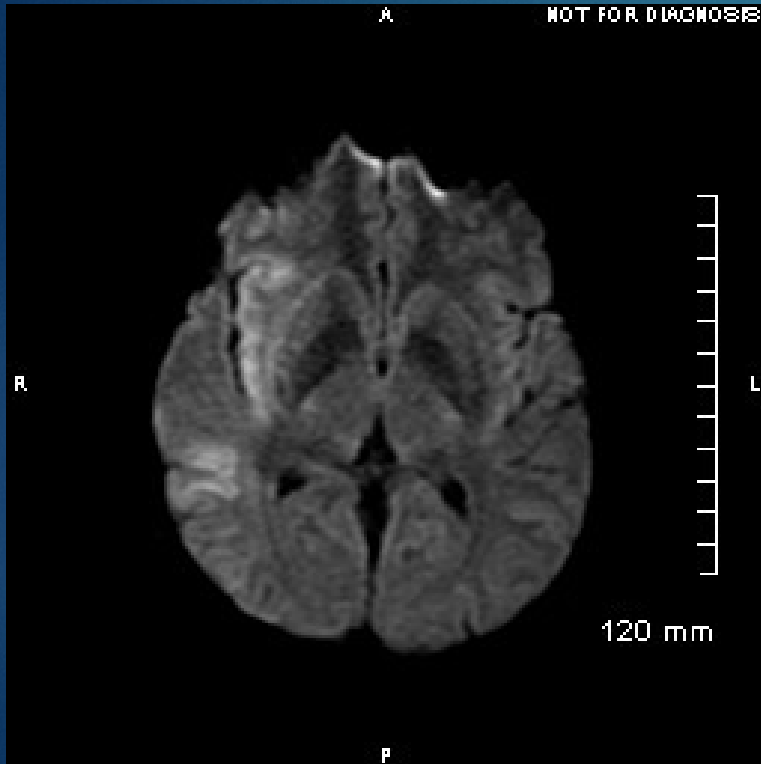
Anamnèse:

- ▶ J0 13h30: hémiparésie gauche proportionnelle aux trois étages sans céphalée au décours. Absence de cervicalgie, ni traumatisme crânien. Premier épisode
 - ▶ Alerte thrombolyse
 - ▶ Régulation -> Pompiers (Mondeville)
 - ▶ J0 14h15: Urgences du CHU
- HLH gauche, hémiparésie gauche avec hémiparésie gauche et déviation de la tête et des yeux vers la droite. . NIHSS: 17

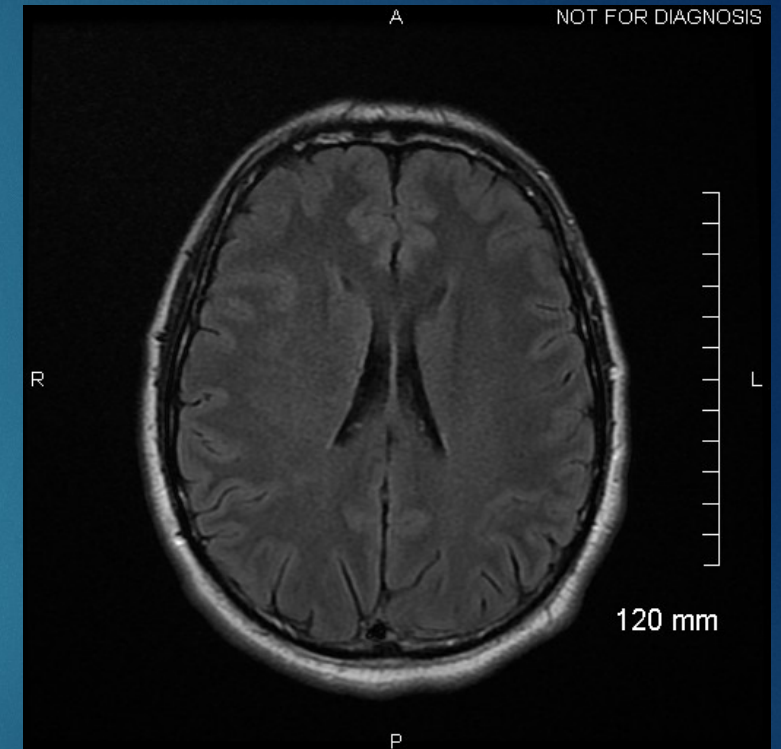
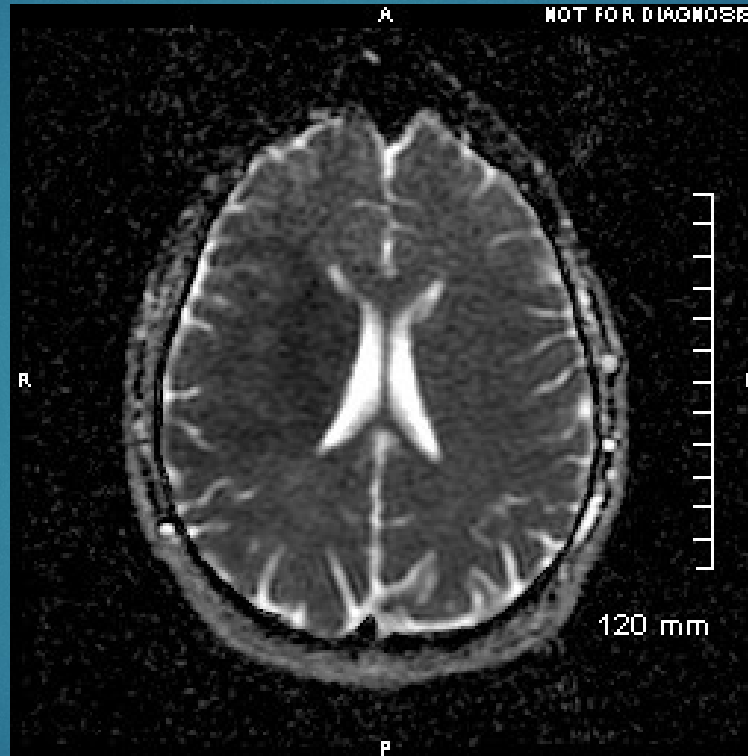
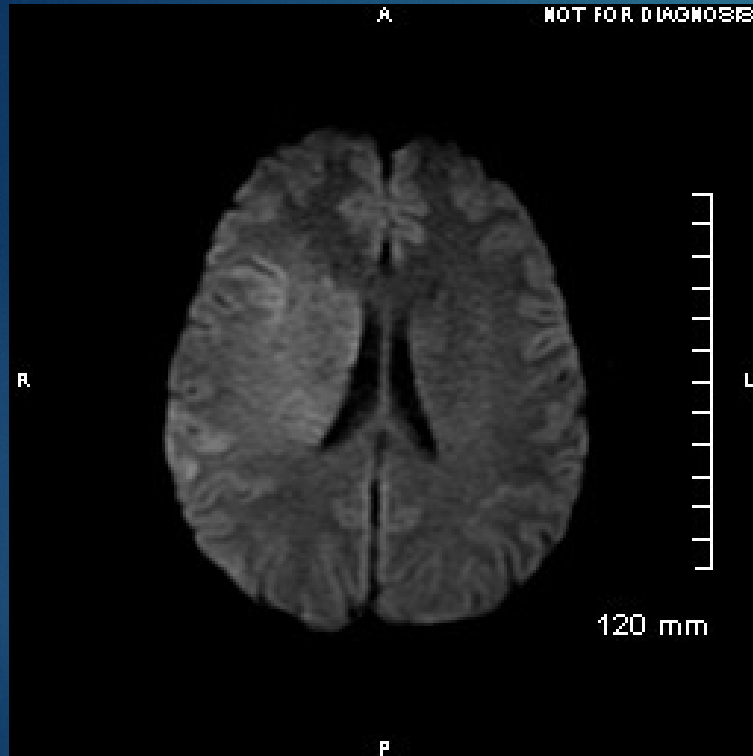


Quelle imagerie demandez vous?

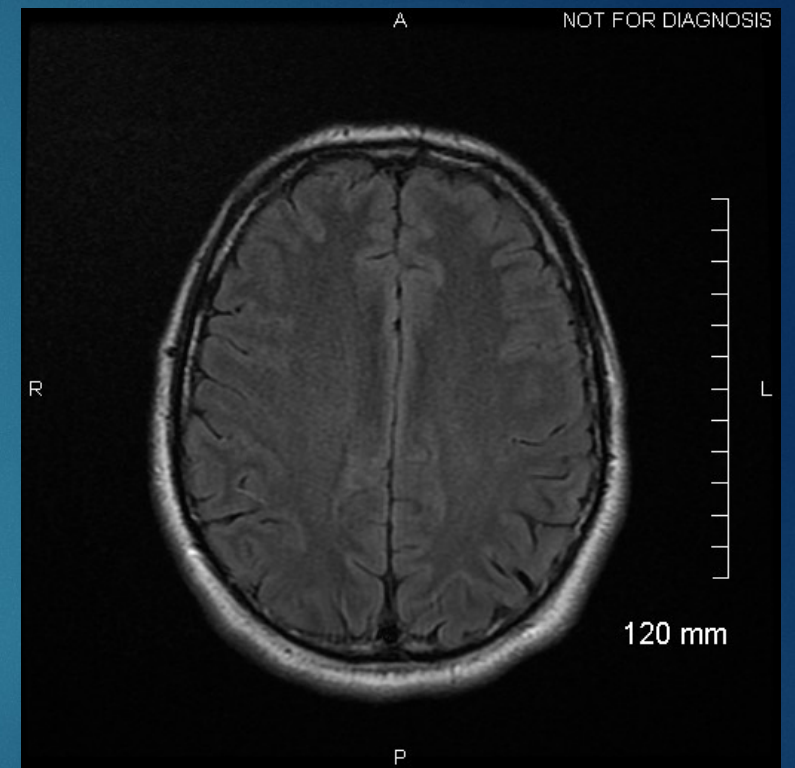
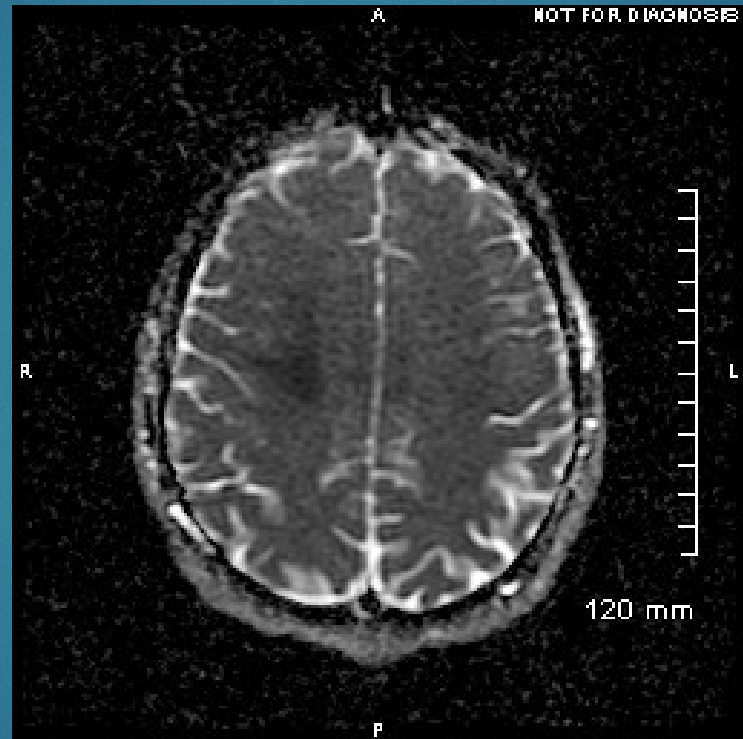
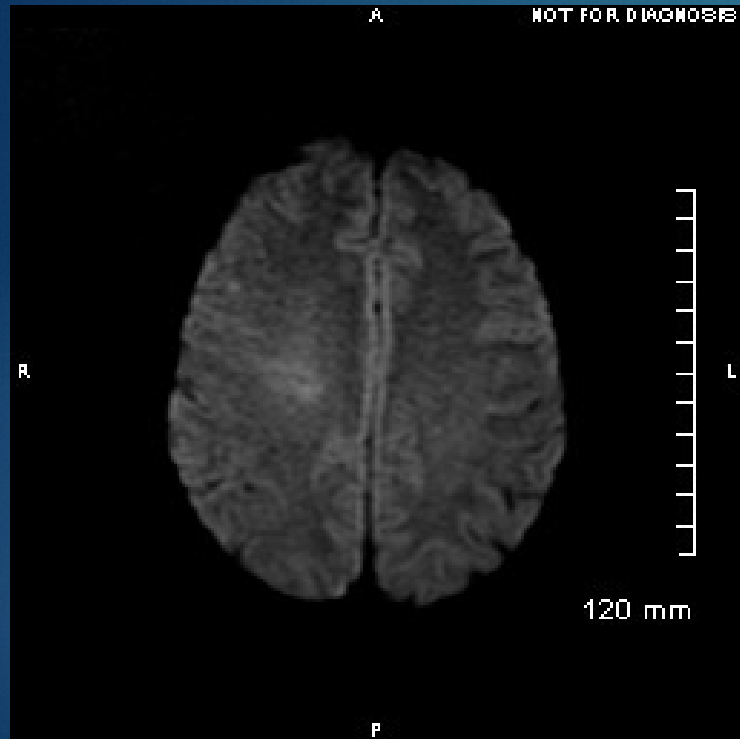
IRM Cérébrale J0 14h50 (soit 1h20 après les symptômes) :



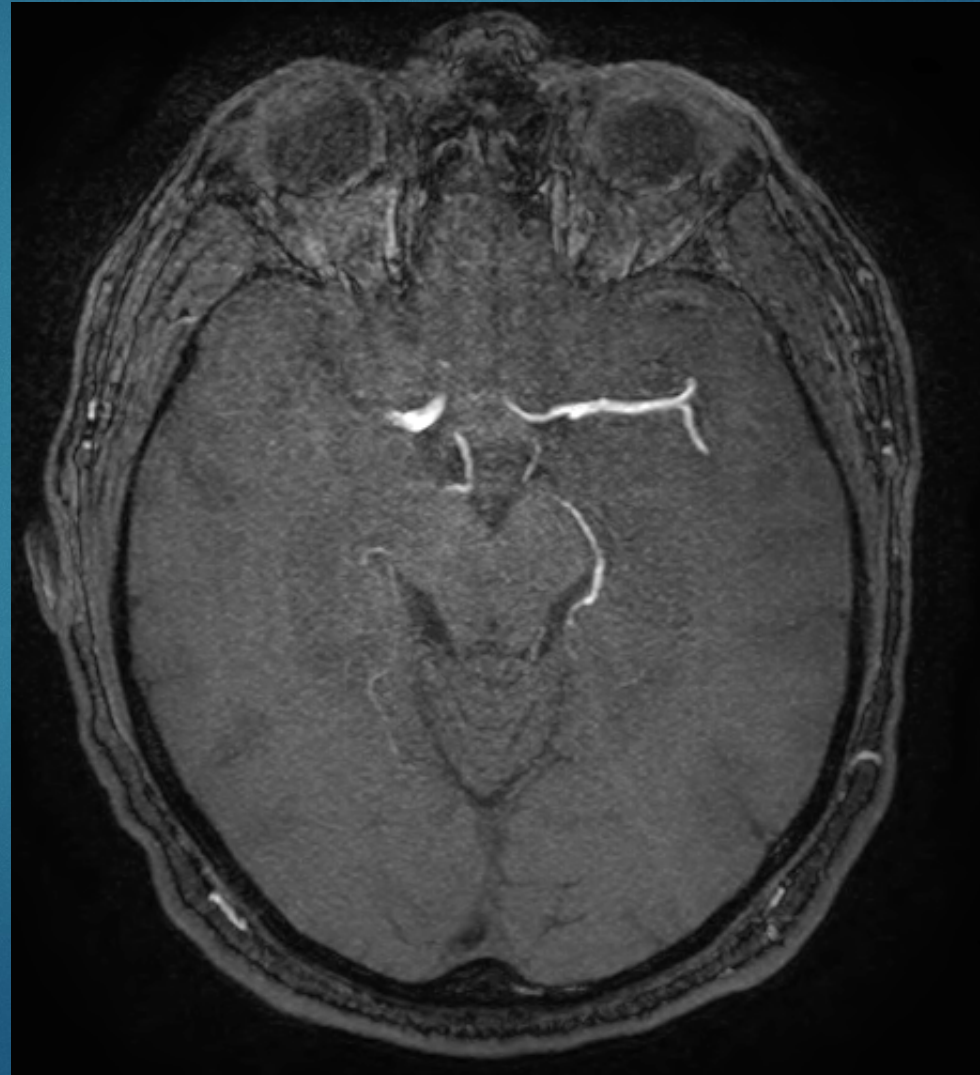
IRM Cérébrale :



IRM Cérébrale :



IRM Cérébrale :





U.N.V. ?

Fibrinolyse?

Thrombectomie?

Fibrinolyse et thrombectomie?

Traitement médical:

15h20 fibrinolyse IV

Soit 1 H 50 du début des troubles

DTN 65 min

Artériographie J0

(arrivée 15h40, pose du cathéter fémoral à 16h15)



Recanalisation 16 h 35 soit 3 h 05 min du début des troubles

Evolution:

- Amélioration du déficit

Persistance d'une légère héminégligence motrice, d'une paralysie faciale centrale et d'une dysarthrie modérée

NIHSS sortie 3

Découverte d'un SAS -> appareillé

Kardegic 160 mg

Tahor 10 mg



Rééducation à Aunay sur Odon durant 1 mois

Consultation à 6 mois :

Fatigabilité

Troubles attentionnels, fragilité de la mémoire de travail.

NIHSS 0

Reprise du travail en mi temps thérapeutique

Reprise de la conduite

mRs 2

Merci de votre attention

