

DES de SPECIALITE - NEURORADIOLOGIE

Année académique 2016-2017

Pathologie vasculaire cérébrale aiguë



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<http://www.saintluc.be>

Ulg – 25 novembre 2016

ISCHEMIE (→infarctus)

HEMORRAGIE

Intra-
parenchymateuse

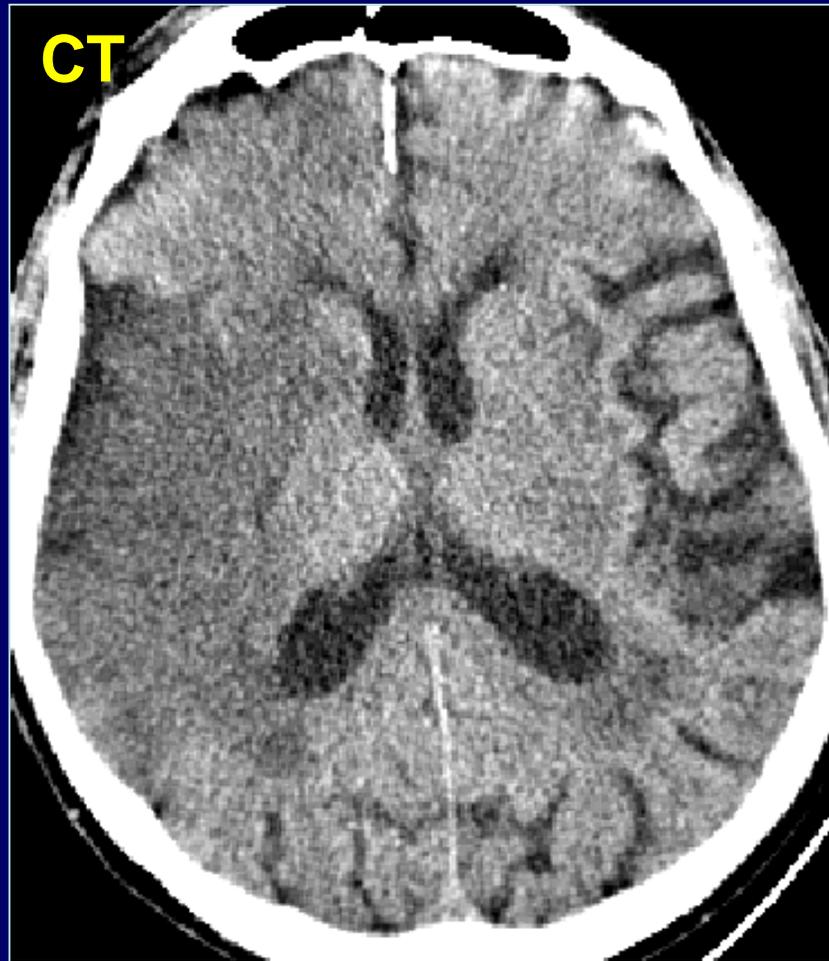
Extra-
parenchymateuse

THROMBOSE
VEINEUSE

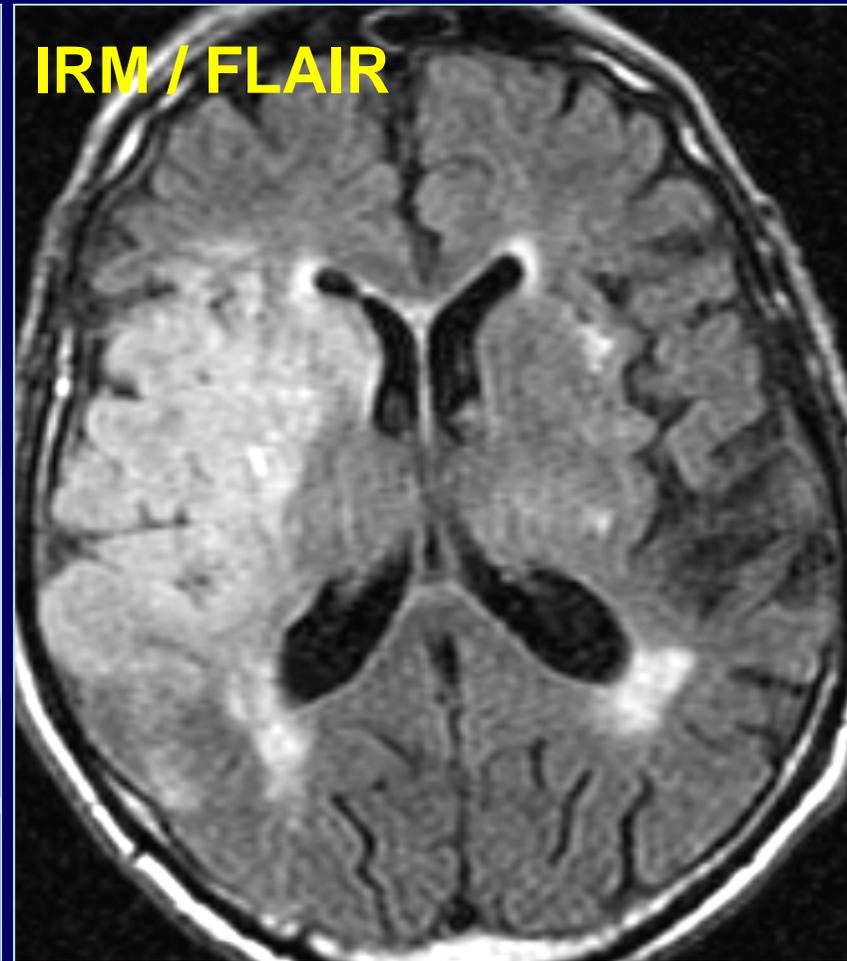
'corticale'
'superficielle'

'profonde'
'centrale'

Ischémie cérébrale aiguë



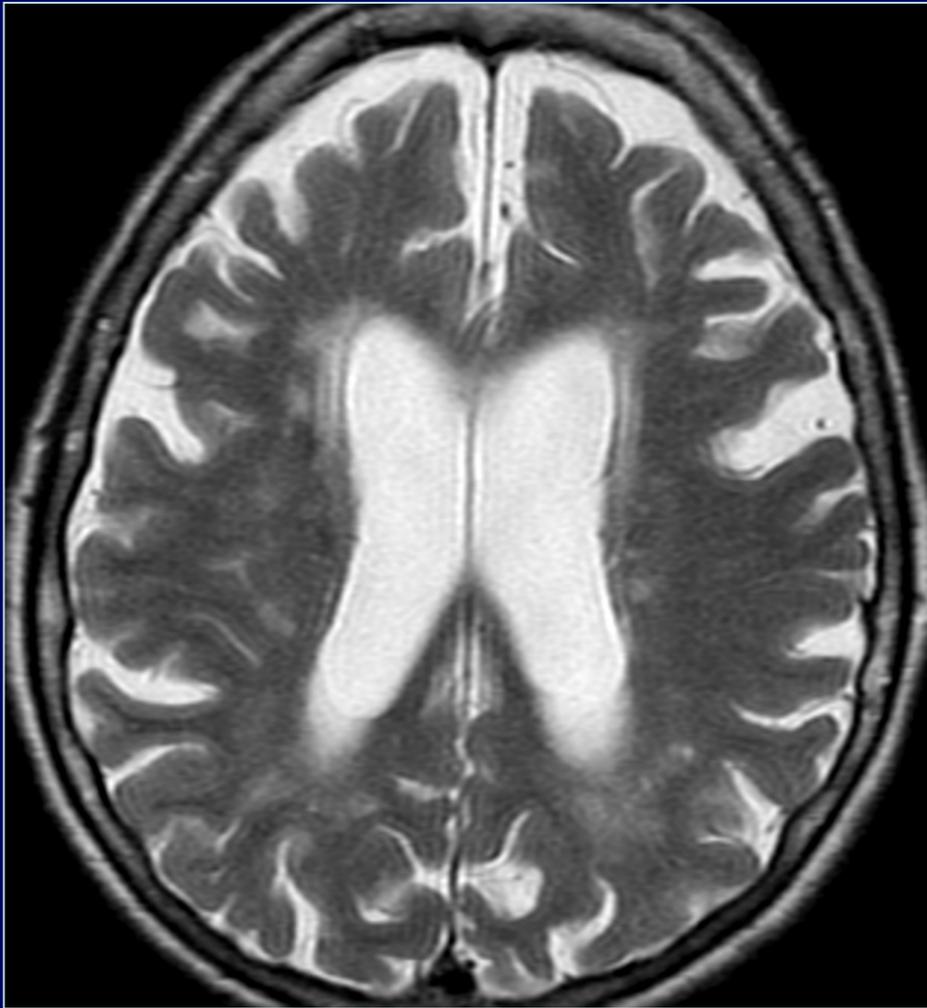
hypodensité



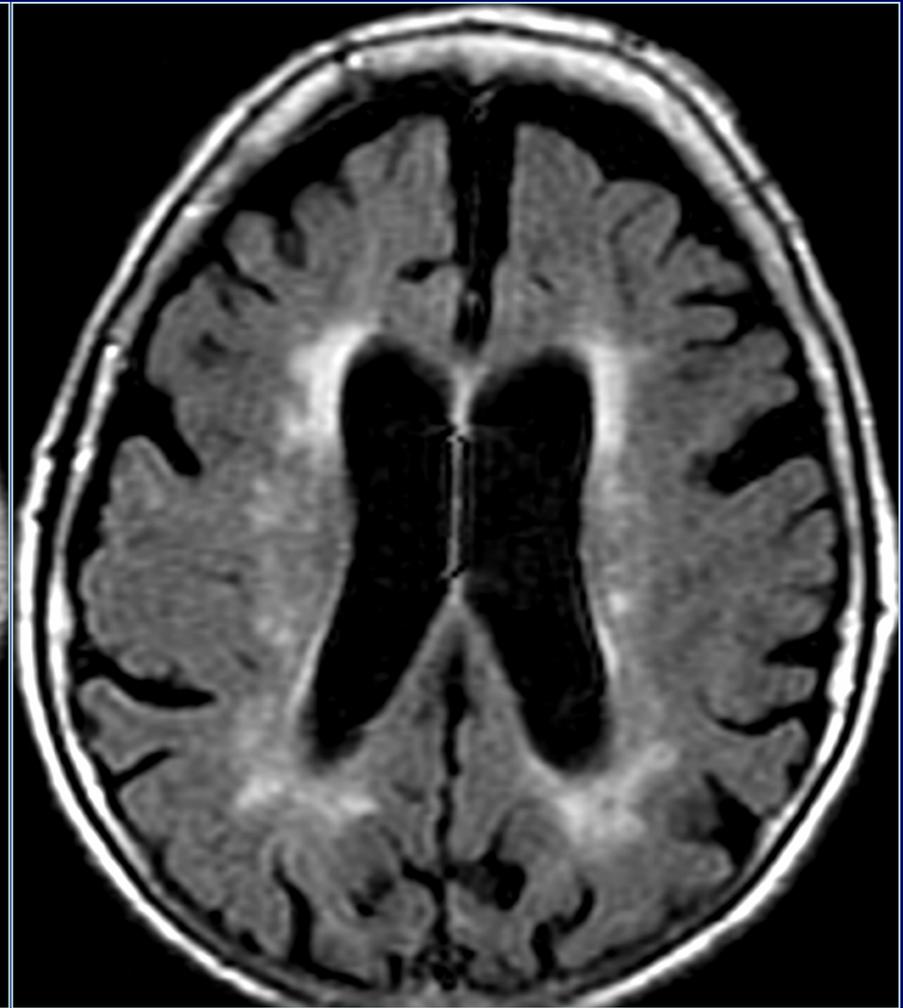
hypersignal FLAIR/T2

> 6 heures (« fenêtre thérapeutique » pour traitement thrombolytique)

<6 heures: imagerie de diffusion (Diffusion-Weighted Imaging)

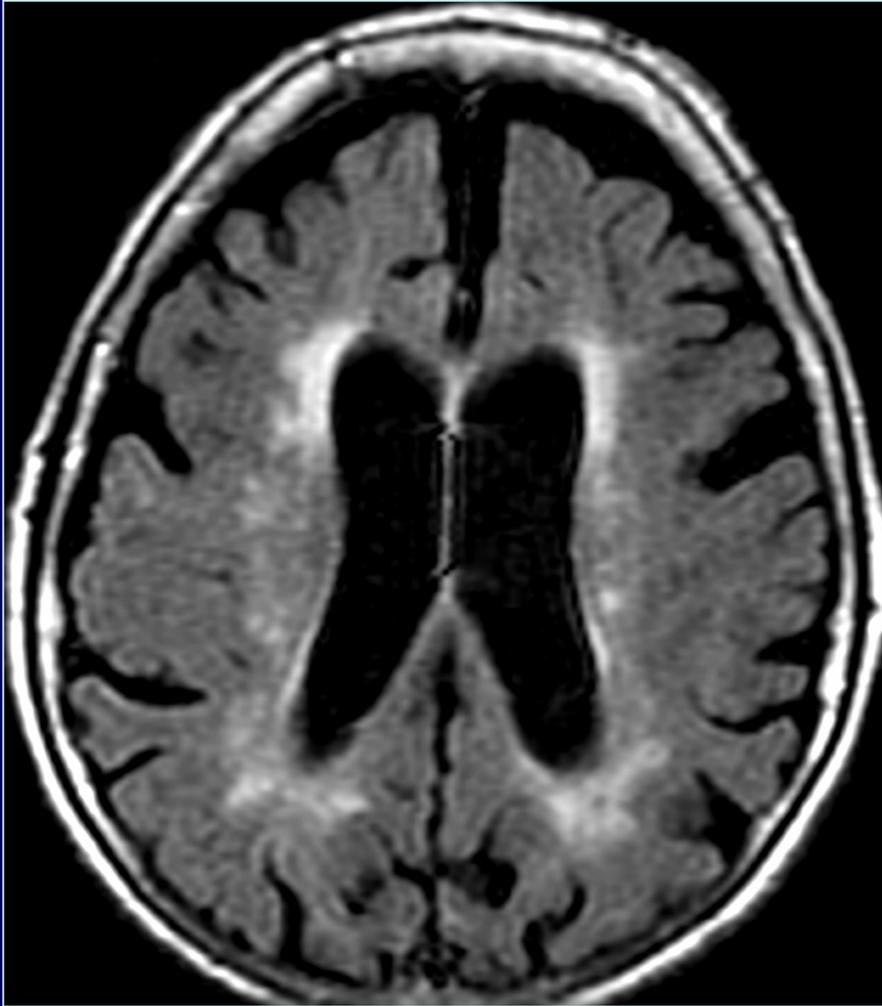


T2-FSE

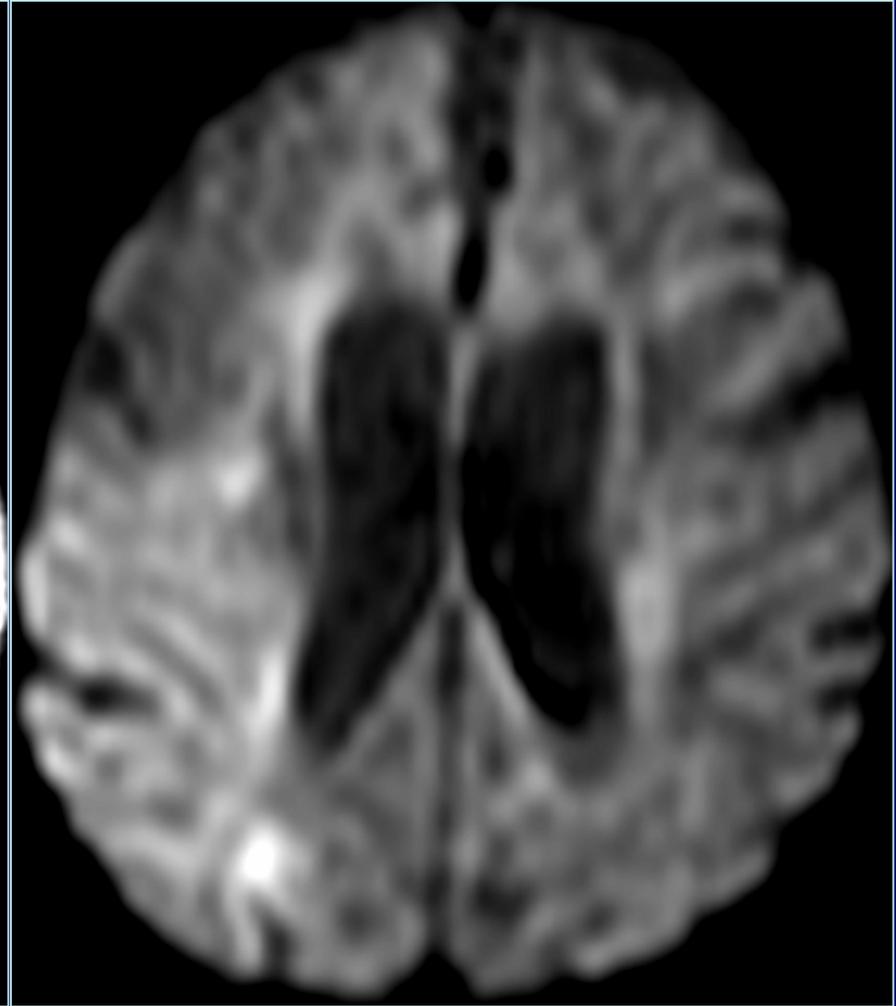


FLAIR

<6 heures: imagerie de diffusion

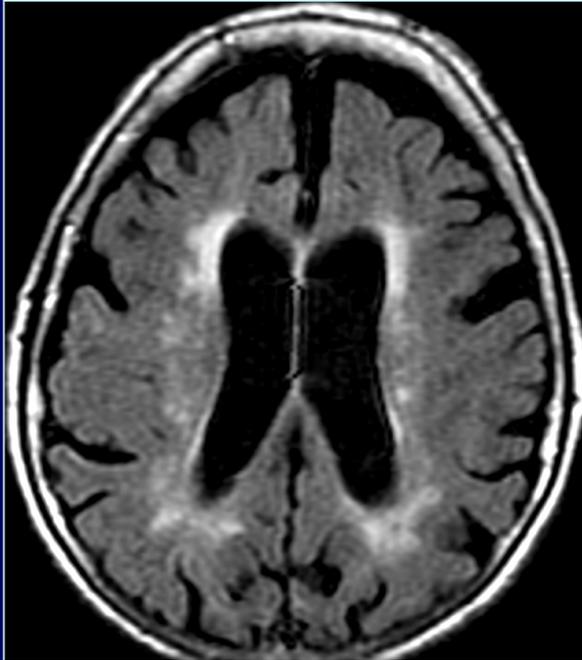


FLAIR

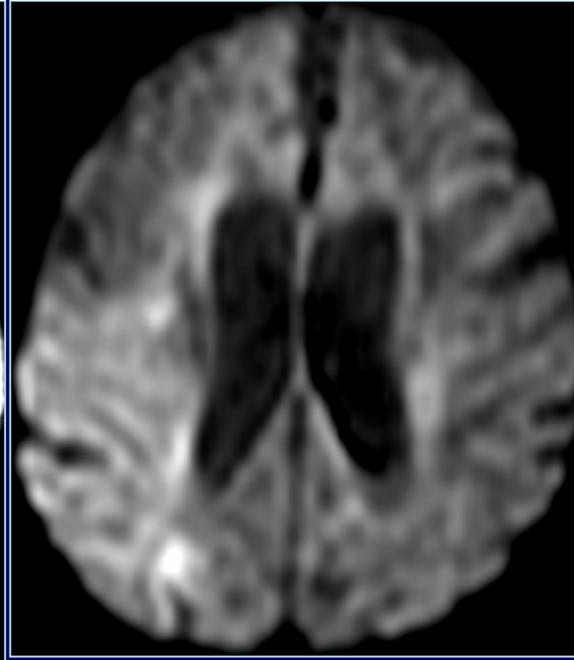


Imagerie de diffusion

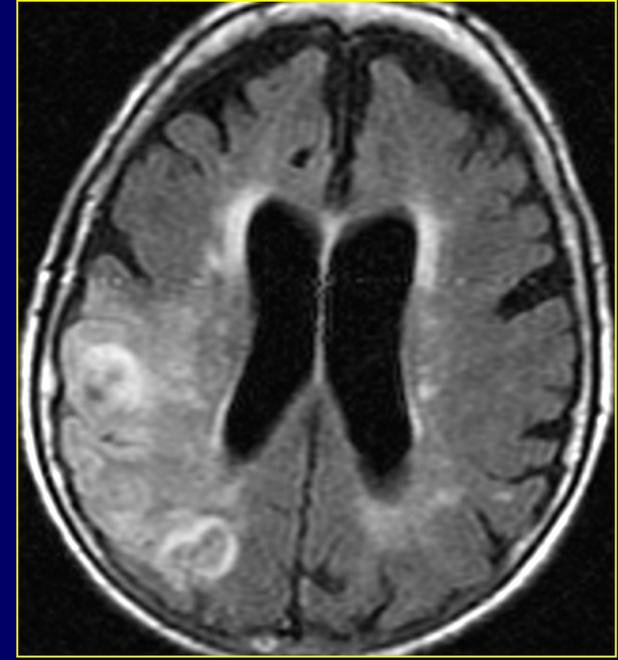
<6 heures: imagerie de diffusion



FLAIR 3 heures

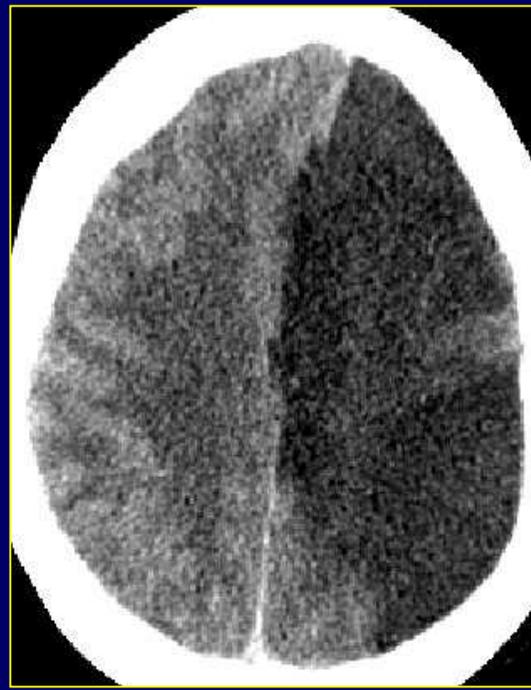
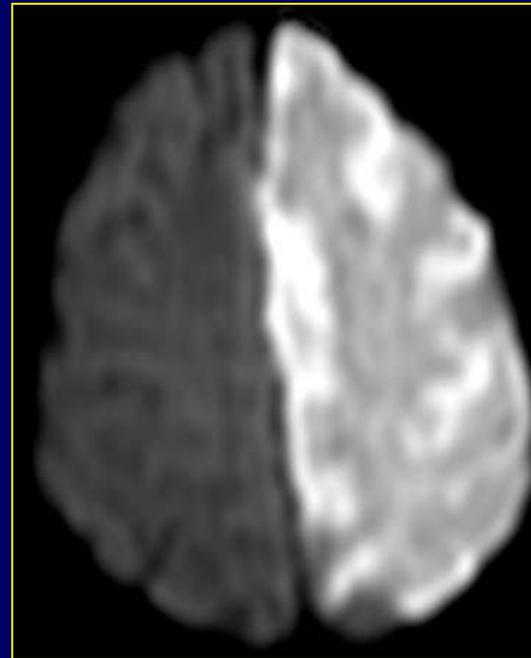
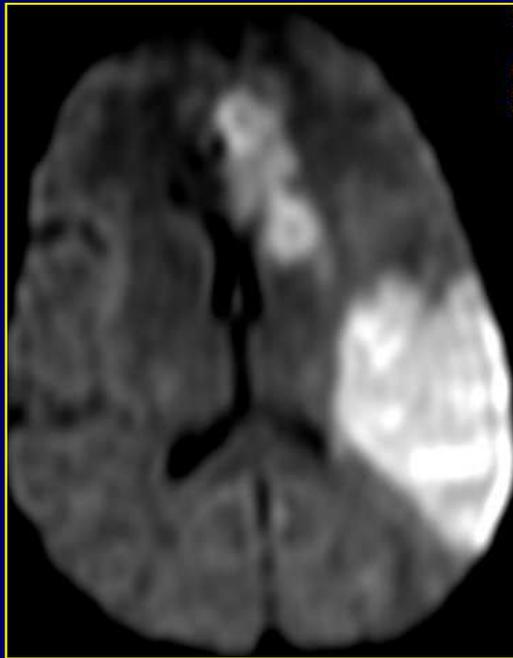


Diffusion 3 heures



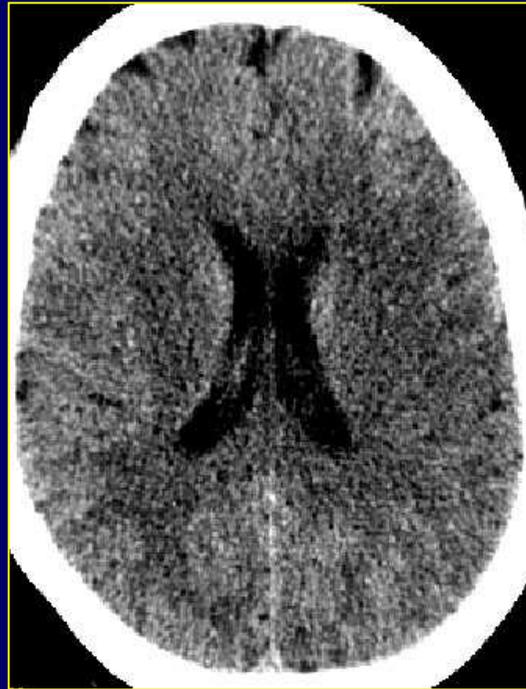
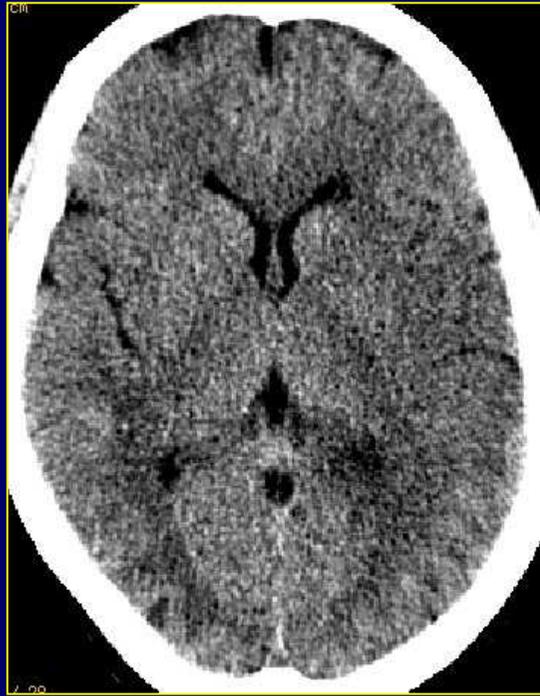
FLAIR 24 heures

72 heures

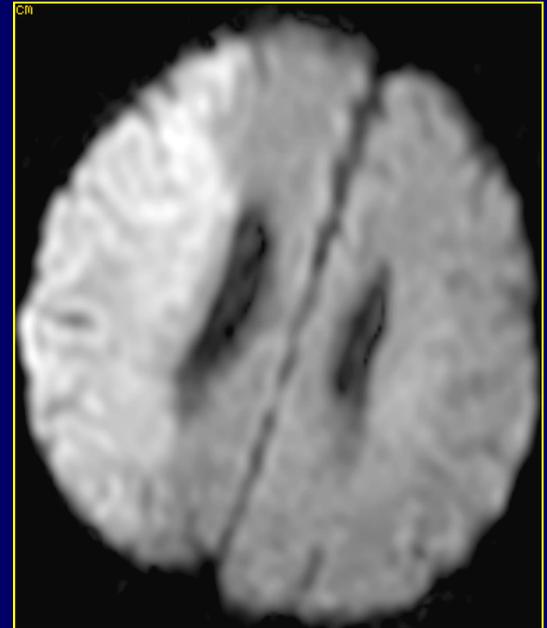
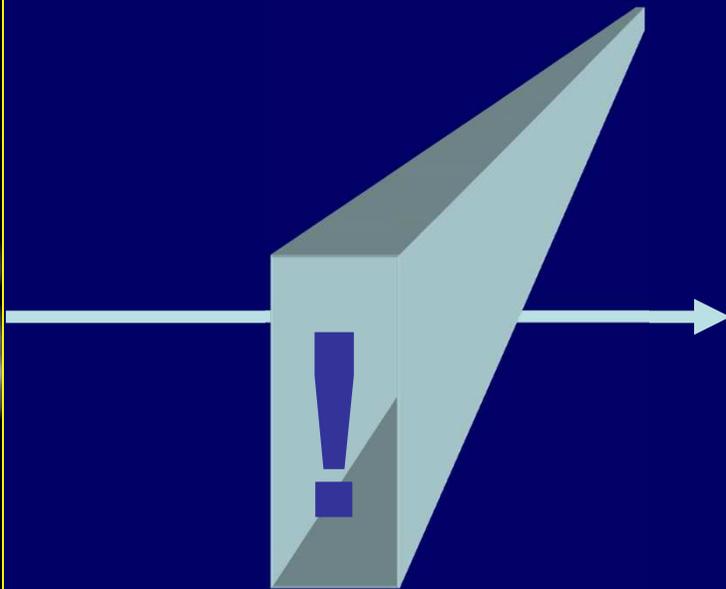
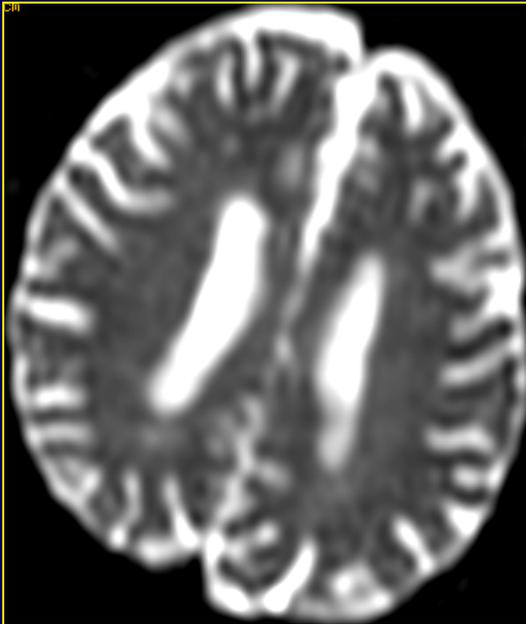


MR
=
CT

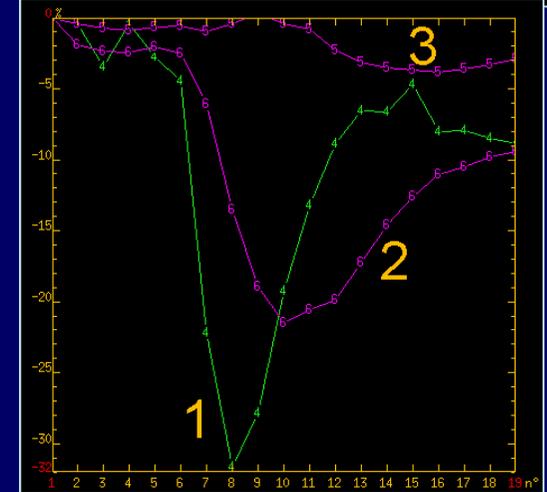
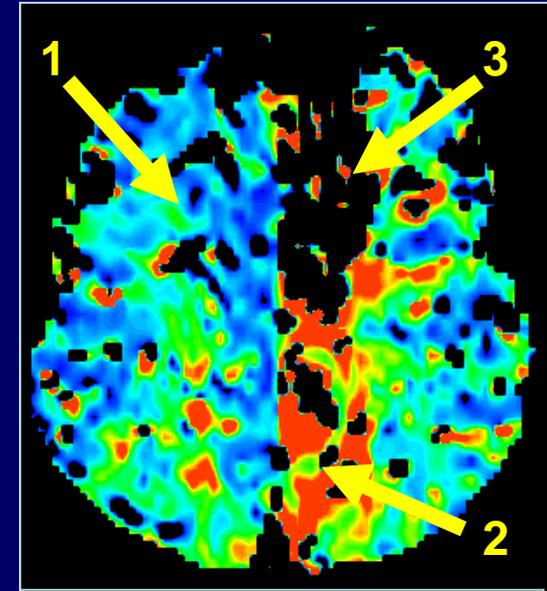
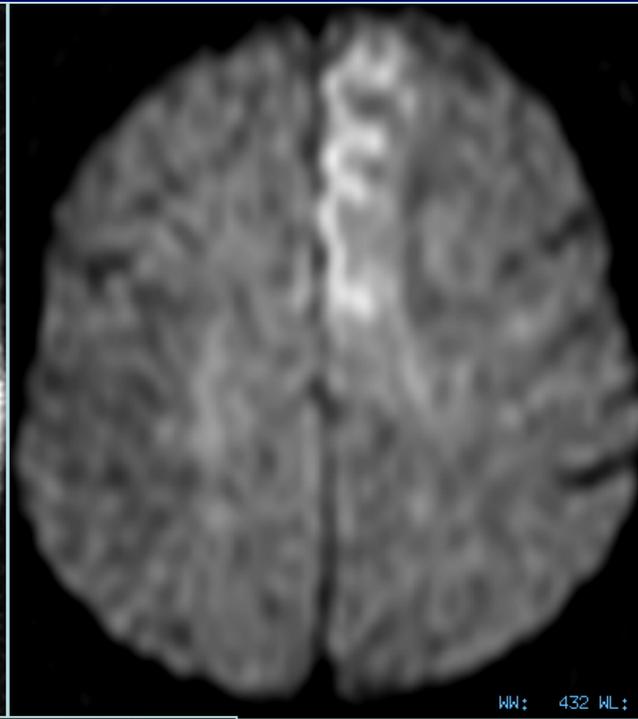
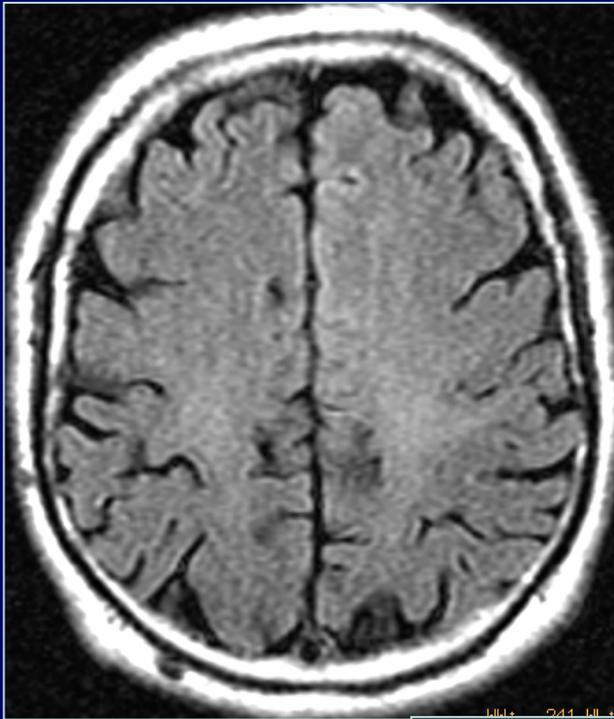
<6 heures



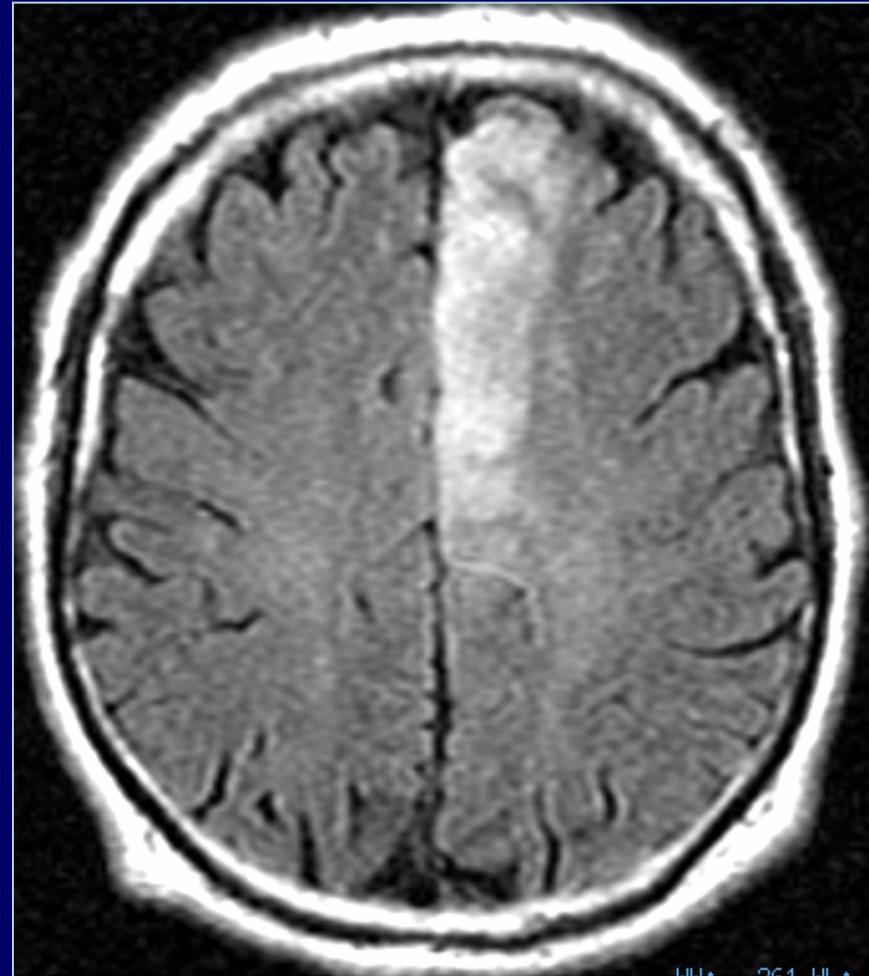
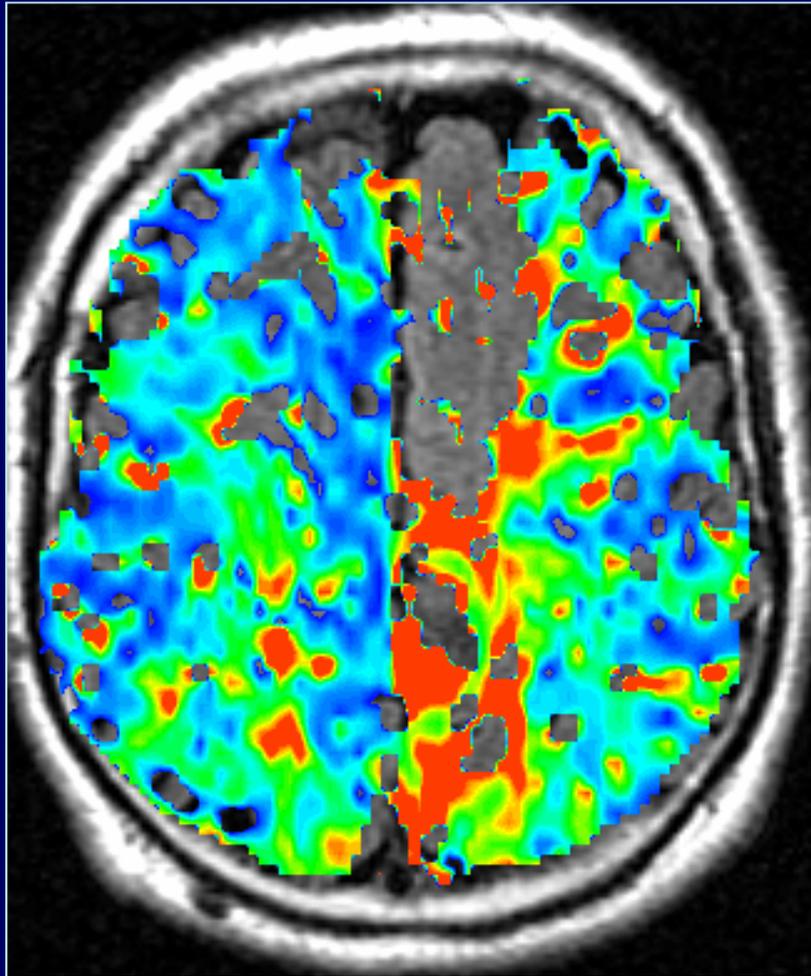
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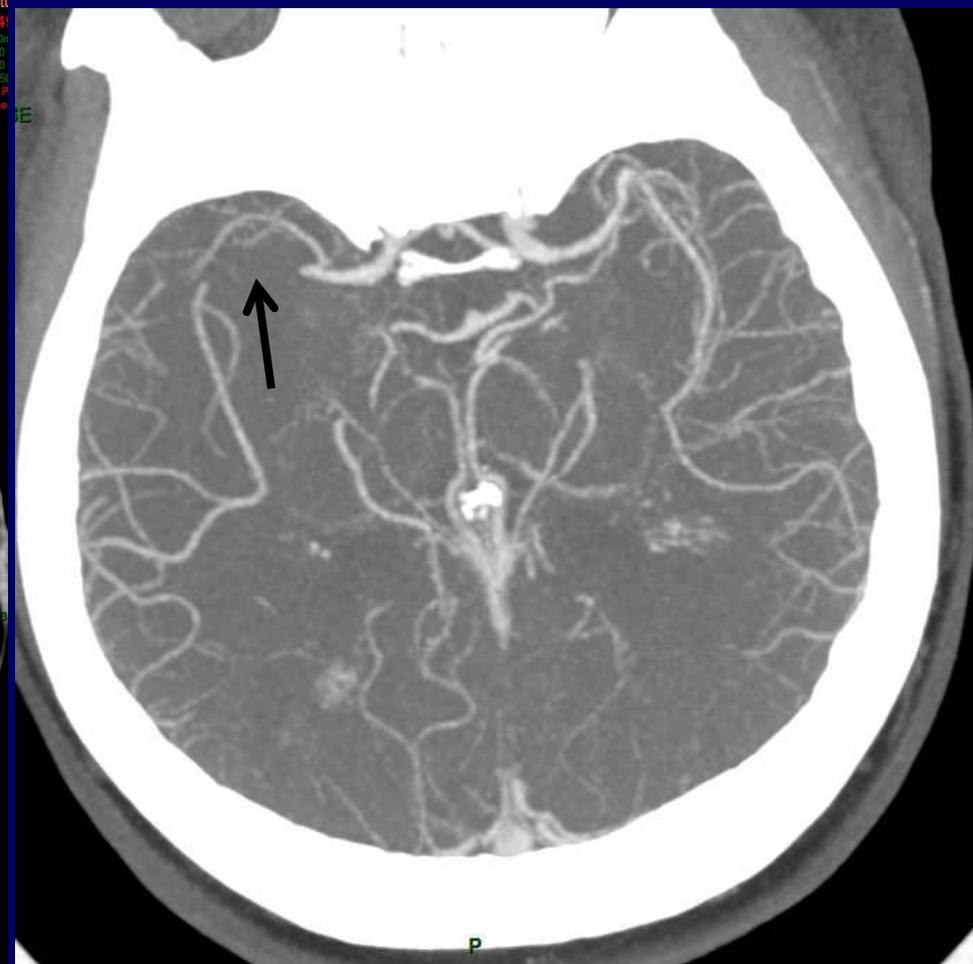
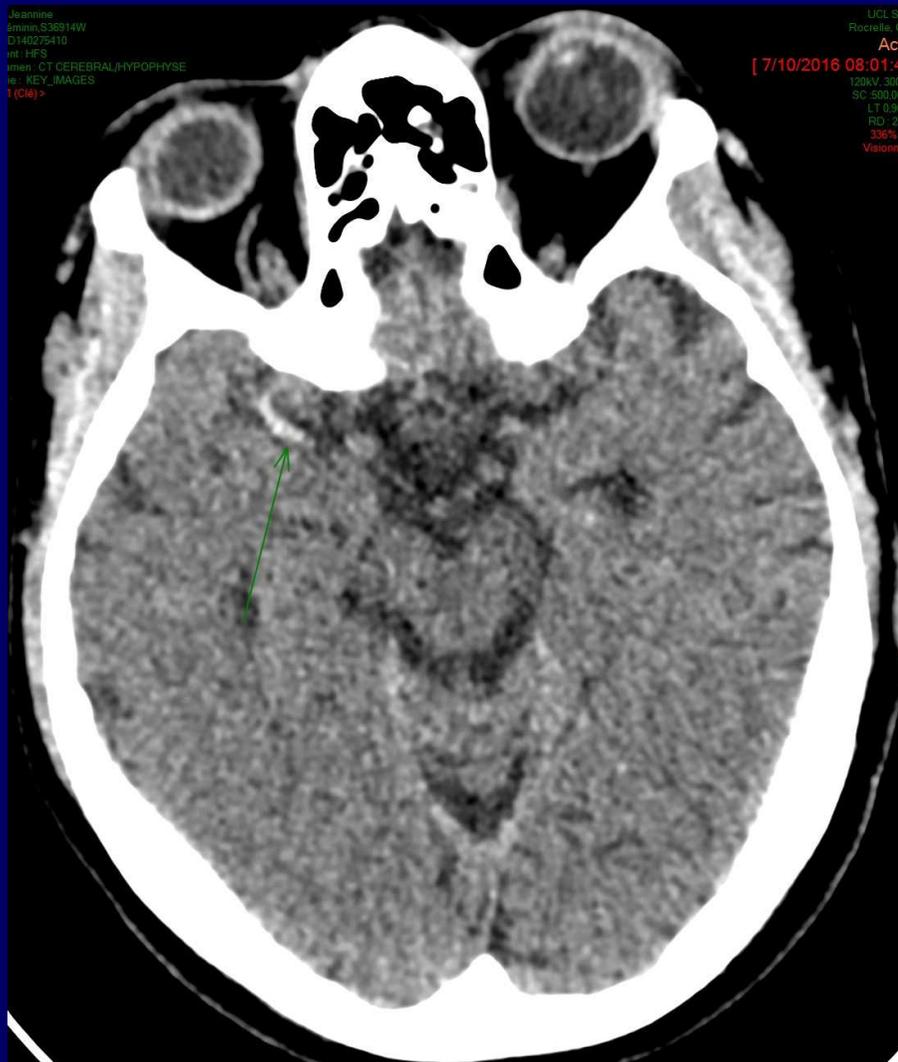
<6 heures: imagerie de perfusion (Perfusion-Weighted Imaging) (I)

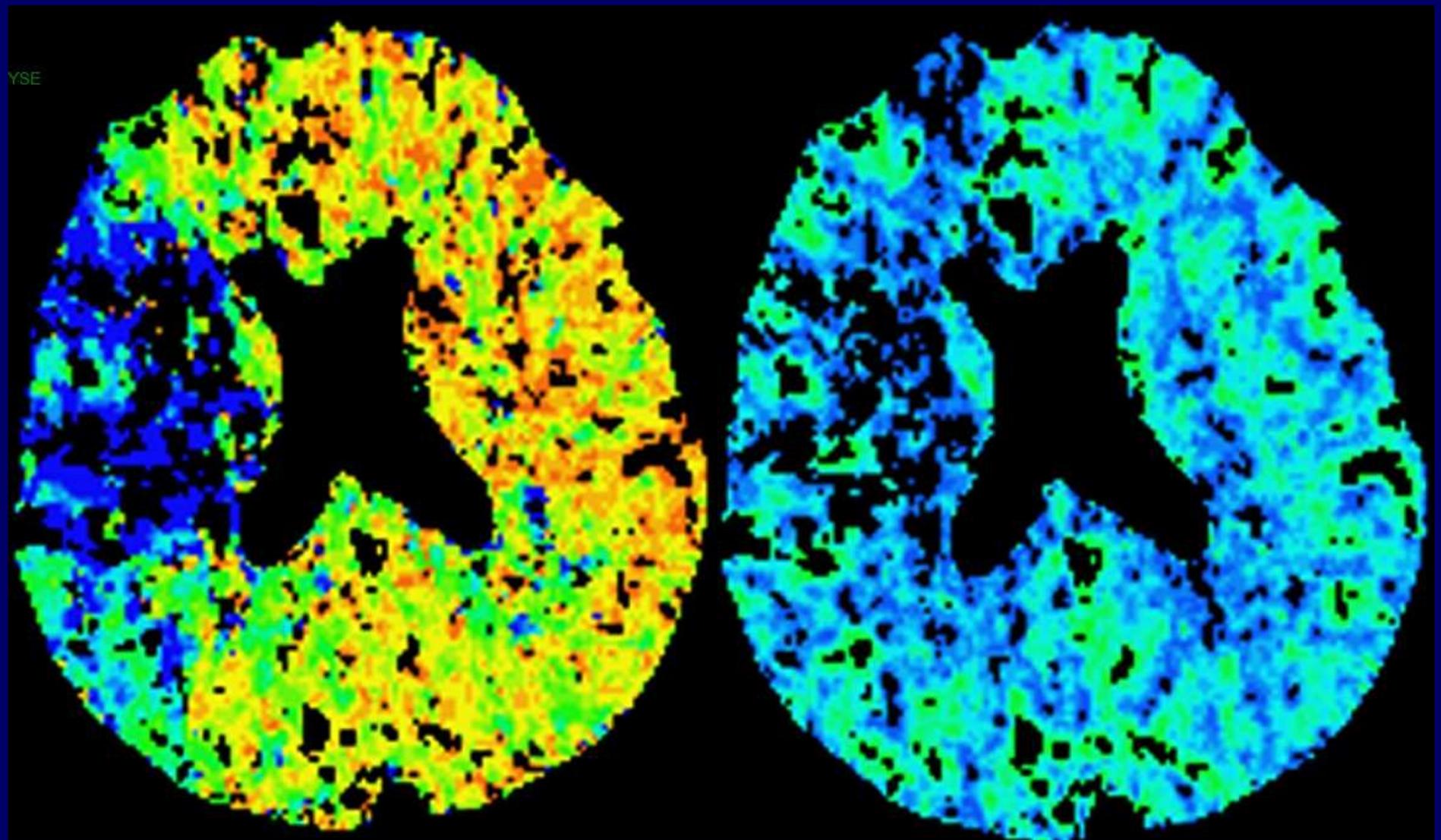


<6 heures: imagerie de perfusion (Ib)



PERFUSION CT (CTP)





MTT

CBV

Pos. coupe : 187.1 mm

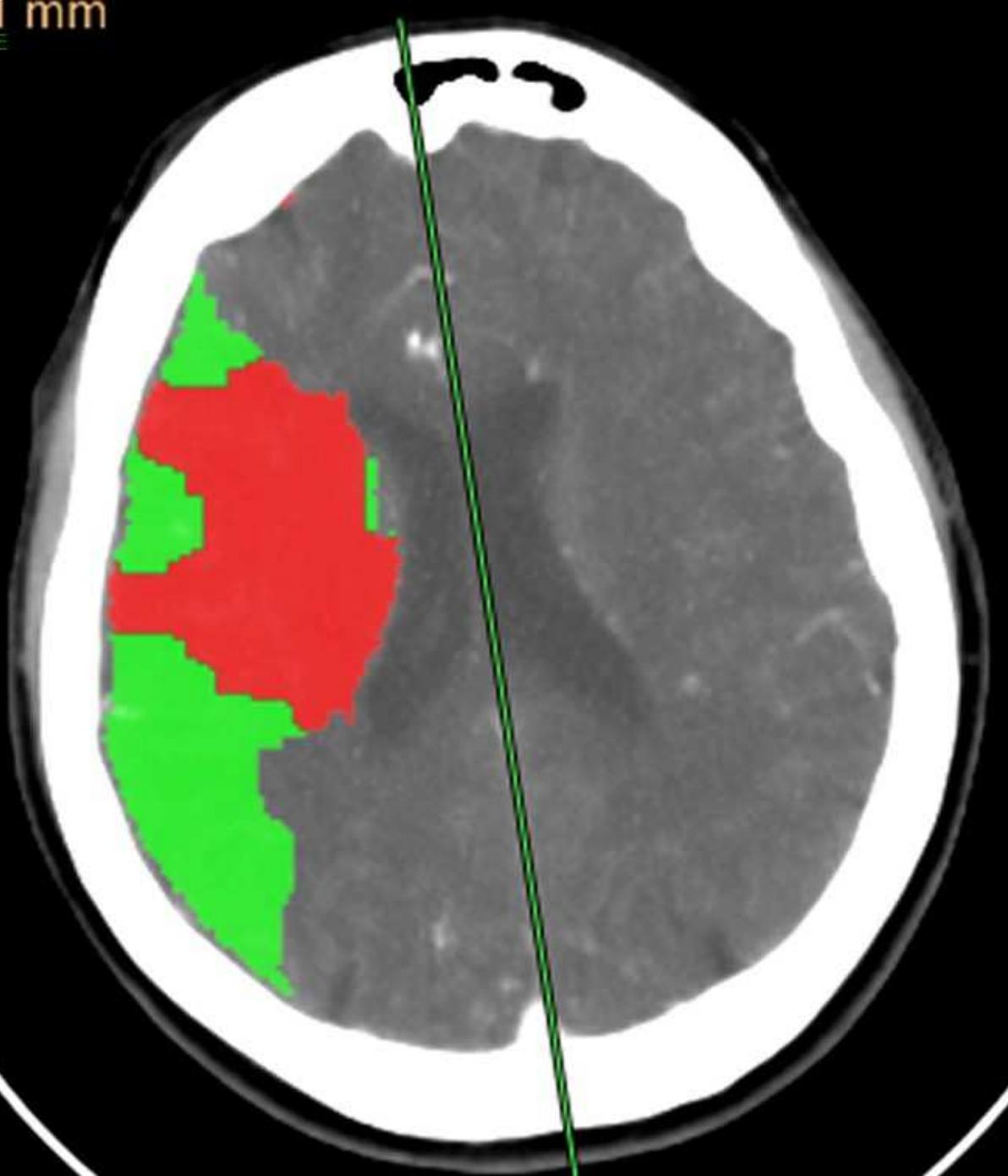
Desc. examen : CT CEREBRAL/HYPOPHYSE

Desc. série : resultats perfusion

< 2184 - 8 >

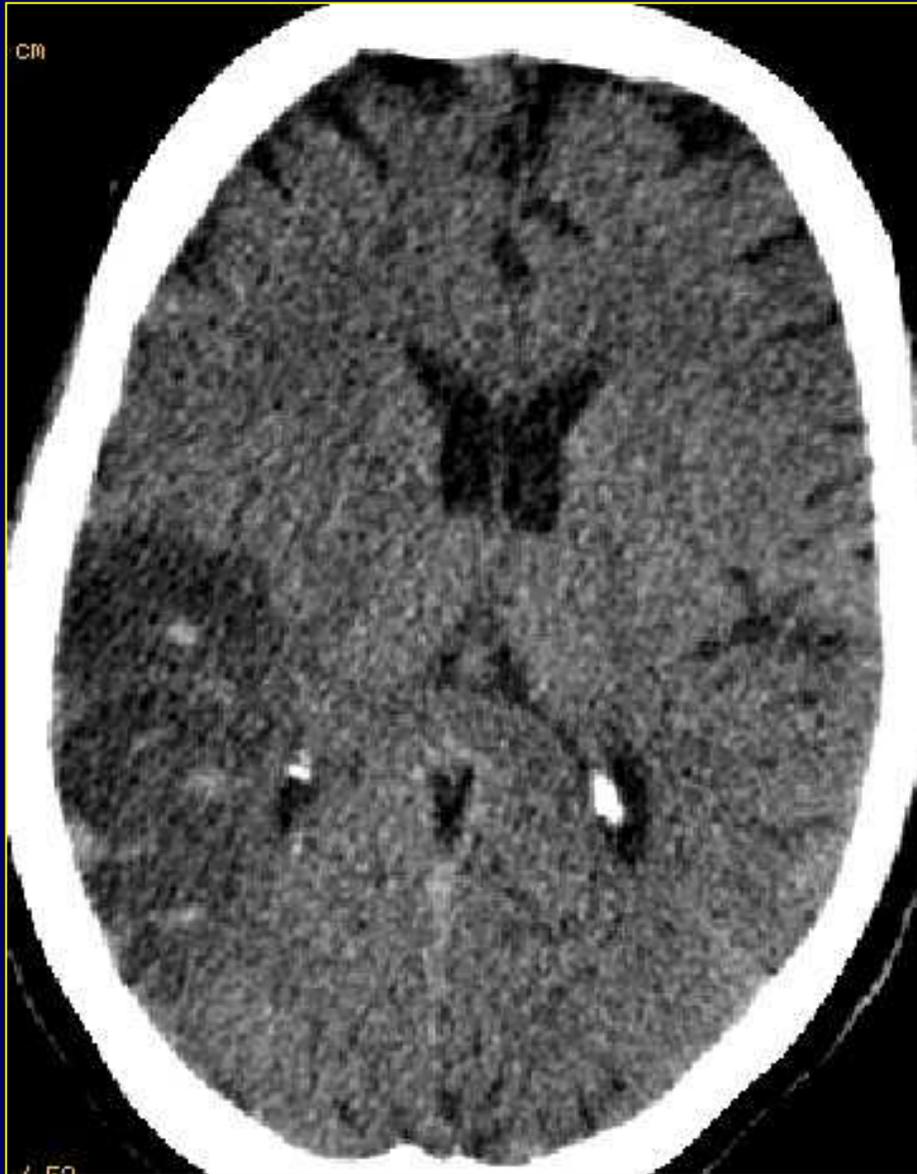
MTT aug. et
CBV norm.

MTT aug. et
CBV rouge.



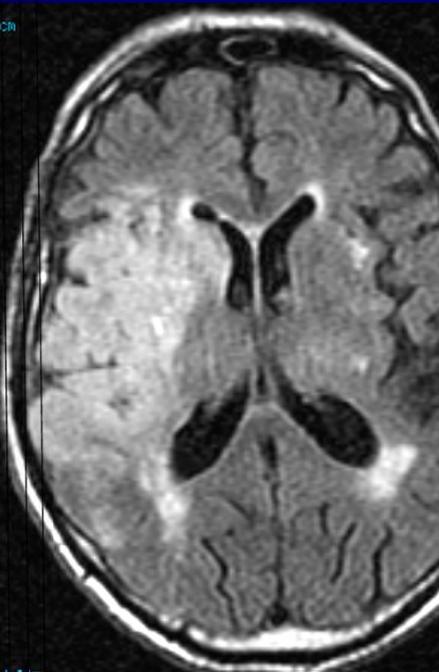
AMID

Transformation hémorragique: infarctus 'blanc' devenant 'rouge'

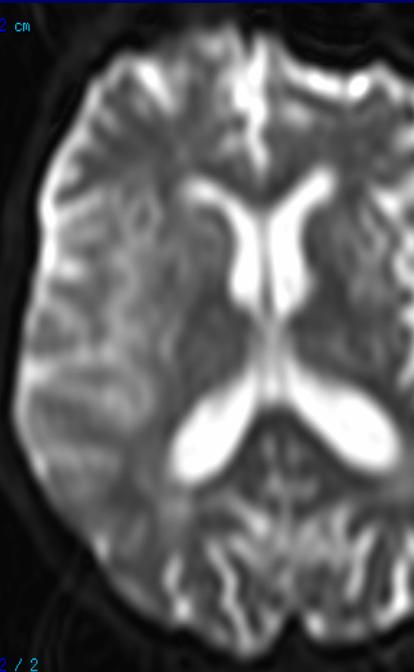




CT



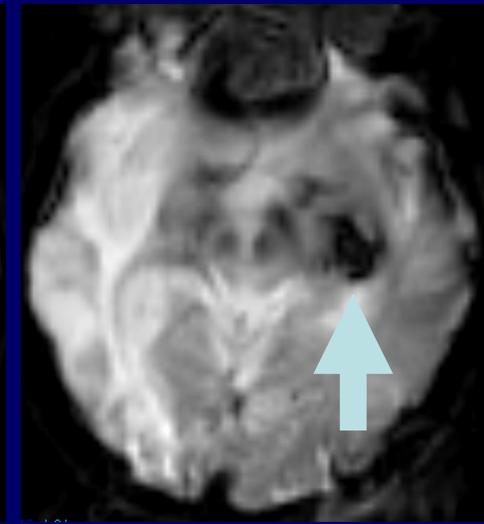
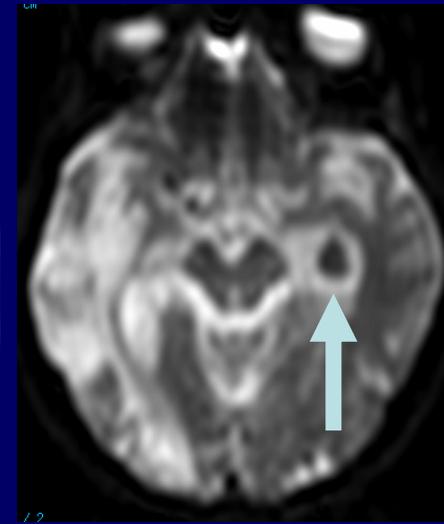
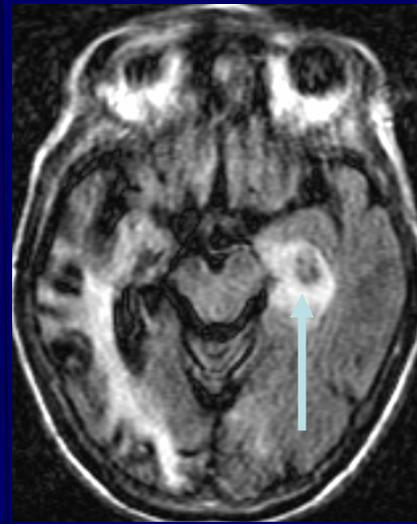
FLAIR



EPI-SE-T2



EPI-GRE-T2*



Hémorragie cérébrale

Parenchymateuse
(cloisonnée)

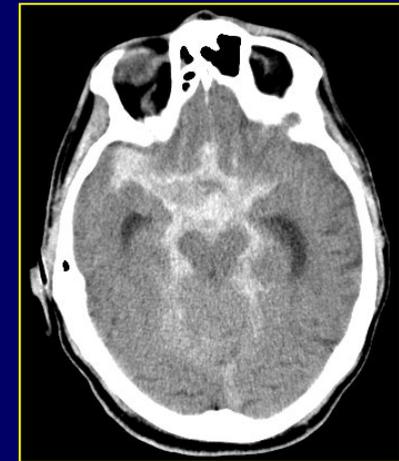
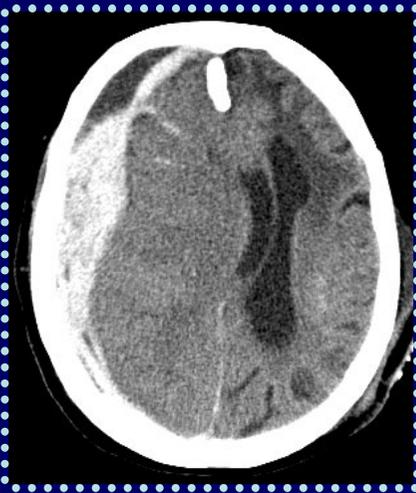
Extra-parenchymateuse
(non cloisonnée)

Collection
Péri-cérébrale

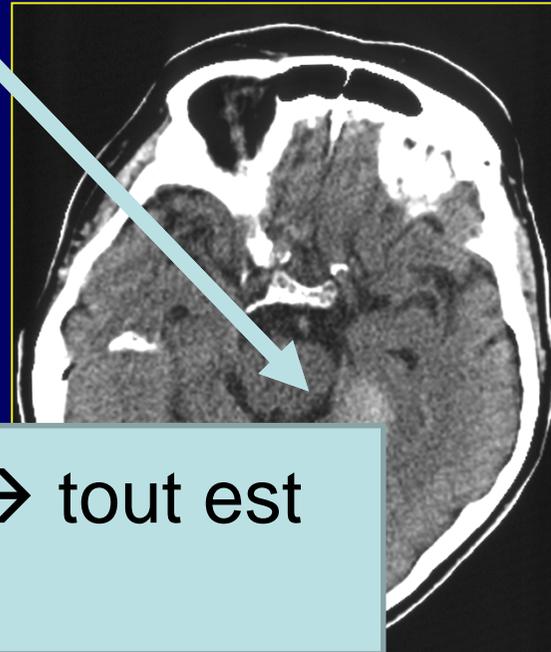
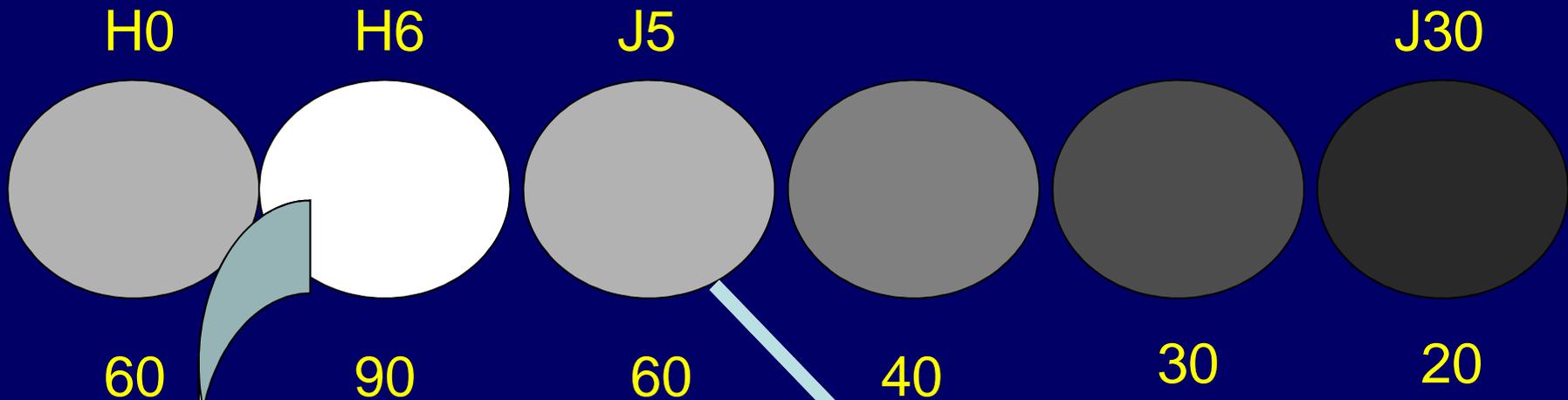
Hématome
parenchymateux

Hémorragie
ventriculaire

Hémorragie
méningée



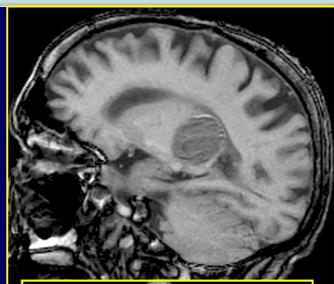
Hématome parenchymateux en TDM



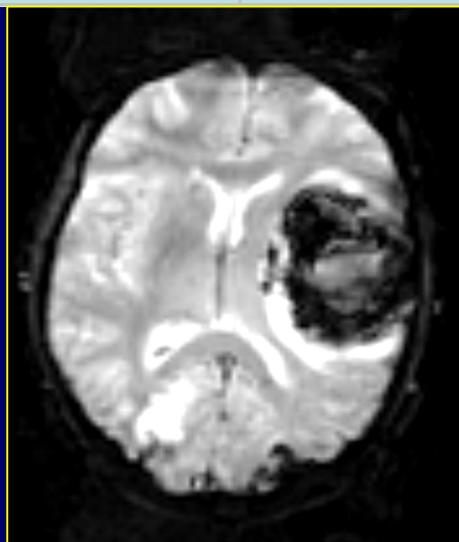
SANG frais en CT → tout est 'simple'

Hématome parenchymateux IRM

Délai	< 3 heures	4-24 heures	> 48 heures	1 semaine	1 mois
Pondération T1 substrat du signal	hypo/iso <i>oxyHb</i>	iso <i>oxyHb</i>	hyper <i>metHb IC</i>	hyper <i>metHb EC</i>	hypo <i>liquide EC</i>
Pondération T2 substrat du signal	hyper <i>serum</i>	hypo++* <i>déoxyHb</i>	hypo <i>déoxyHb</i>	hyper <i>metHb EC</i>	hyper <i>liquide EC</i>
					couronne hypo++* <i>hémossidérine</i>
* mieux mis en évidence par susceptibilité magnétique (séquence en écho de gradient)					
EC=extracellulaire / IC=intracellulaire					



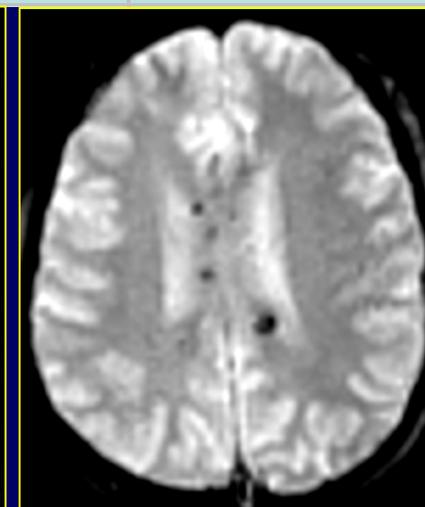
eau



déoxyHb → hypoT2



metHb → hyperT1



hémossidérine → hypoT2

SANG frais en IRM → tout est compliqué

Sang frais endocrânien

→ Rechercher une cause sous-jacente

→ Malformative vasculaire MAV/fistule >> cavernome

→ Tumeur

→ Séquence de susceptibilité SWI, GRE-T2*, EPI-GRE-T2*

→ non pas pour le foyer hémorragique

→ pour trouver ailleurs un effet de susceptibilité
d'origine sanguine pour cerner un contexte spécifique:

→ Cavernomatose

→ Hémosidérose méningée

→ Angiopathie amyloïde

→ Injecter le PdC en CT scanner (en garde !)

Hémorragie sous-arachnoïdienne

**Diagnostic
radiologique
positif
d'HSA**

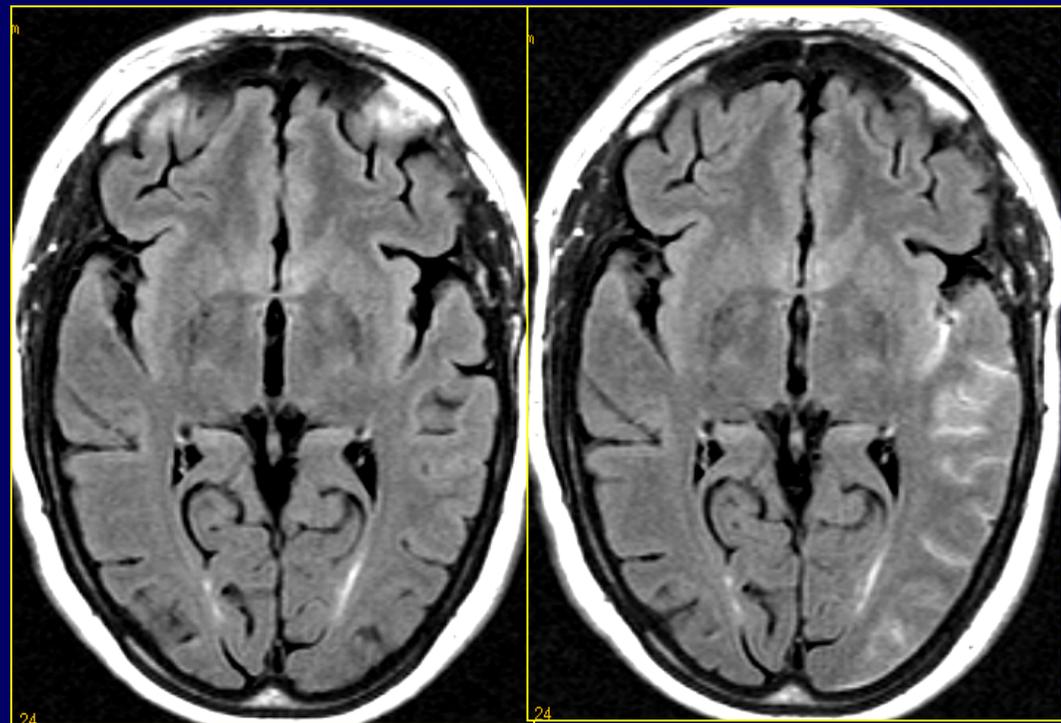


**Rupture
d'anévrisme
sacculaire
intra-cranien
85%**

1.  Diagnostic (+) d'HSA



CT scan

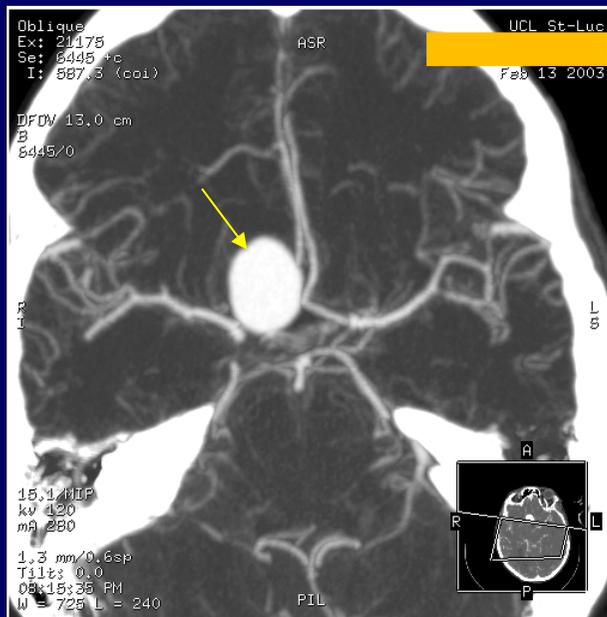
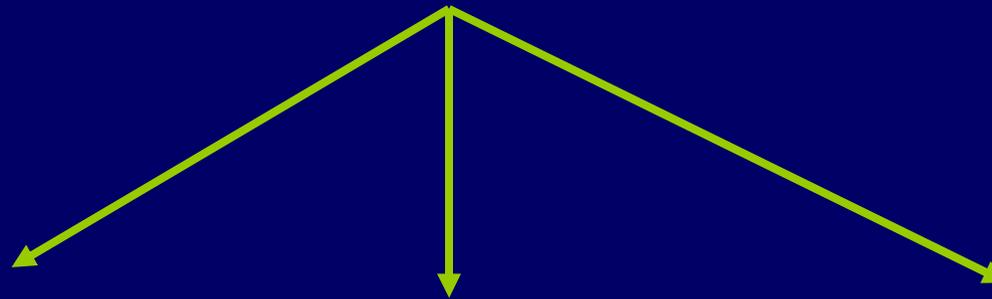


(-)

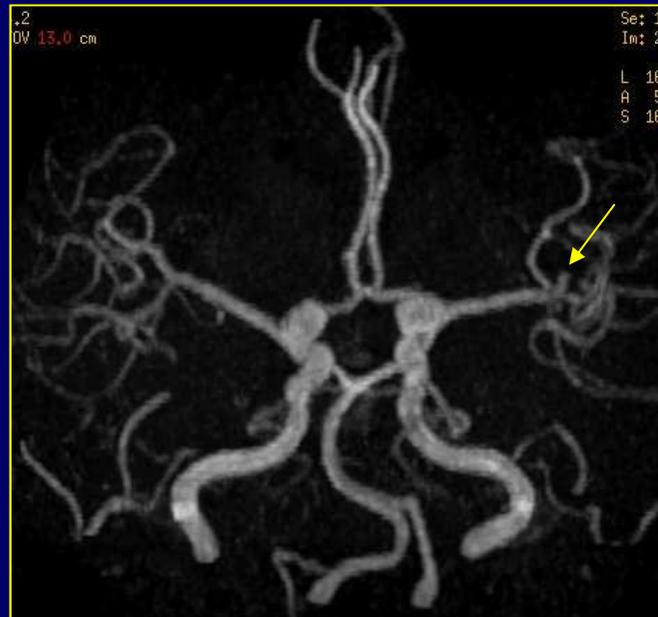
IRM

(+)

2. Localisation de l'anévrisme causal



Angio-CT

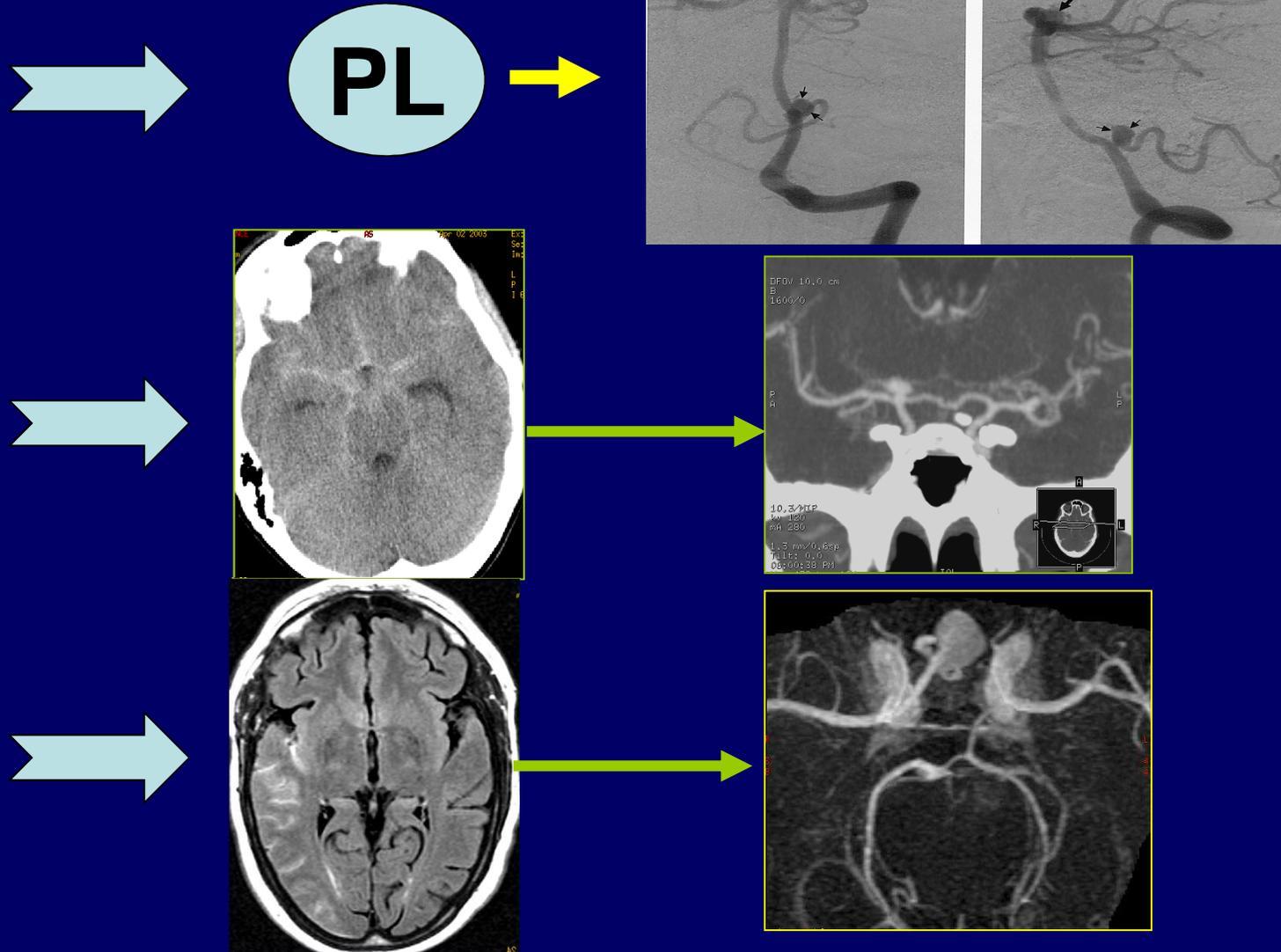


Angio-IRM

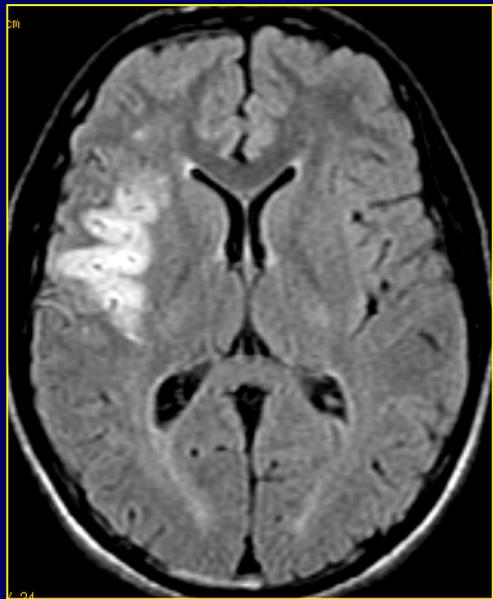
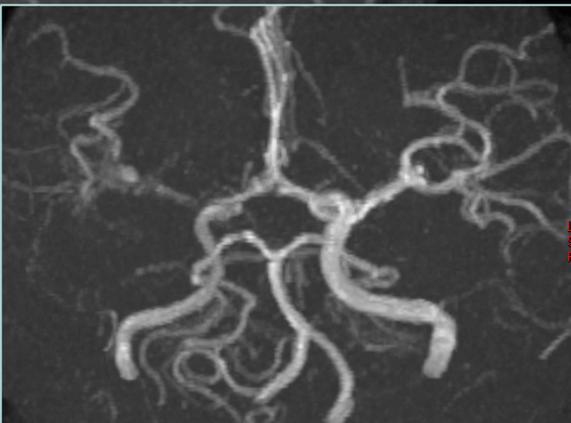
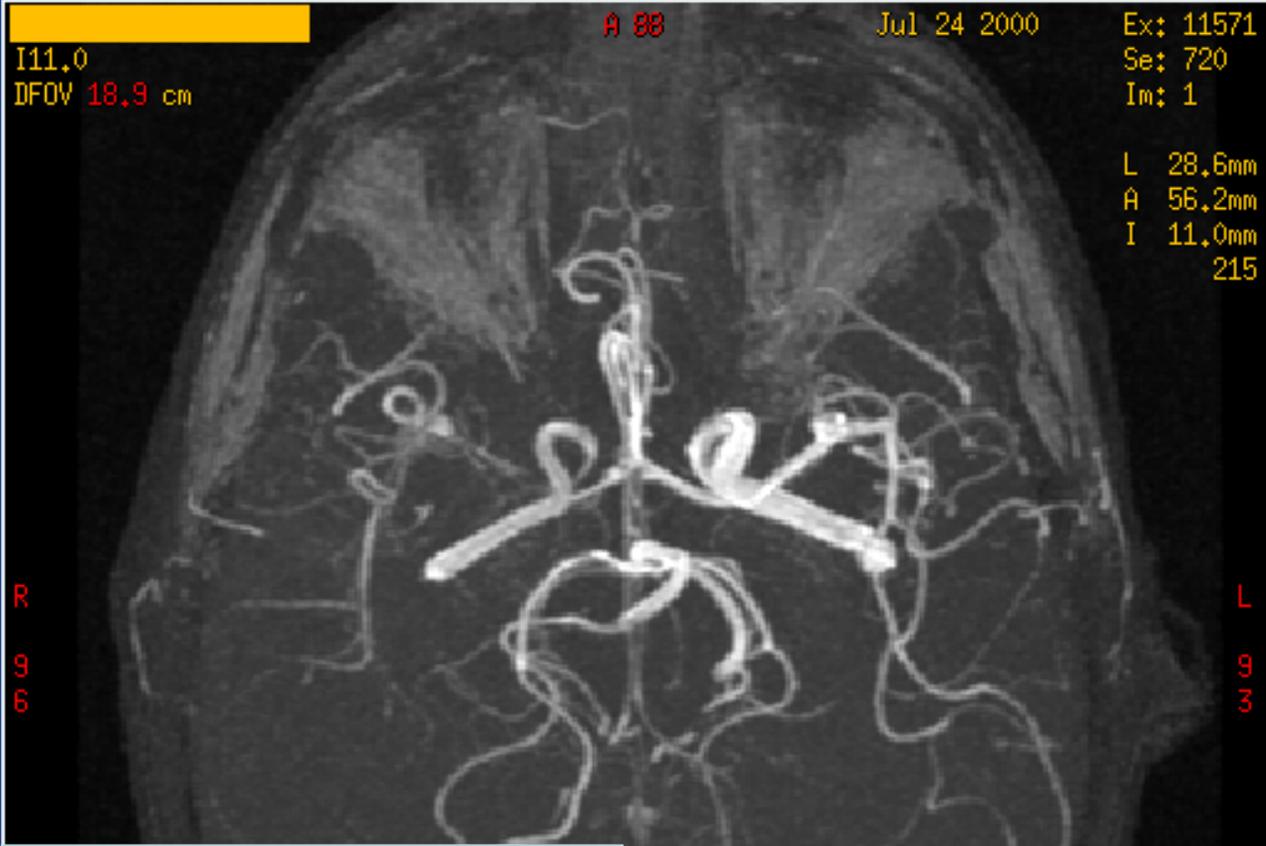


Angiographie

Diagnostic positif et étiologique d'HSA



Spasme artériel





Rare: < 1 case / 10.000/an

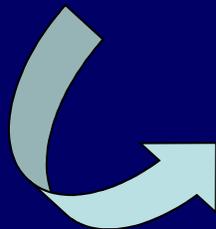


Facteurs de risque

hypercoagulabilité systémique

±

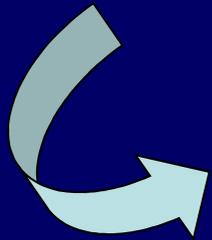
infections ou dommage tissulaire local



Facteurs de risque cumulatifs

10 - 20% SANS facteur de risque

➔ Diagnostic clinique non *univoque*



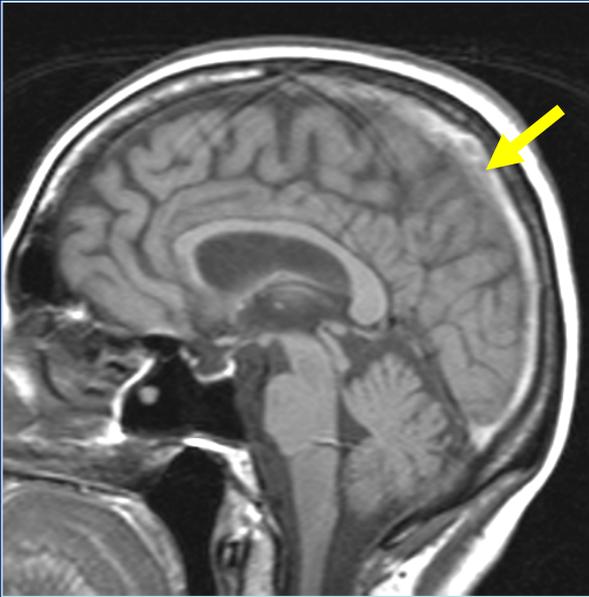
Place majeure de l'imagerie

➔ Forme maligne: évolution fatale en dépit d'un R/ adhoc

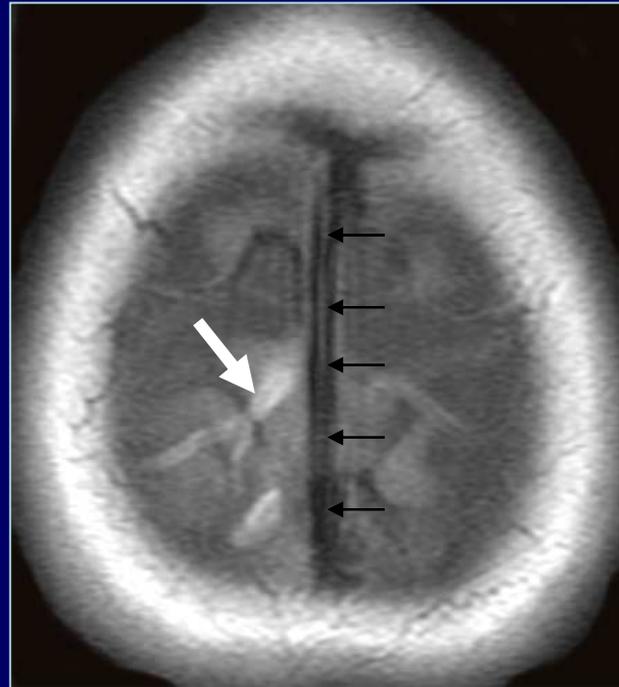
intrathrombus rtPA

rheolytic
thrombectomy

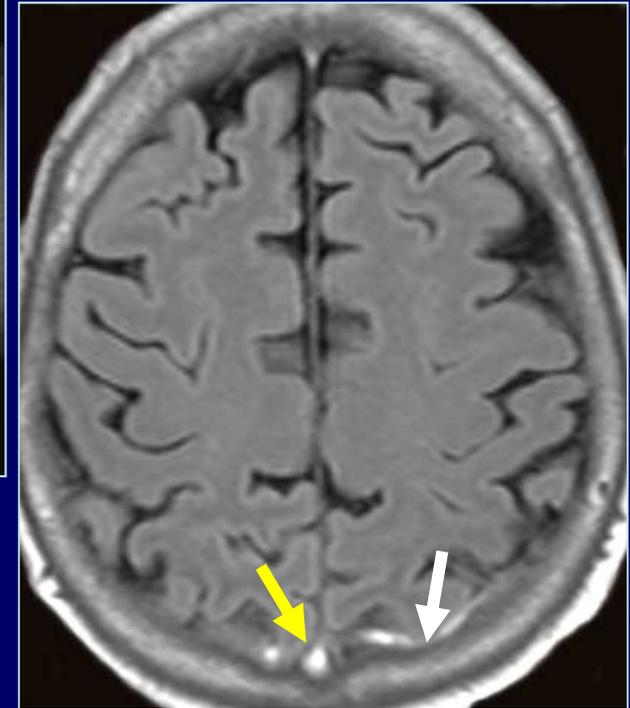
Localisations de la thrombose veineuse



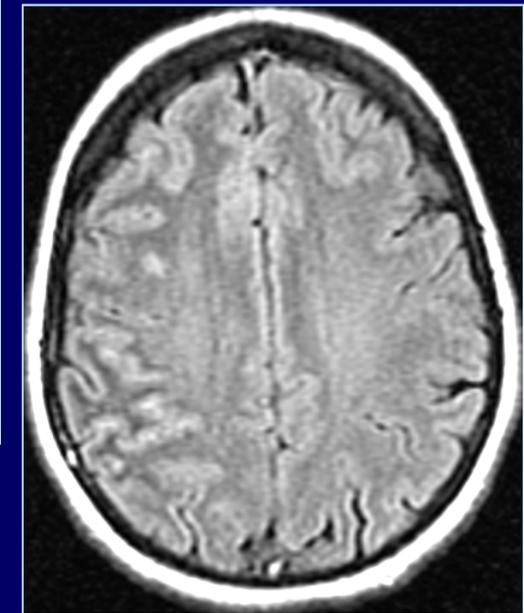
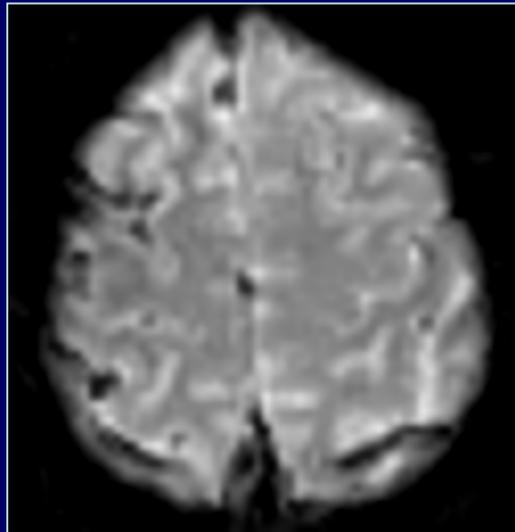
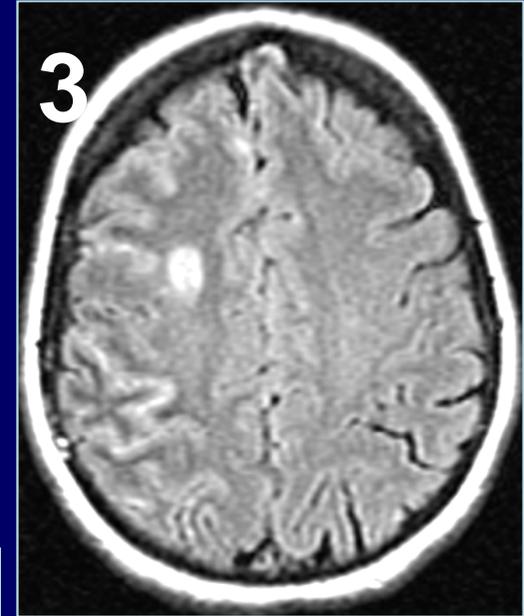
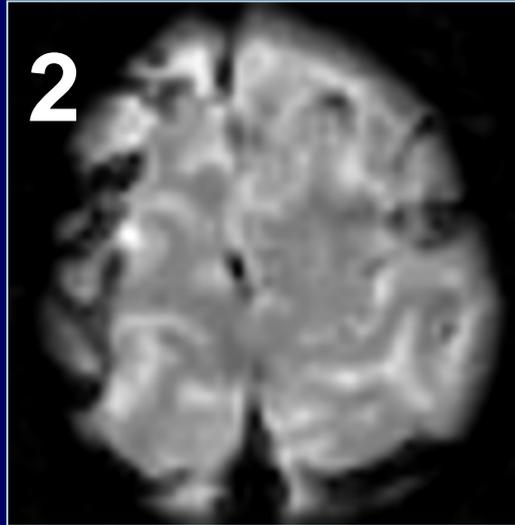
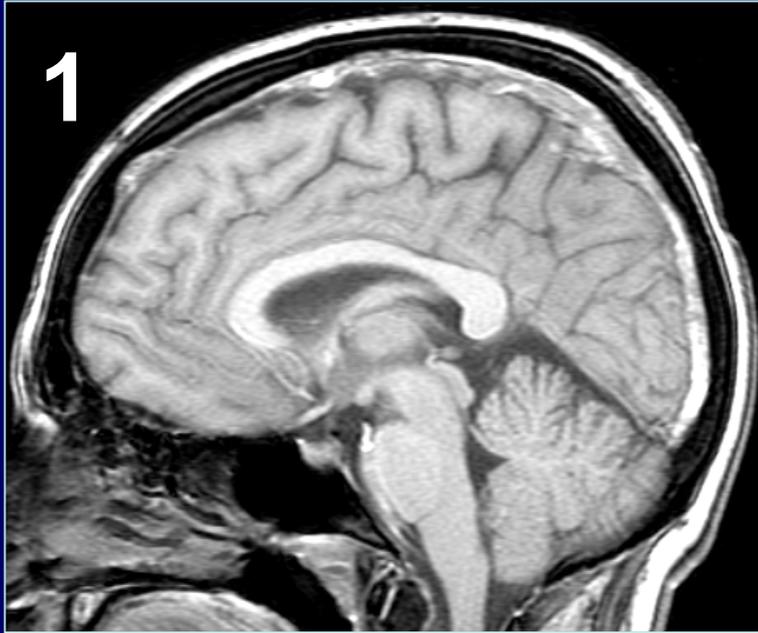
**Dural sinus thrombosis
(‘deep’ CVT)**



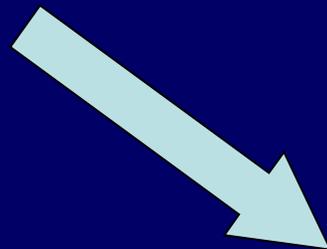
**Cortical vein thrombosis
(‘superficial’ CVT)**



**Deep & superficial
Dural & cortical**



**venous
occlusion**



**draining veins
stasis**

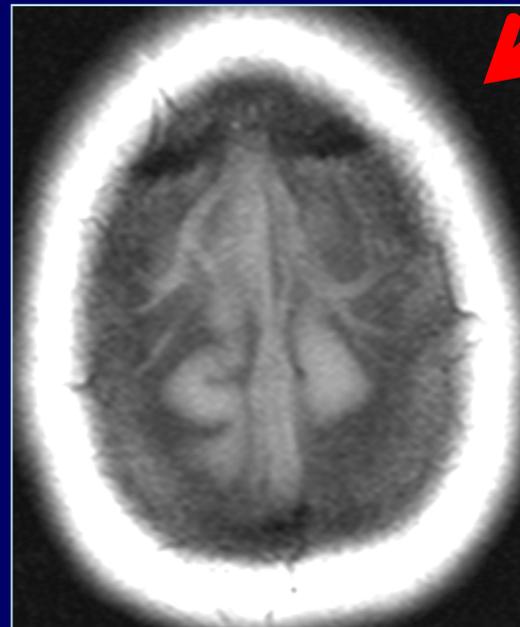
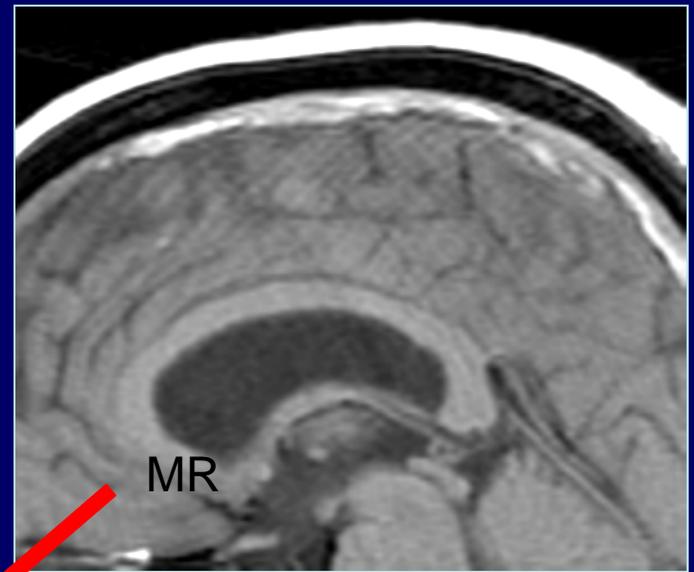
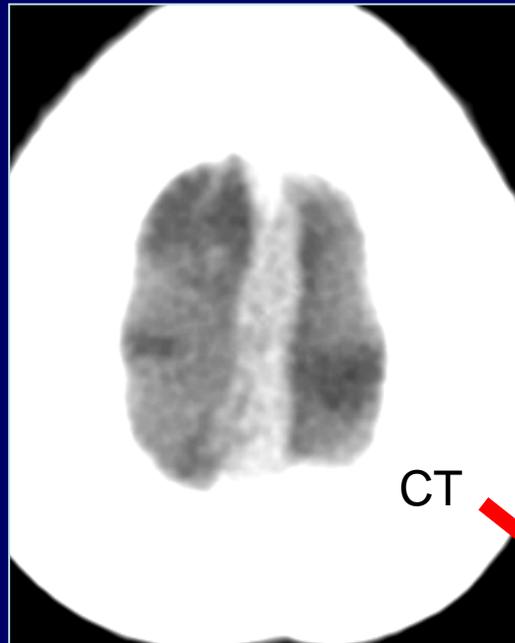


parenchymal damage

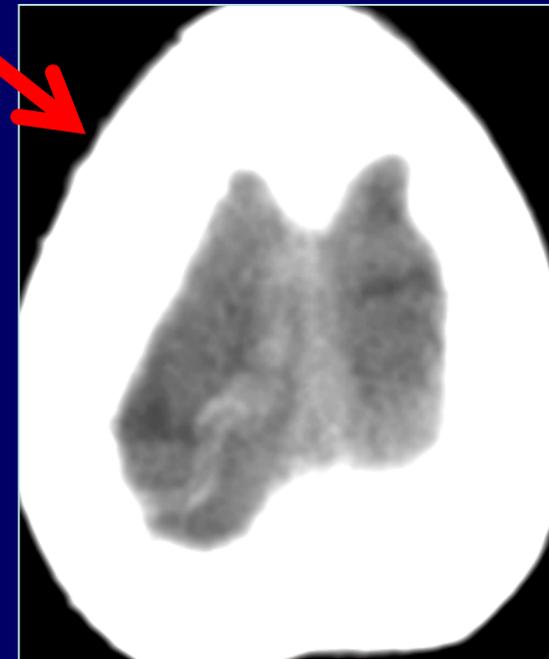
'Signe du cordon'



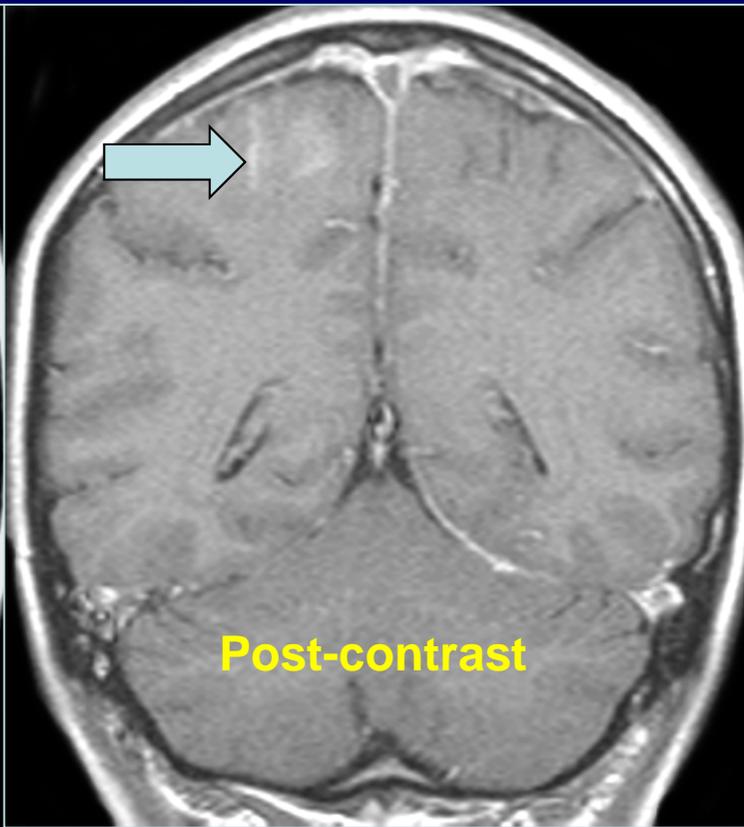
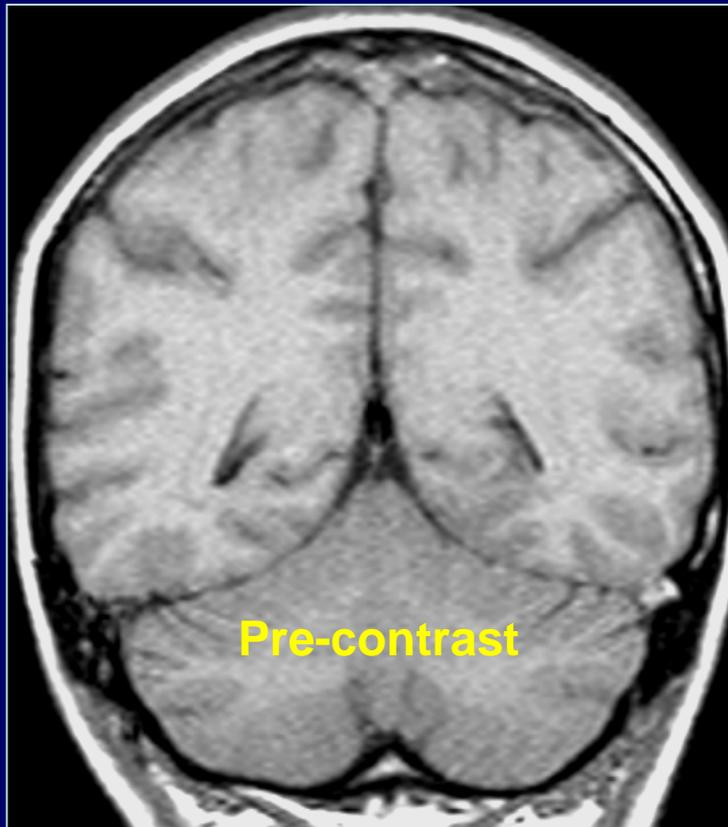
Dépendant du temps



few hours

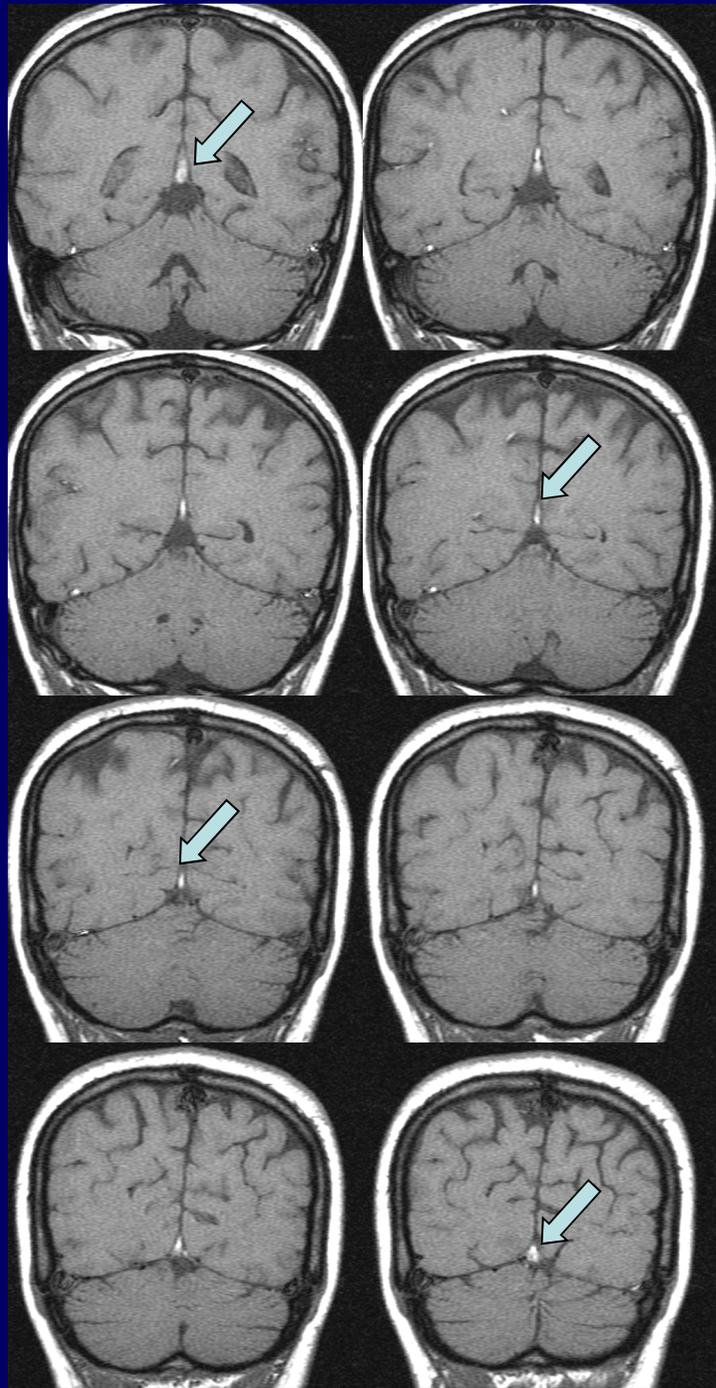


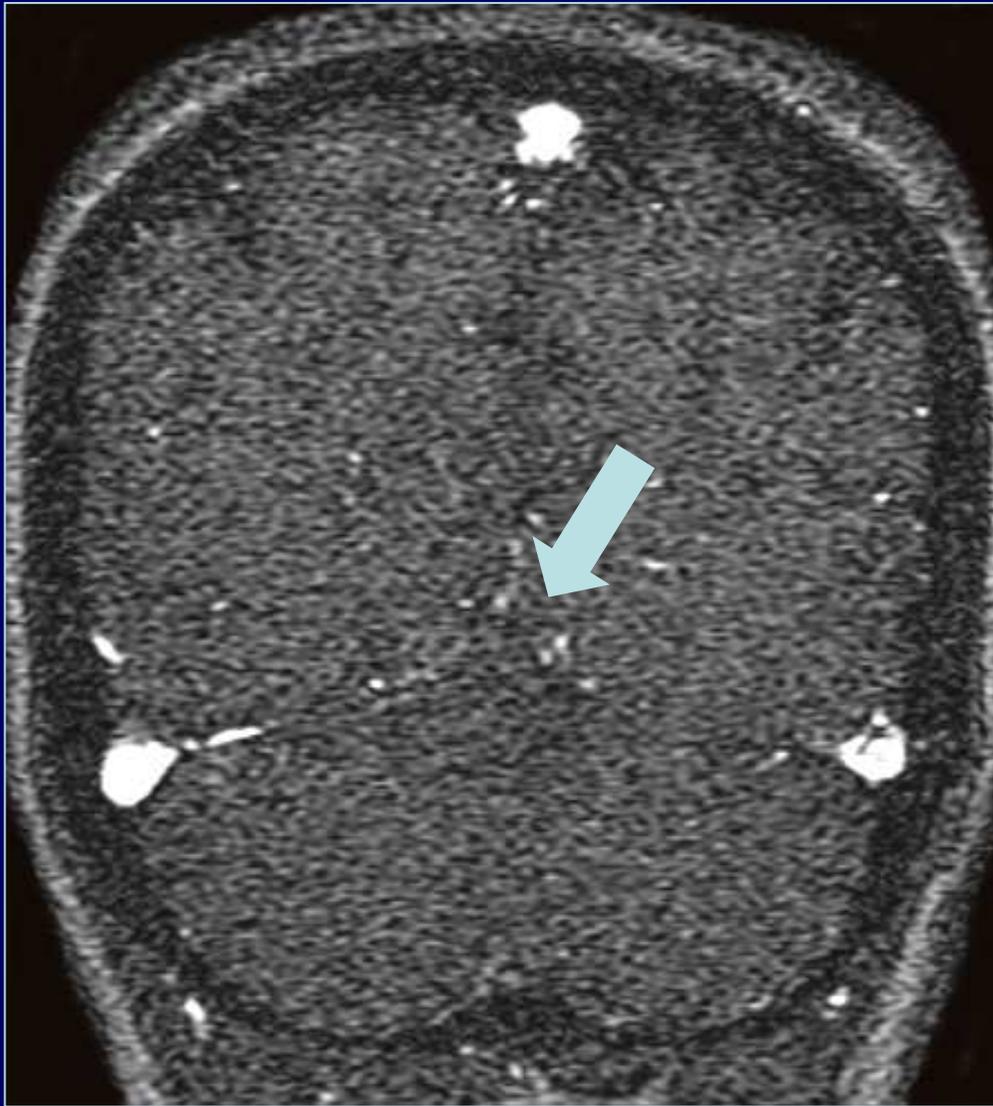
few days



'Signe du delta'



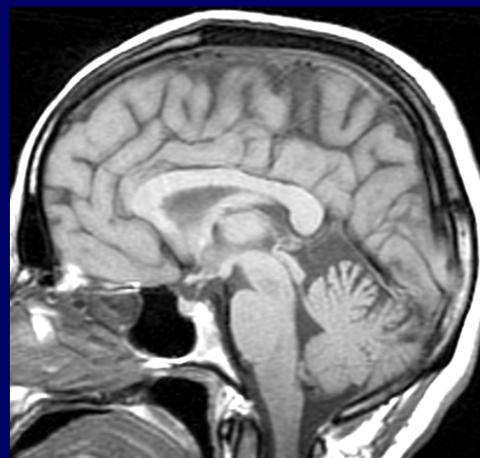




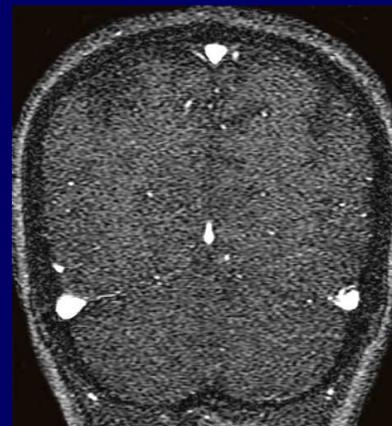
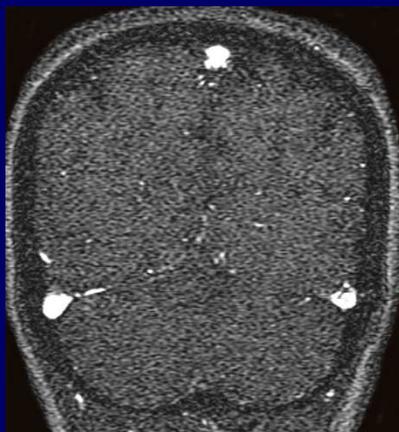
source image



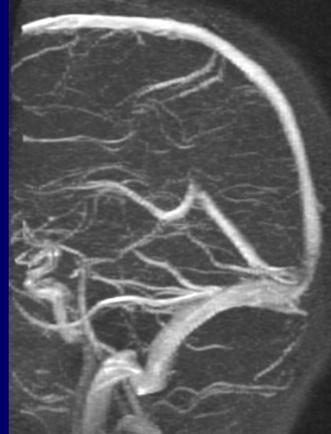
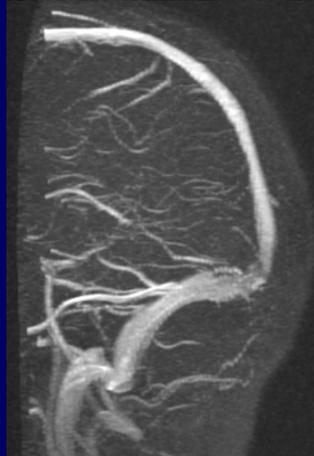
reconstruction



May 8th



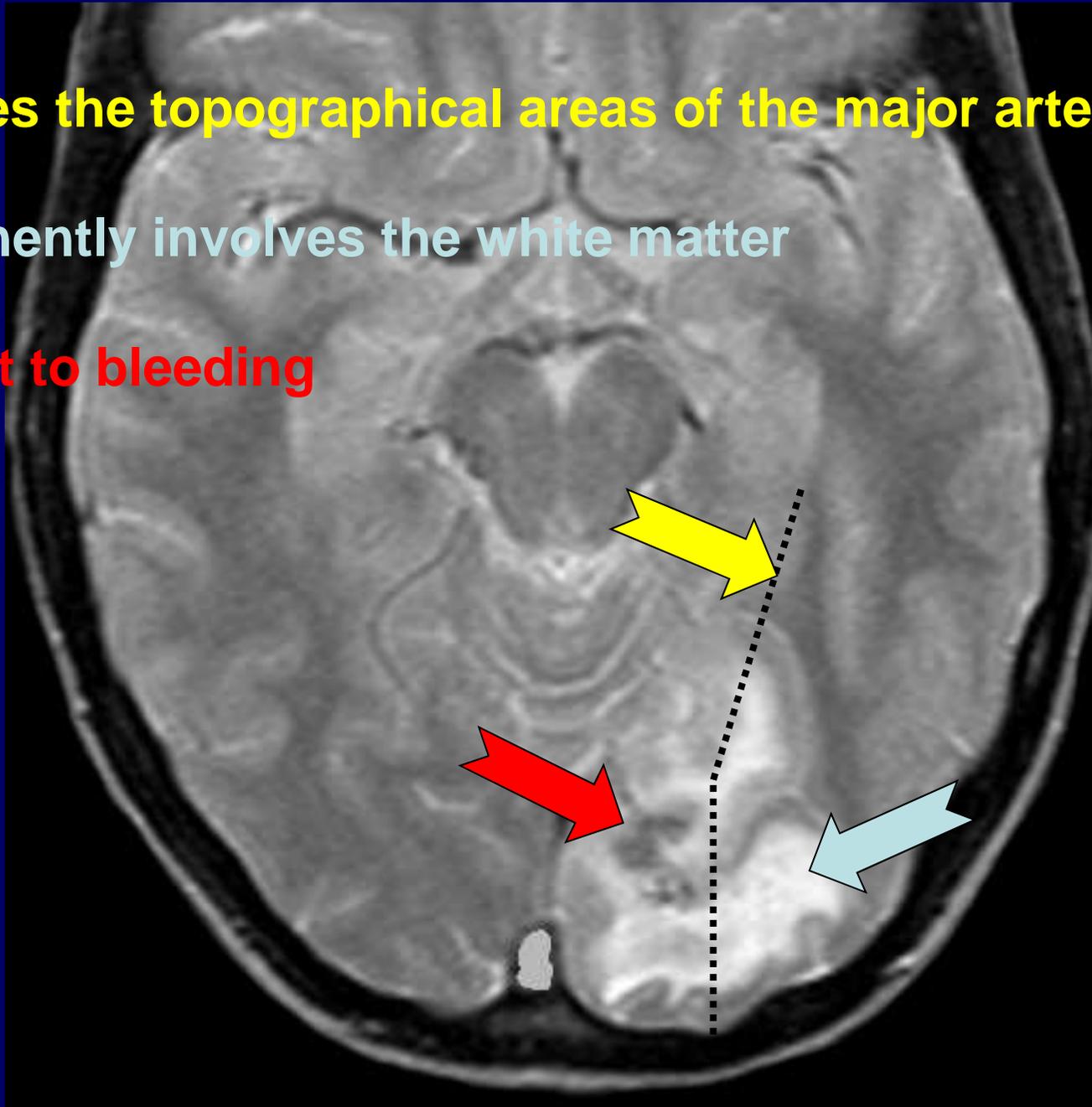
June 21th

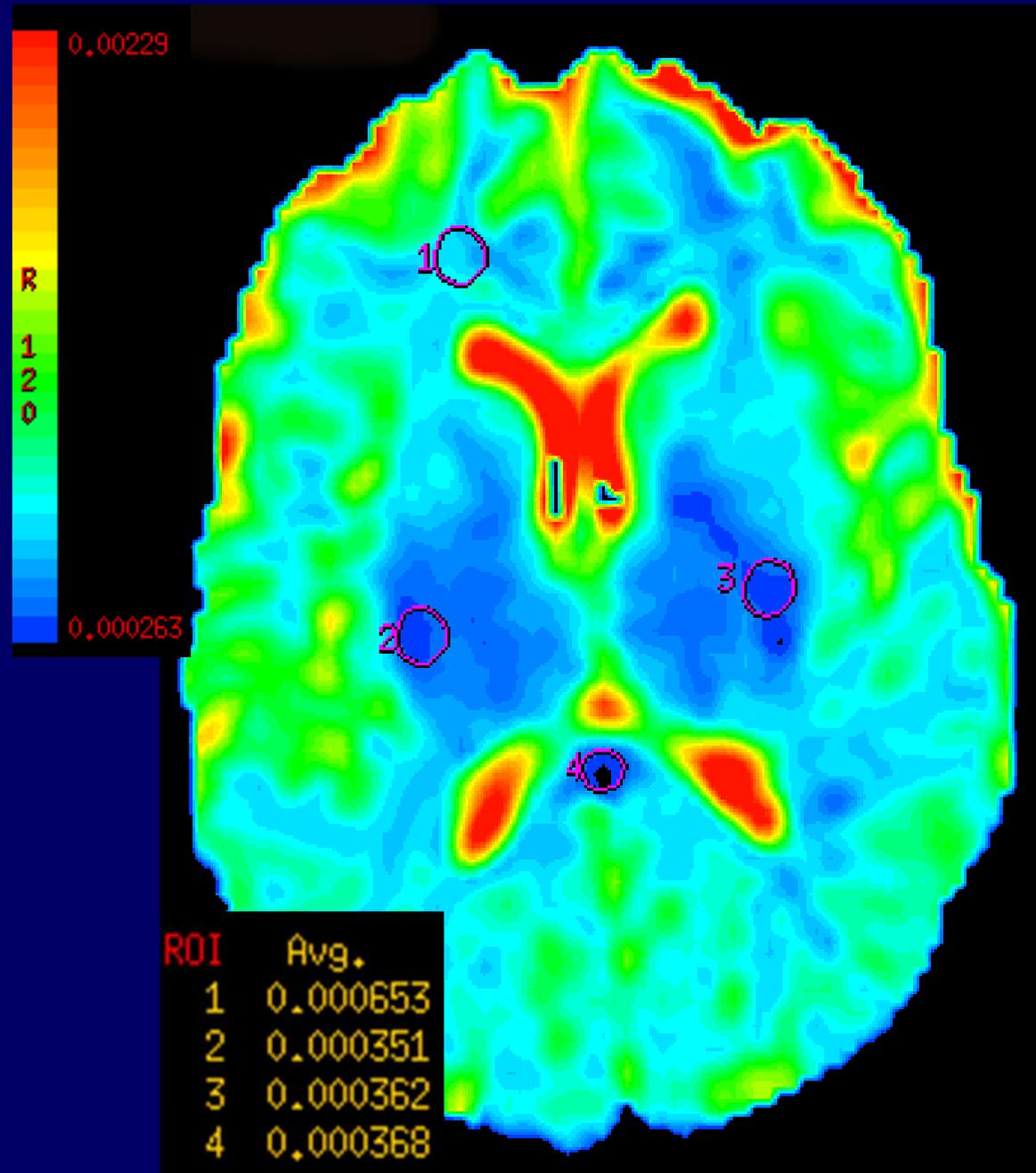
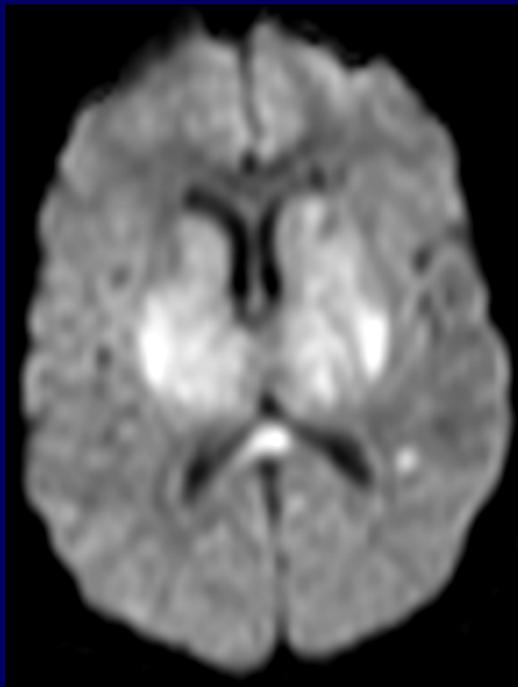
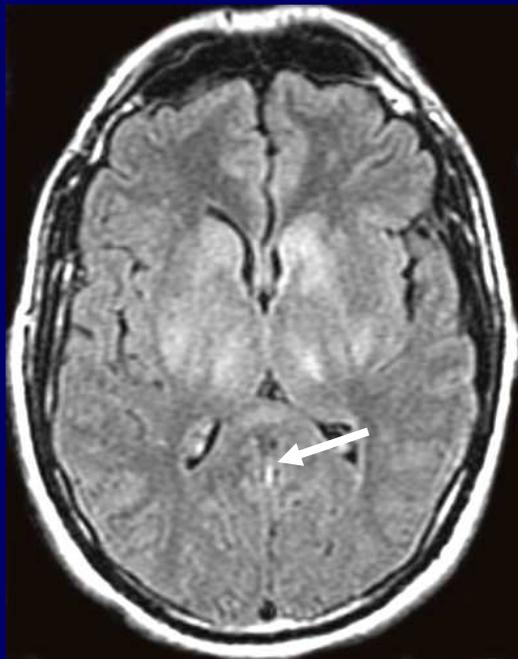


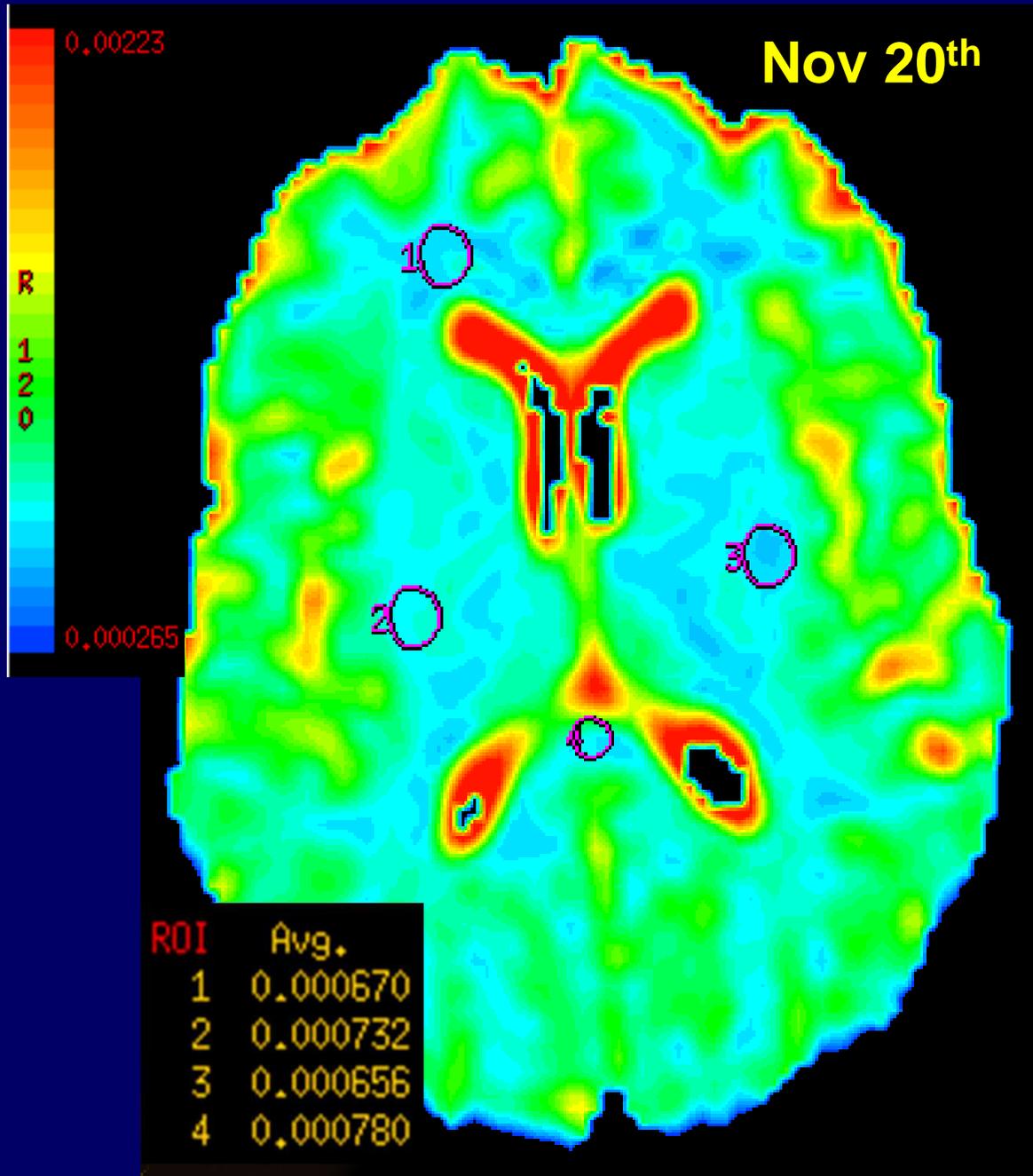
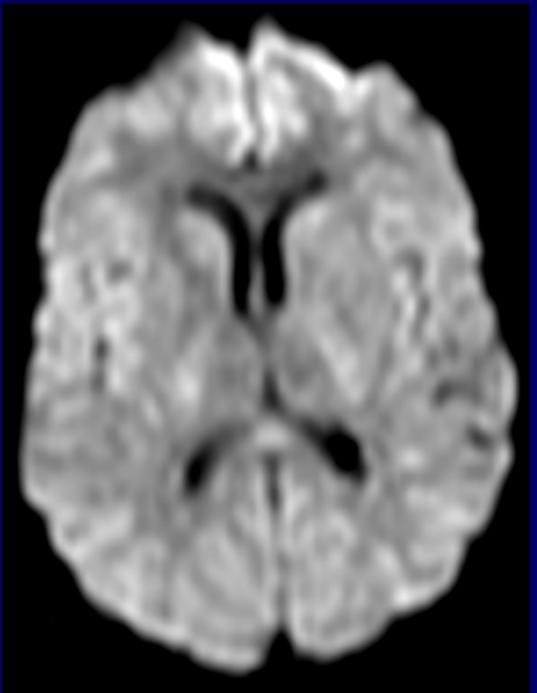
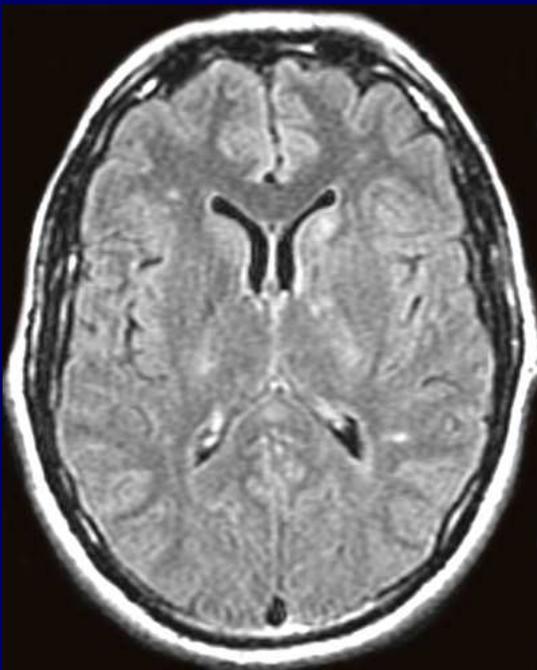
1. Crosses the topographical areas of the major arteries

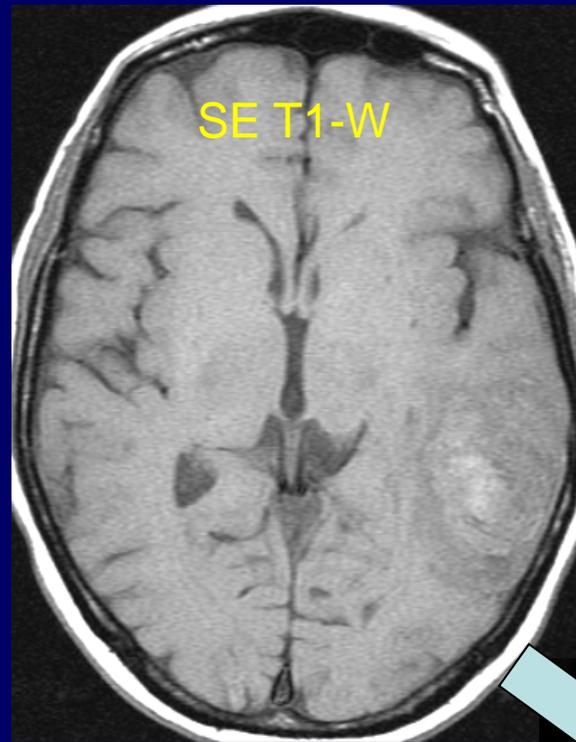
2. Prominently involves the white matter

3. Prompt to bleeding

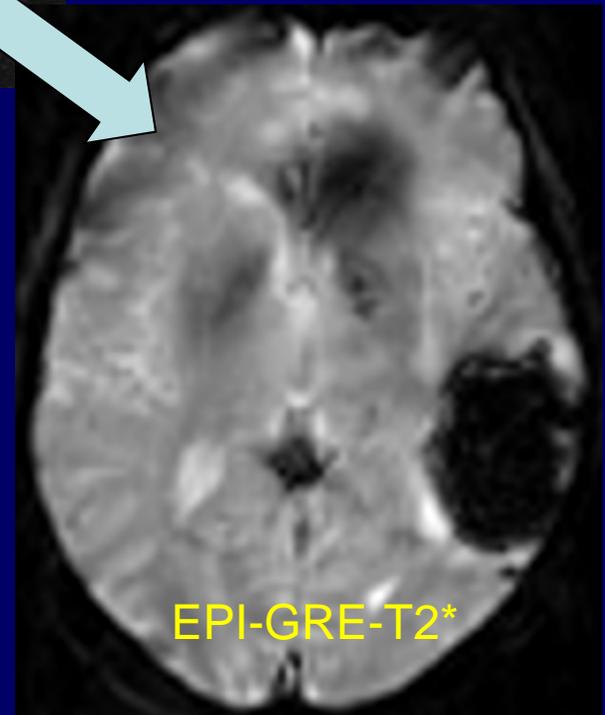




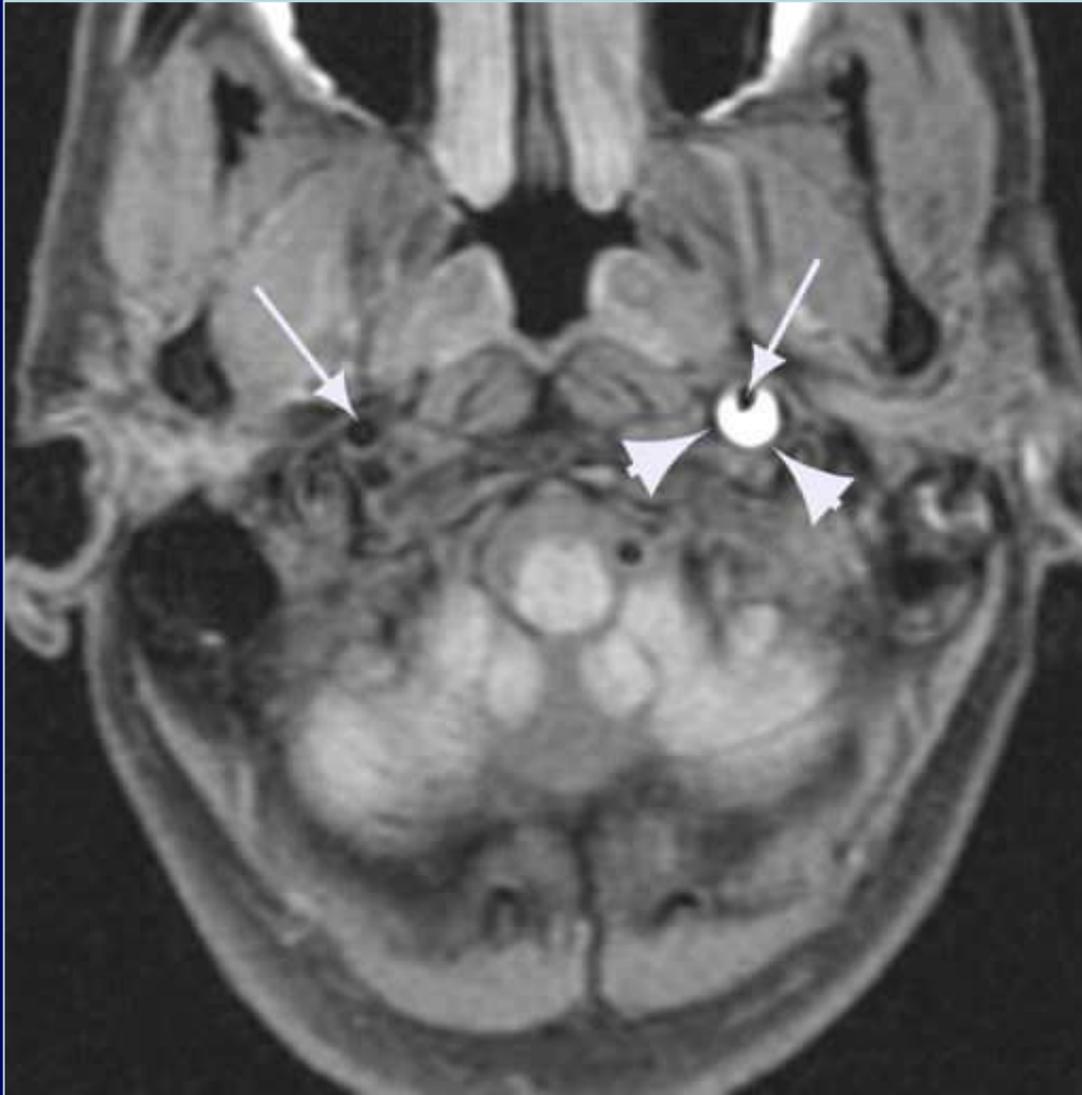




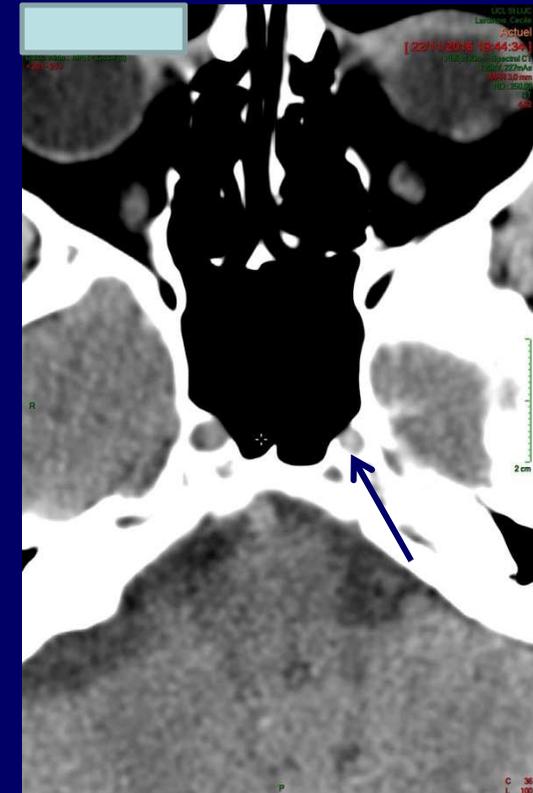
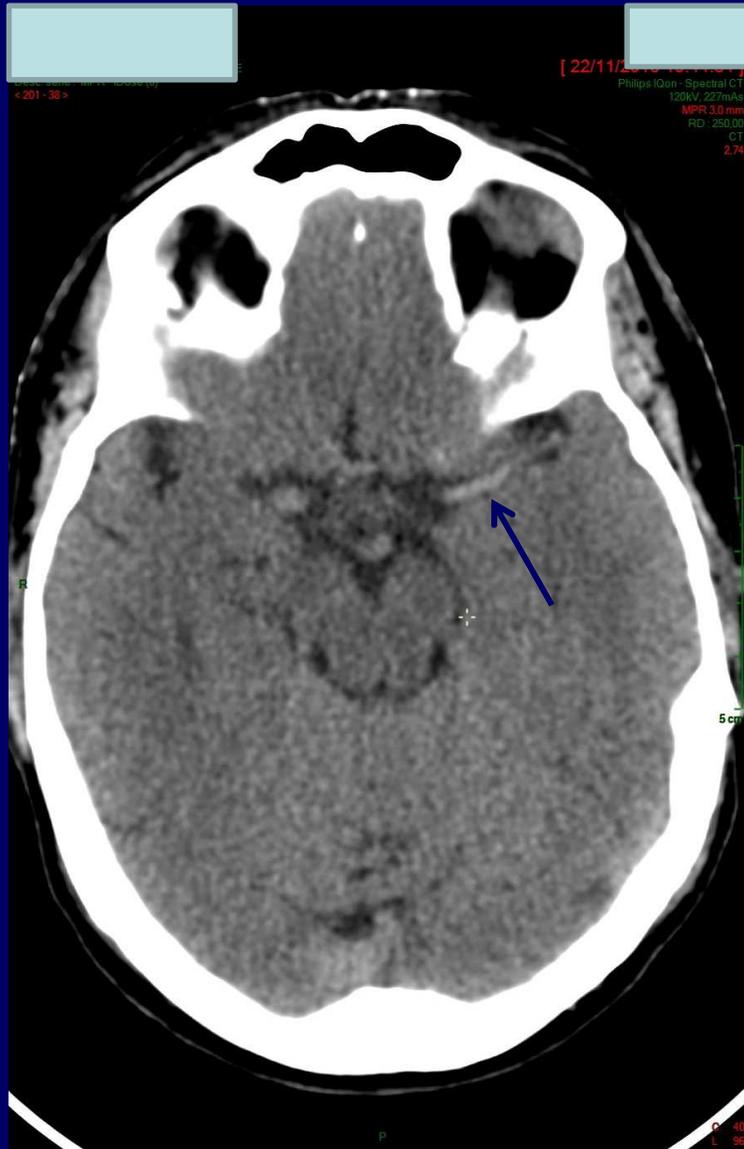
bleeding



Dissection artérielle

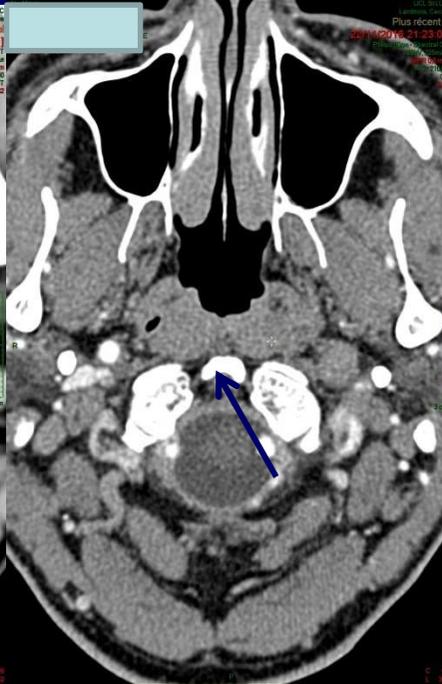
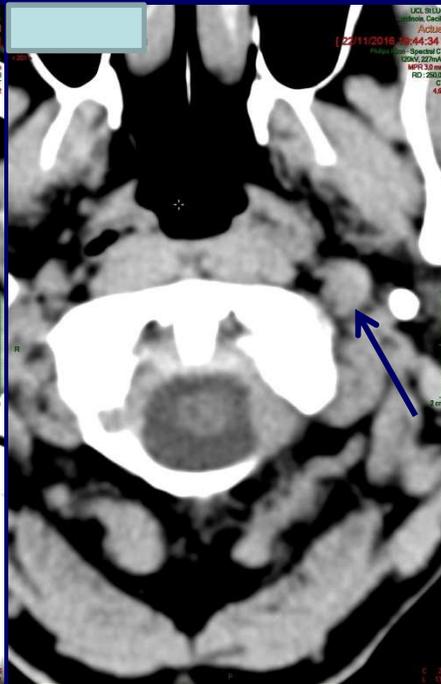
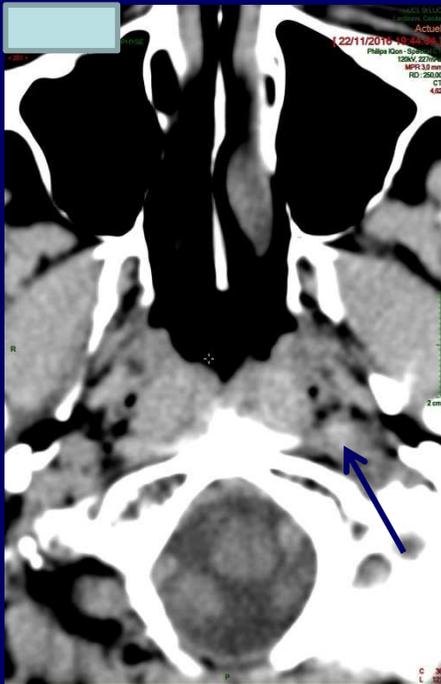


Case approach 1

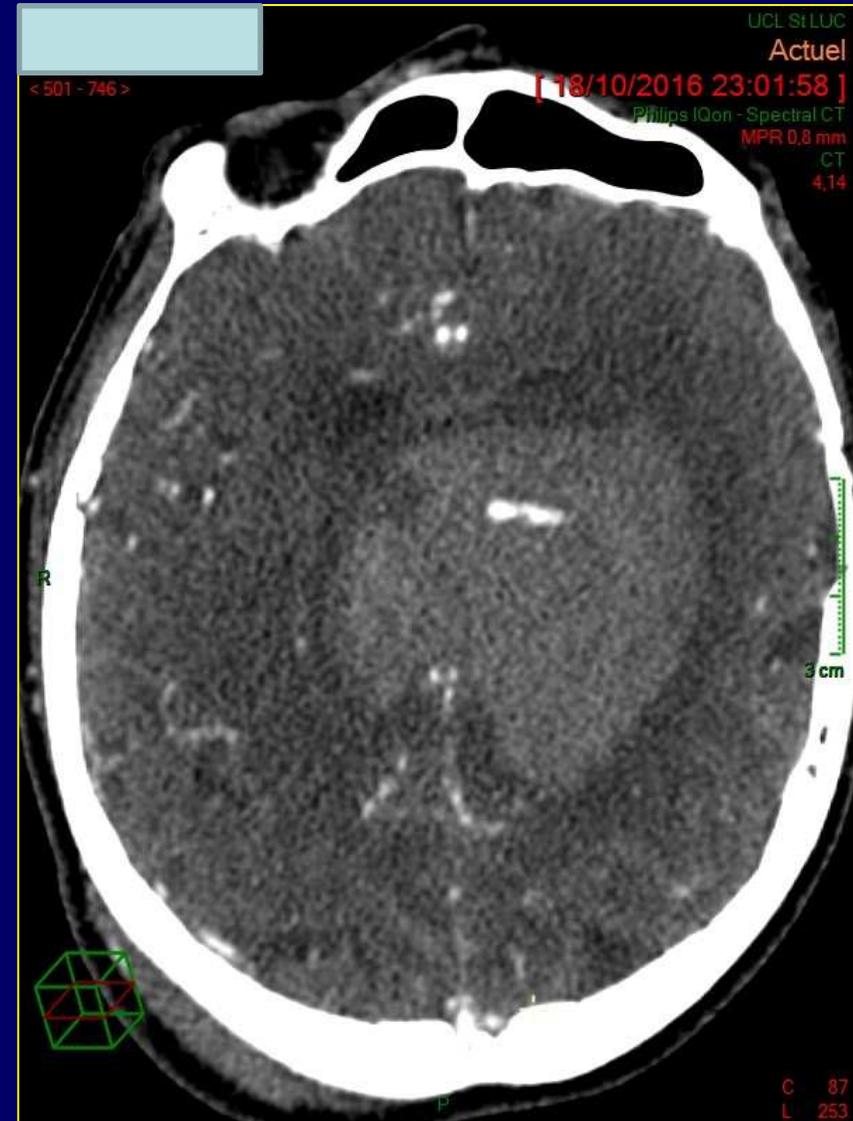


Traumatisme
Douleur cervicale gauche
Troubles phasiques, 1/2 parésie droite

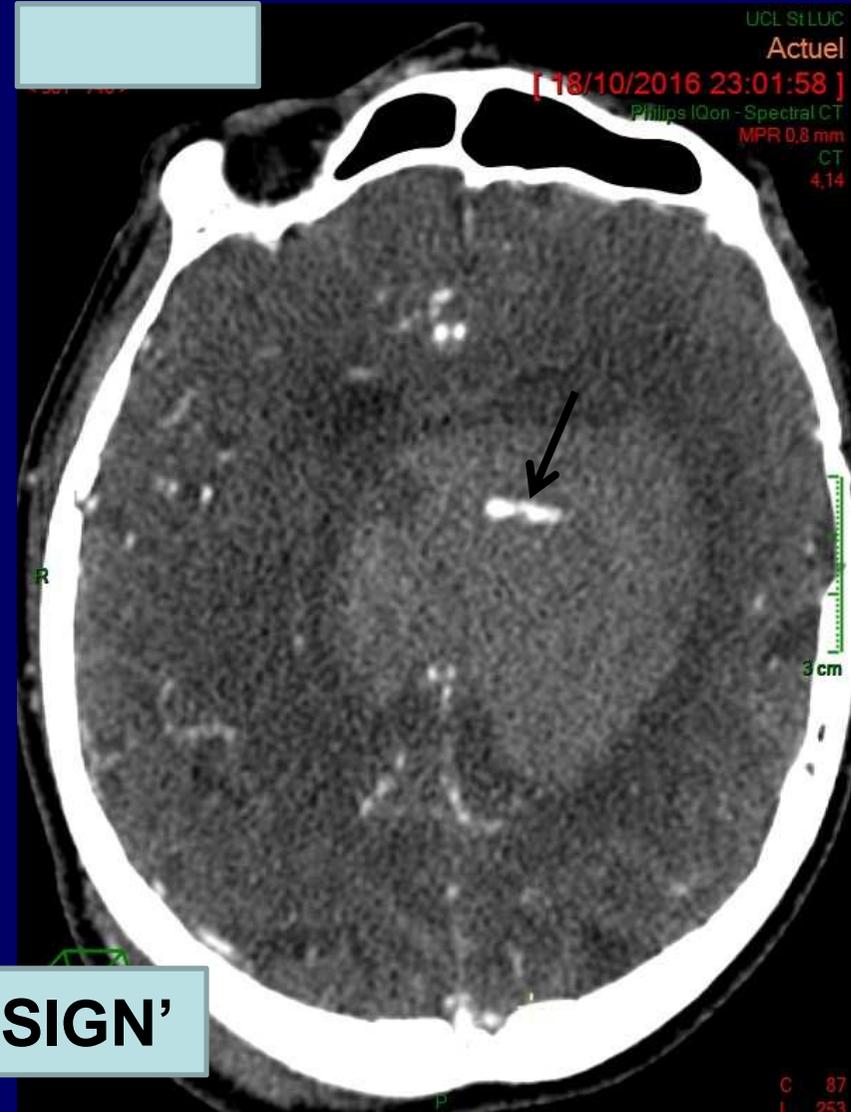
Case approach 1



Case approach 2

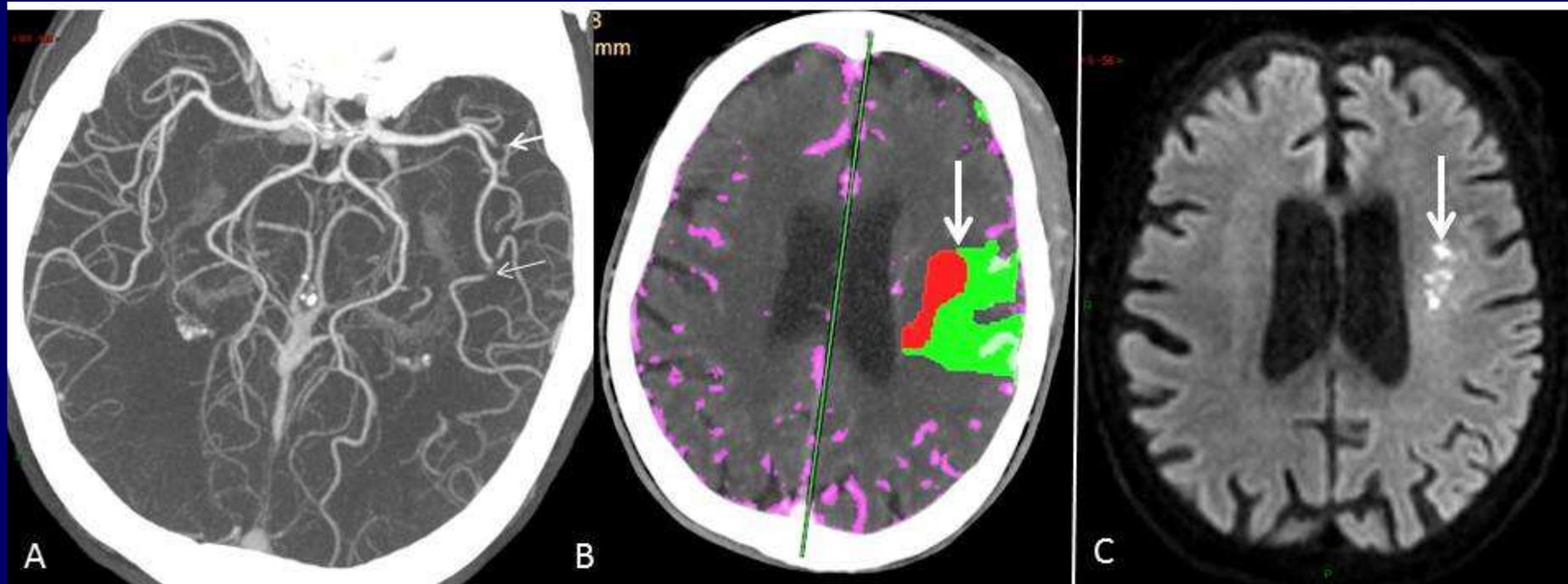


Case approach 2



'SWIRL-SIGN'

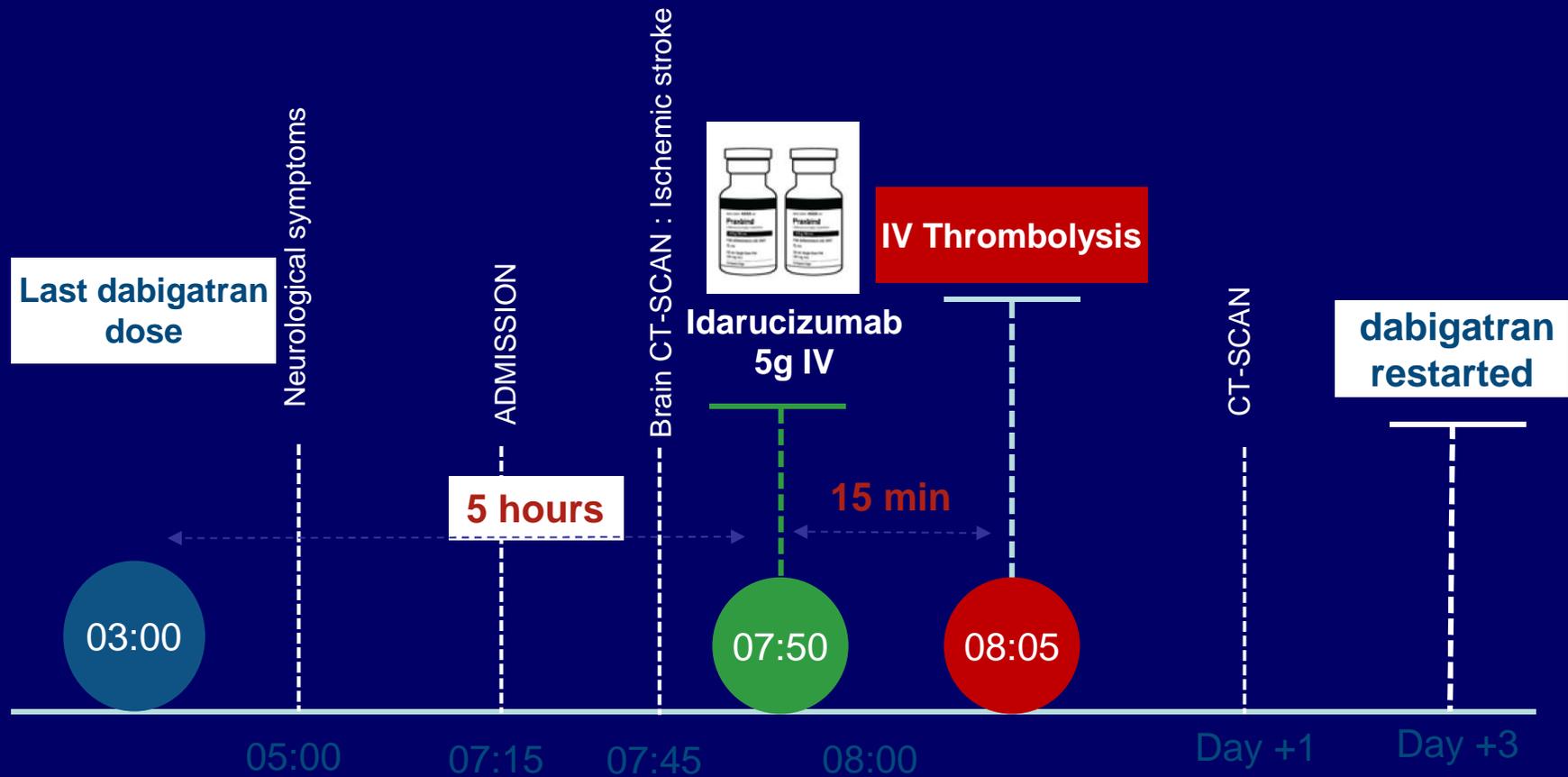
Case approach 3



85 ans – FA – HTA dyslipidémie

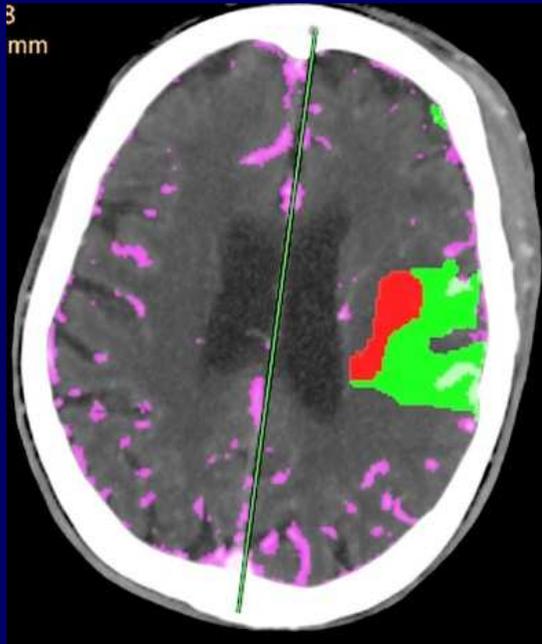
Aphasie et 1/2plégie droit → NHISS 17

Sous PRADAXA® → CI à la thrombolyse

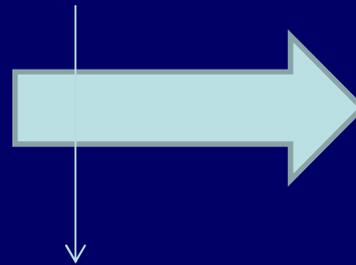


Case approach 3

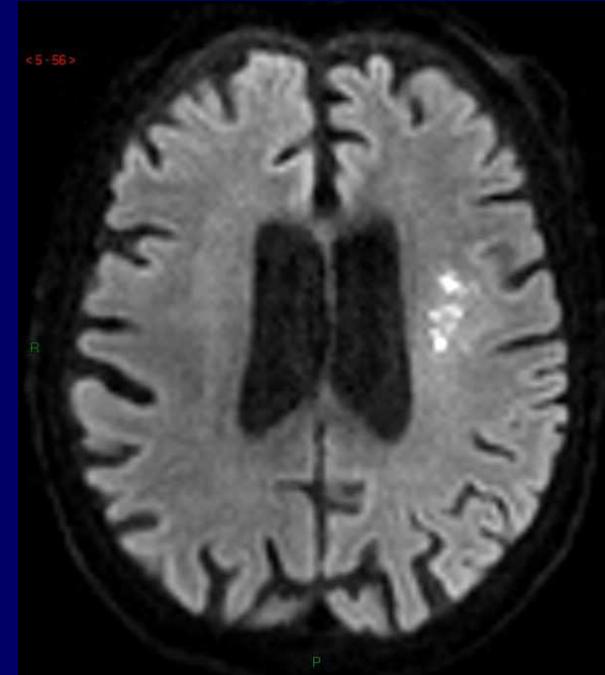
Case approach 3



Neutralisation du PRADAXA®
par PRAXBIND®



Thrombolyse !



R/ AC → CI à la thrombolyse IV (risque hémorragique)

Antivit K → INR >1.7 → exclu

Anti thrombine (Pradaxa®) → agent neutralisant disponible (Praxbind®)

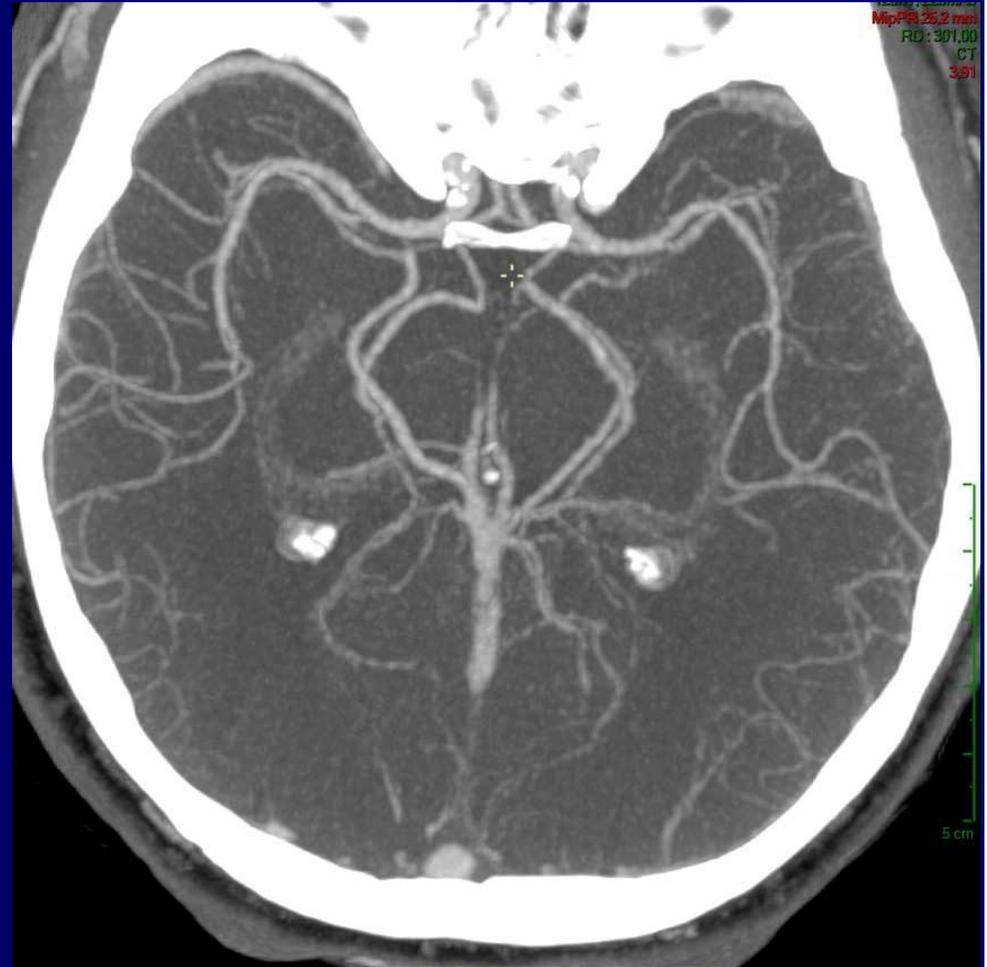
Anti facteur X (Xarelto®) → agent neutralisant dans le pipe-line

Case approach 4

Hémiplégie droite + aphasie



NCCT: normal



CTA: normal

Que faire ?

Case approach 4

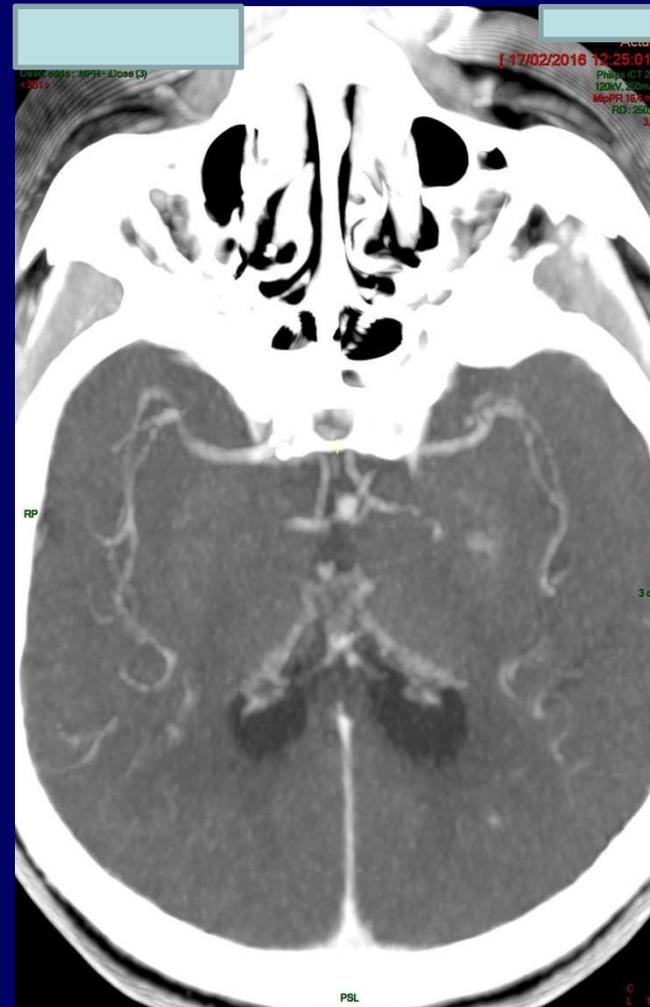


Regarder plus bas !

... trouver un chirurgien vasculaire et une SO libres

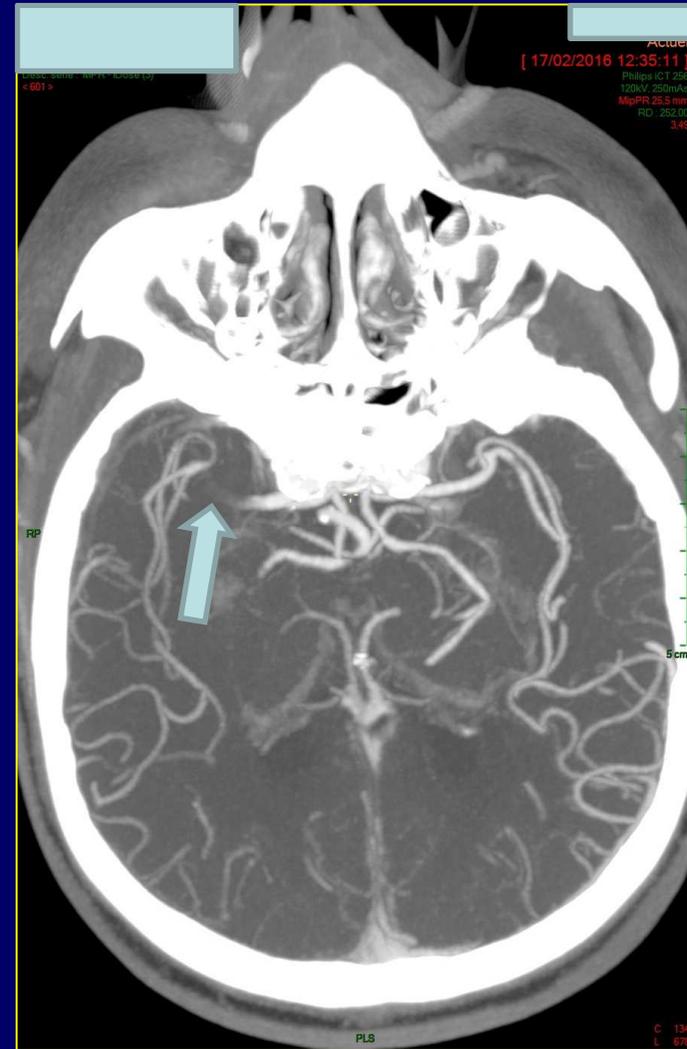
Case approach 5

Procédure interventionnelle: TAVI - ½ parésie gauche



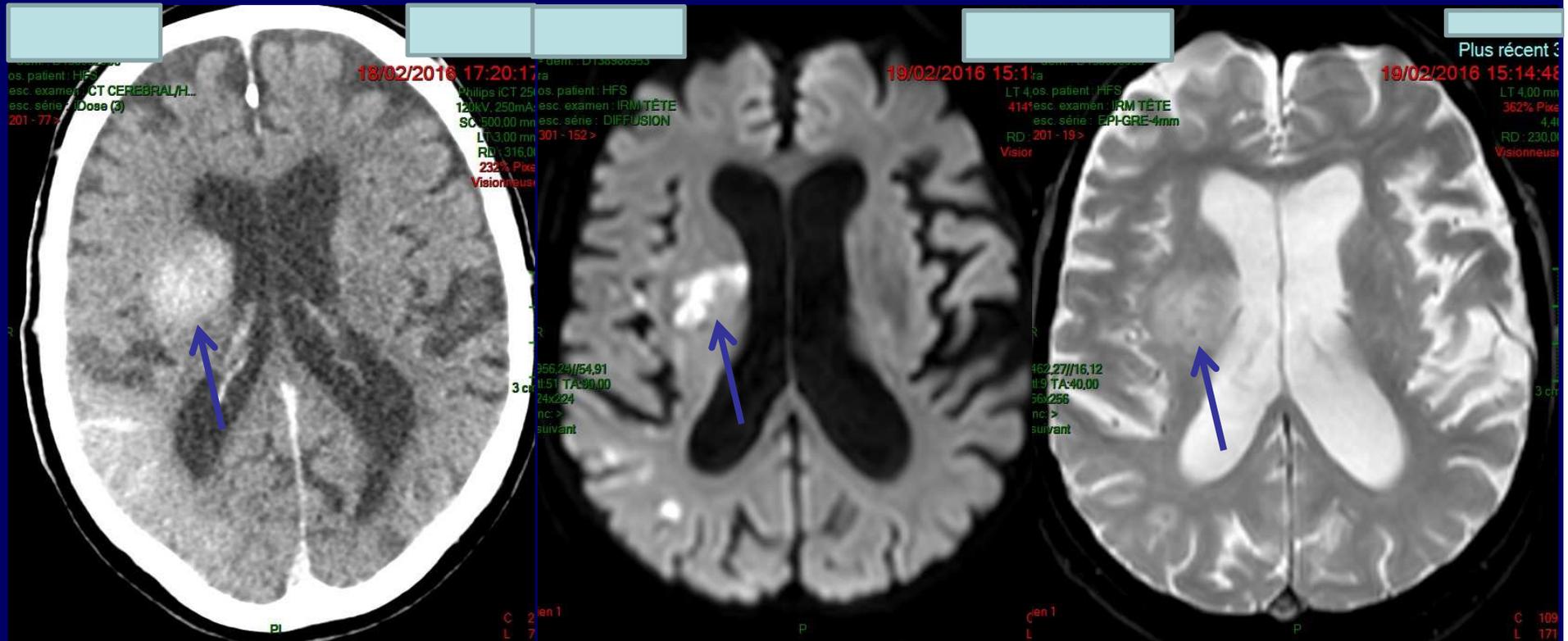
Examen 'à blanc'

Case approach 5



Angiogramme → thrombectomie

Case approach 5



Leakage de molécules de PdC par ischémie endothéliale

TAVI + CTA + THROMBECTOMIE !