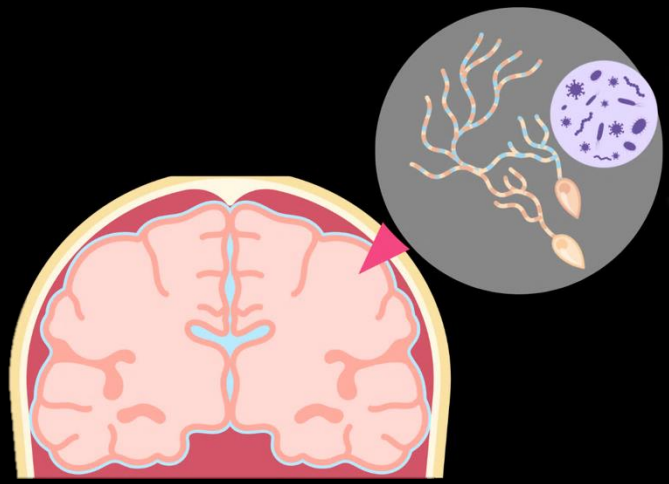
Infections fongiques et parasitaires

Dr Thibault AGRIPNIDIS

AP-HM - Timone

20/06/2025

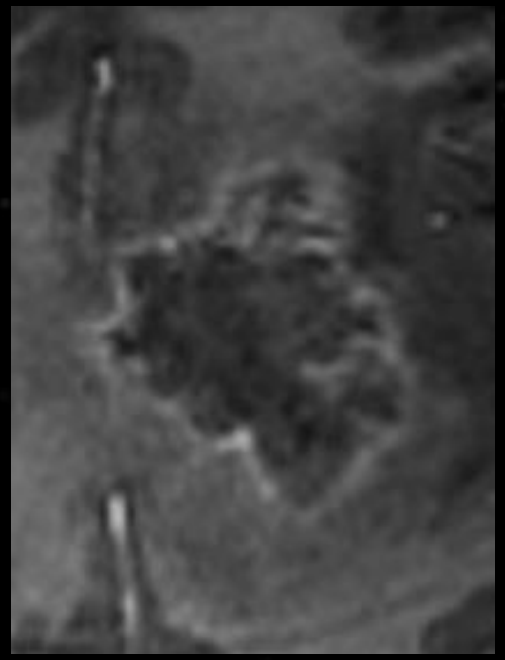


Le monde des champignons

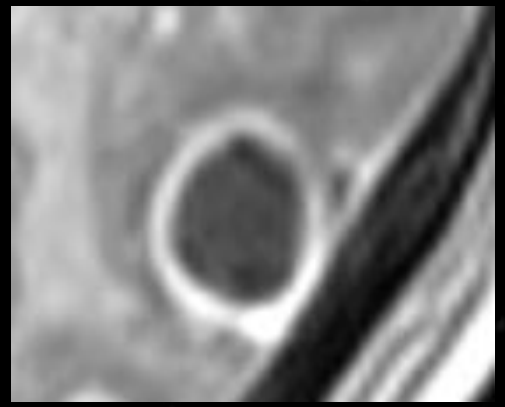
1) Angio-invasif = Hématogène

2) Infection contenu = Abcès

3) Infection par extension directe

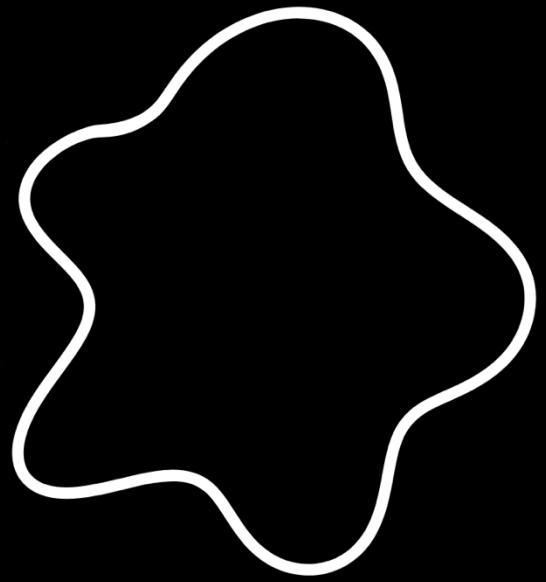


Abcès fungique

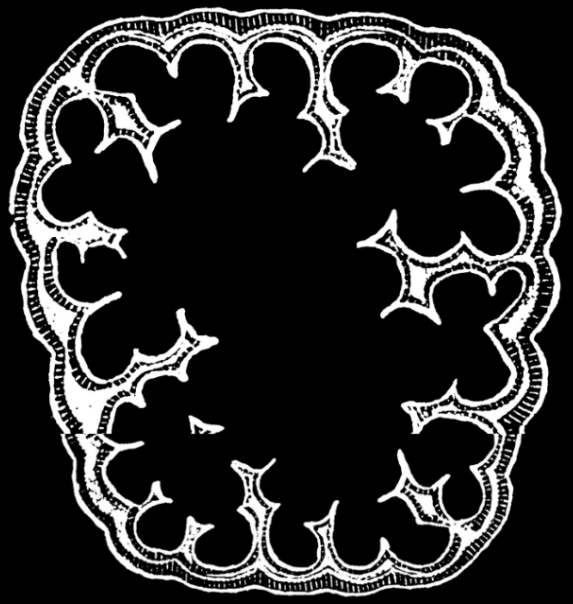


Abcès pyogène

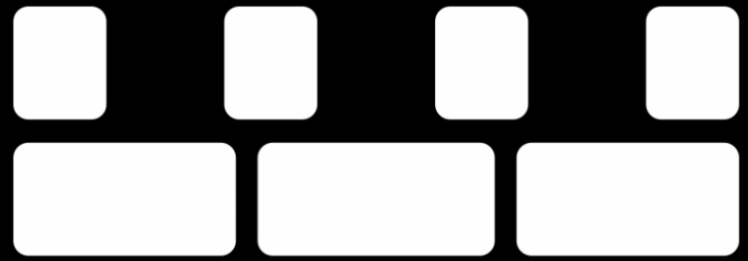
IRRÉGULIÈRE

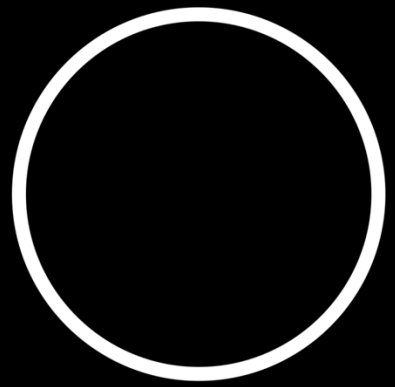


LOBULÉE

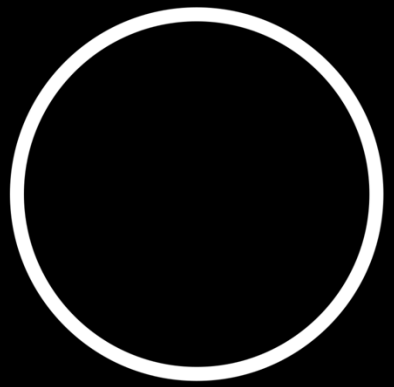


CRÉNELÉE

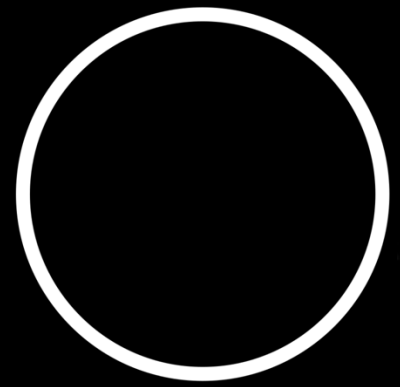




RÉGULIÈRE

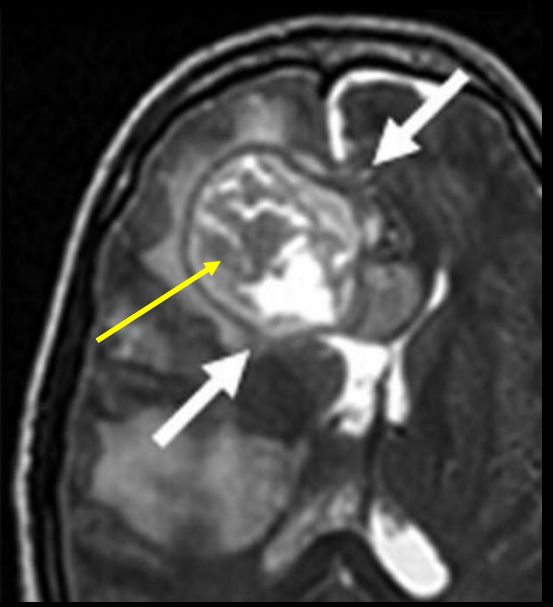


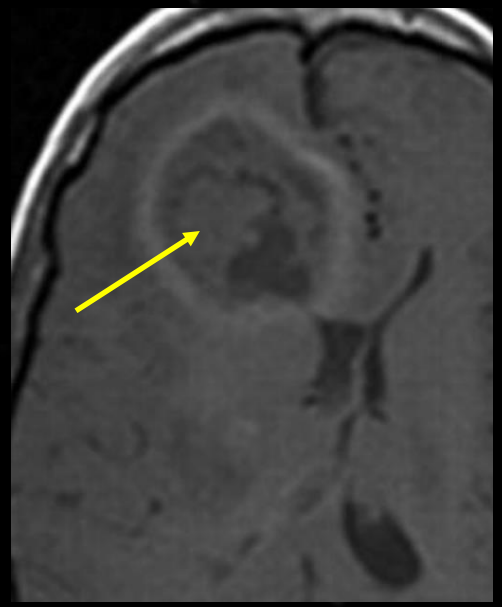
ANNEAU

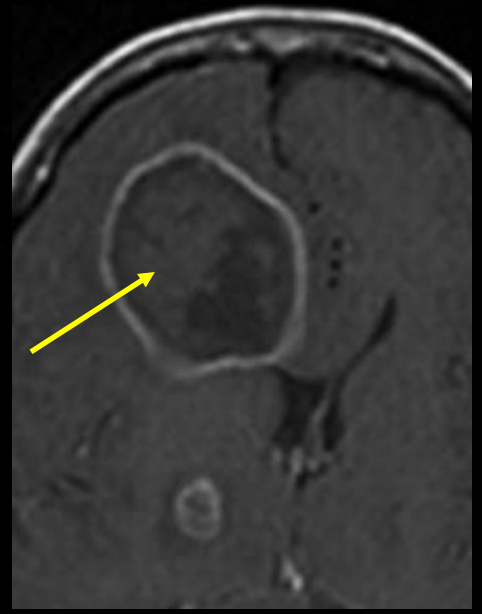


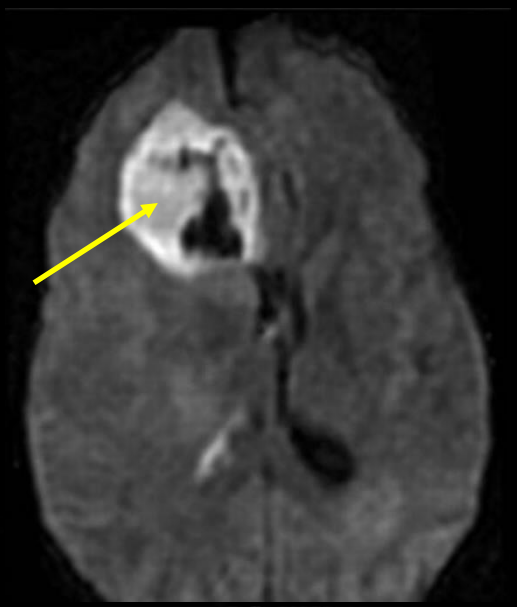
LISSE

Projections intracavitaires : hyphes

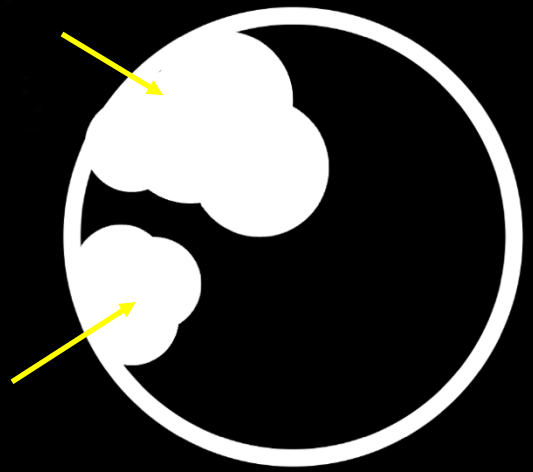


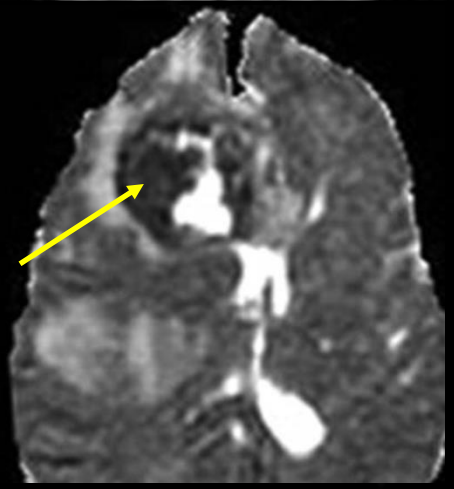






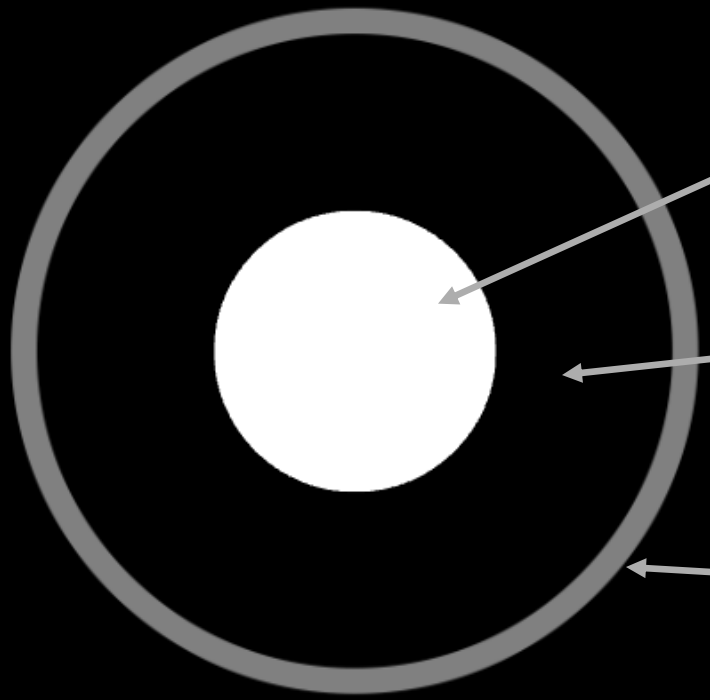
Abcès fungique





Abcès fungique (Eumycétome)

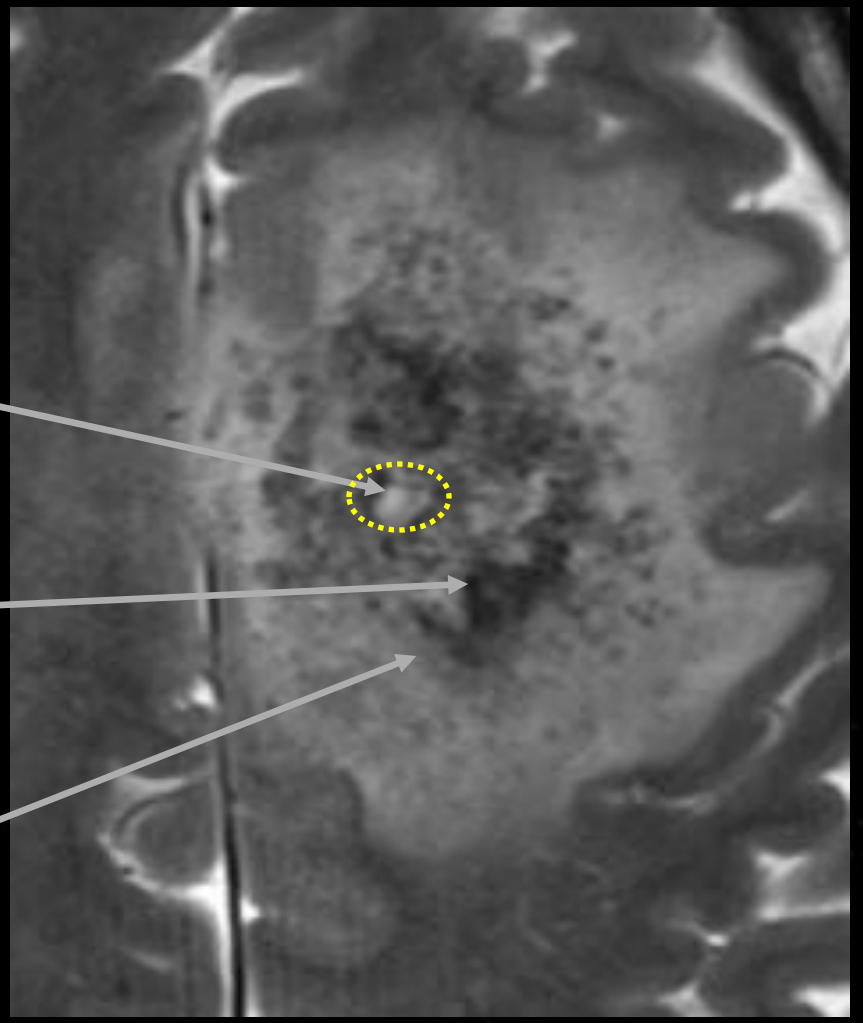
« Dot in circle sign » = PIQUETÉ



Granulome (HyperT2)

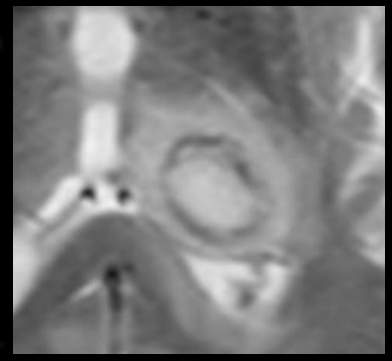
Grains fongiques (HypoT2)

Paroi fibreuse (iso-hypoT2)



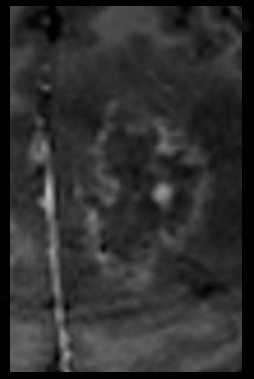
Ahmed. Indian J Radiol Imaging. 2011

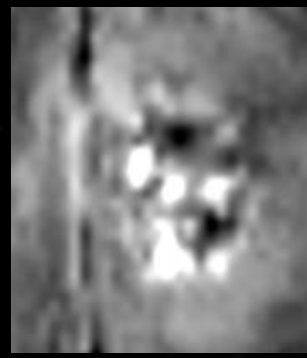
Abcès fungique (Eumycétome)



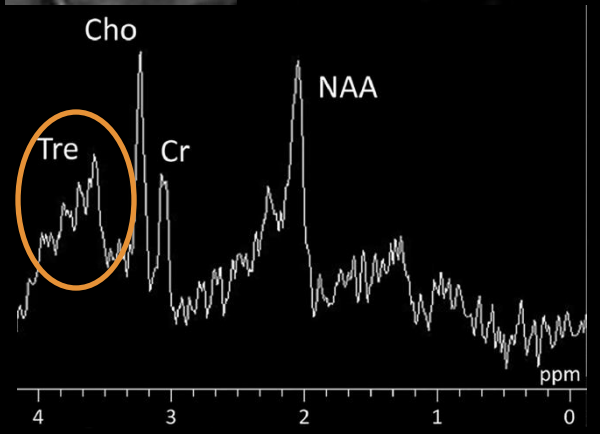
Marzolf . PLoS One. 2016

- **Centre HyperT2** et **coque HypoT2 / « Dot in circle sign »**
- **Anneau périphérique en T2* blooming**
- **Restriction de diffusion avec des projections intra-cavitaires: ces projections intracavitaires sont non rehaussés +++ (très spécifique)**
- Rehaussement des parois : **irrégulières, lobulées, crénelées**



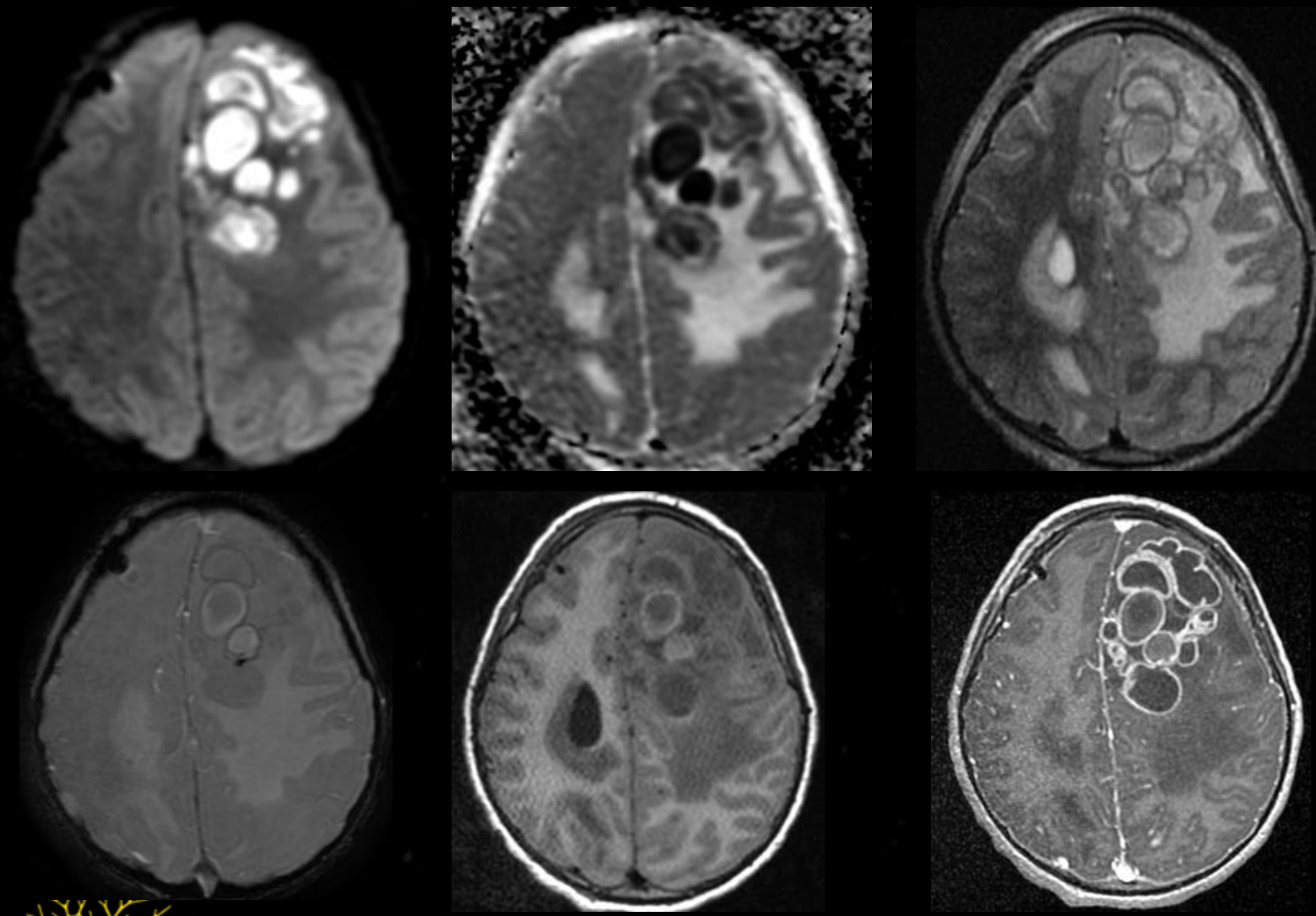


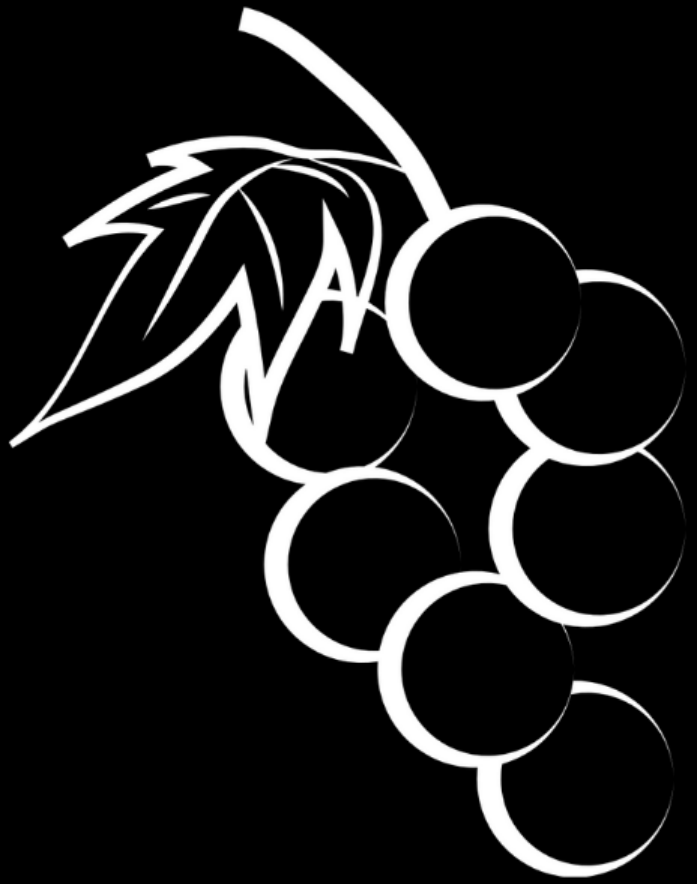
- PIC **disaccharide trehalose dans paroi abcès (multiples pics en 3.6-3.8ppm)**



Vanherp L. Transl Res. 2021

Cas 1 : 7ans, granulomatose septique chronique (immunité innée)

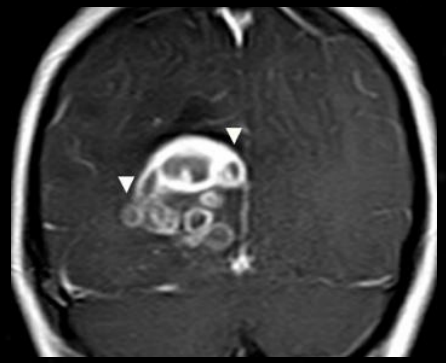




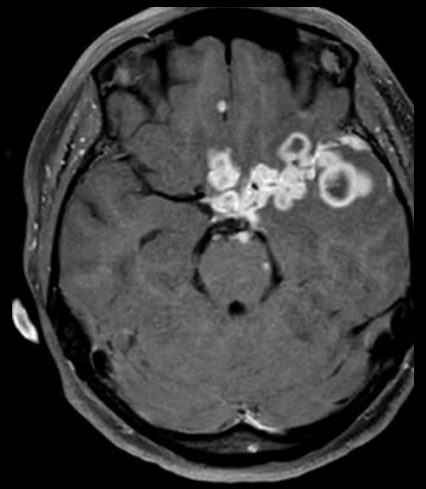
ASPERGILLOSE

Étiologies prise de contraste « en grappes »

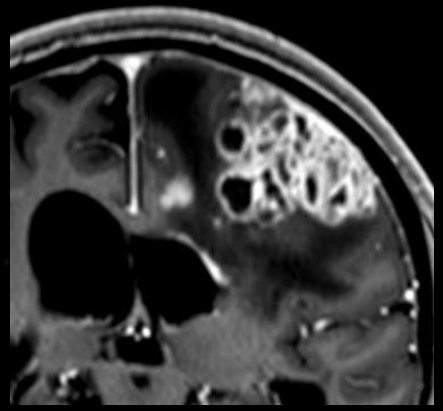
- Parasitose
- Tuberculose +++
- Fungique
- Nocardiose
- Actinomycose

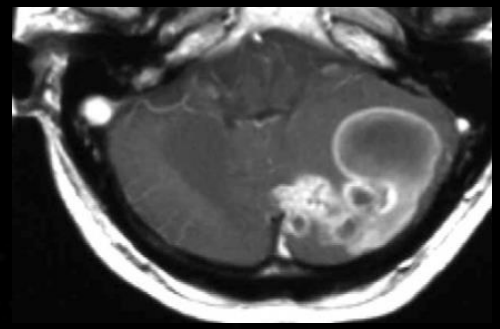


Xia Y. J Neuroradiol. 2016

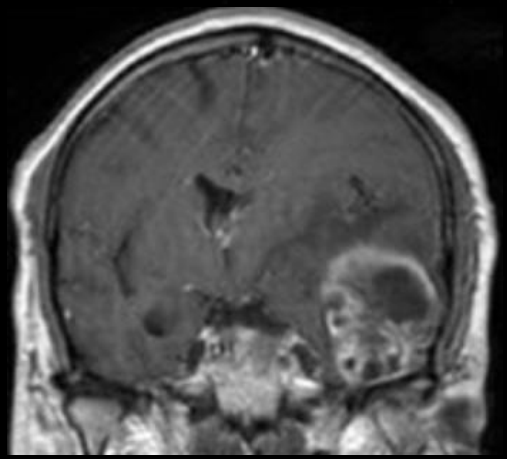


Jansem P. Ann Neurol. 2023





Kennedy KJ. Surg Neurol. 2007



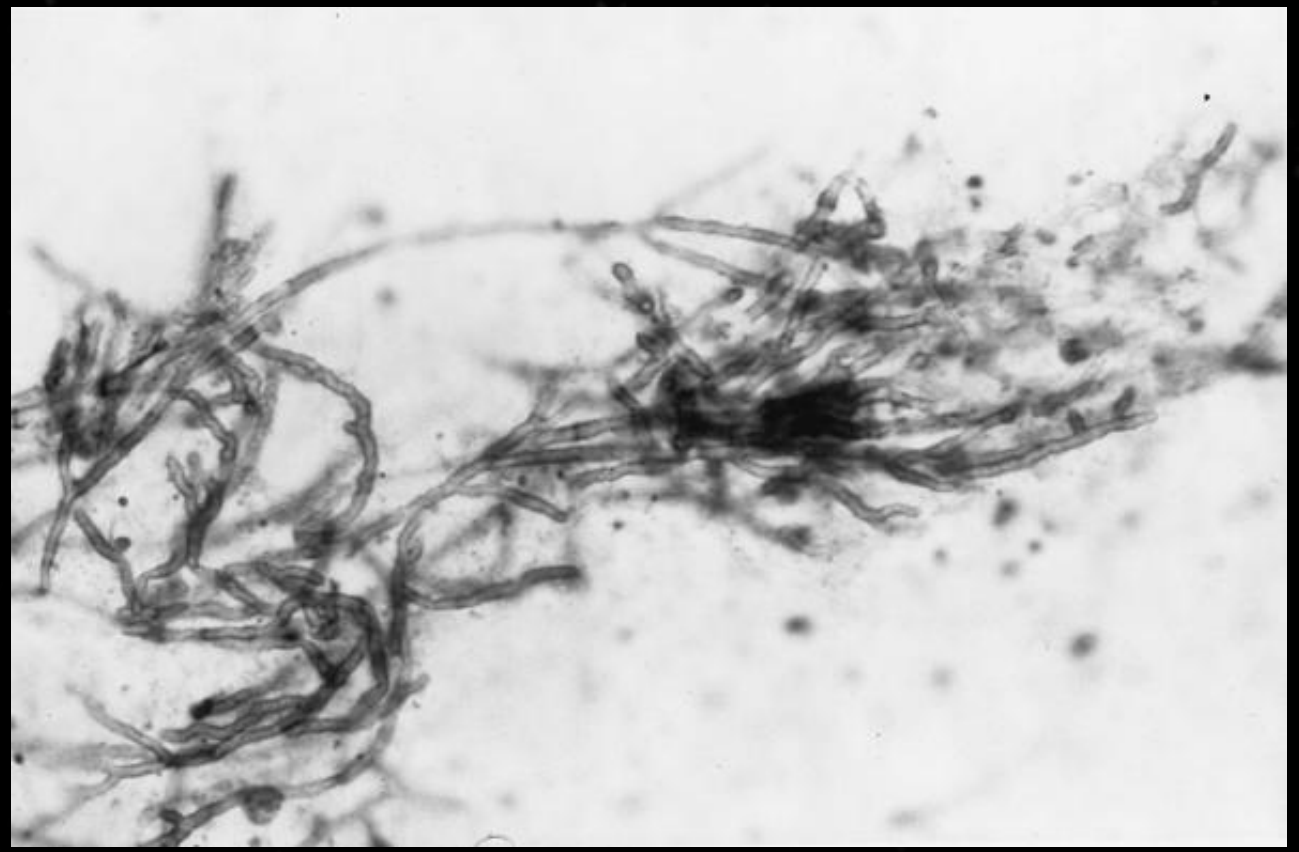
Rahiminejad M. BJR Case Rep. 2016

Étiologies prise de contraste « en grappes »

1. Croissance lobulaire des agents infectieux

Bourgeonnement vésiculaire
Hydatidose, Neurocysticercose

Mycélium segmenté fongique



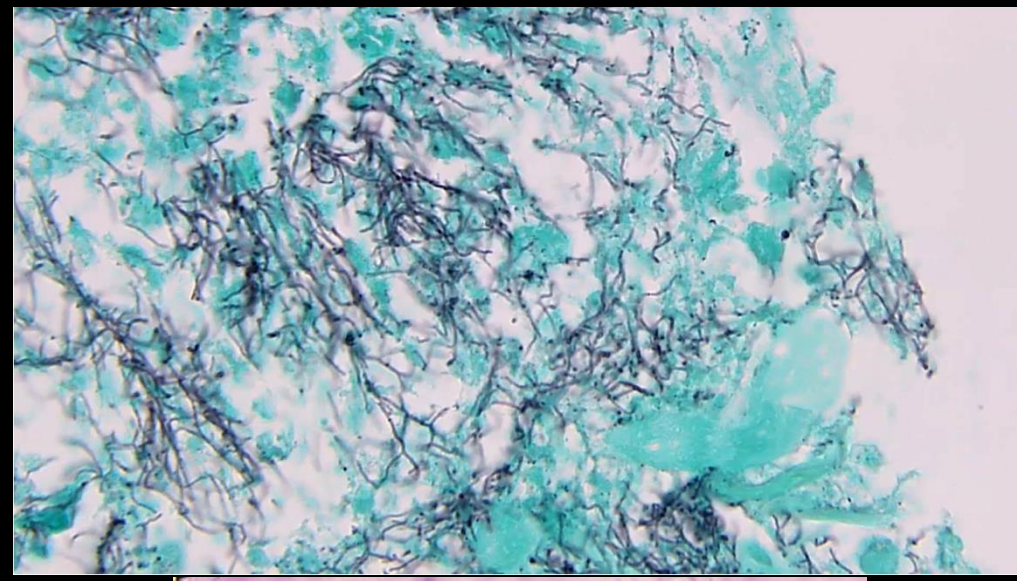
Powers CN.Clin Microbiol Rev. 1998 Hemphill A. Parasitology. 2010

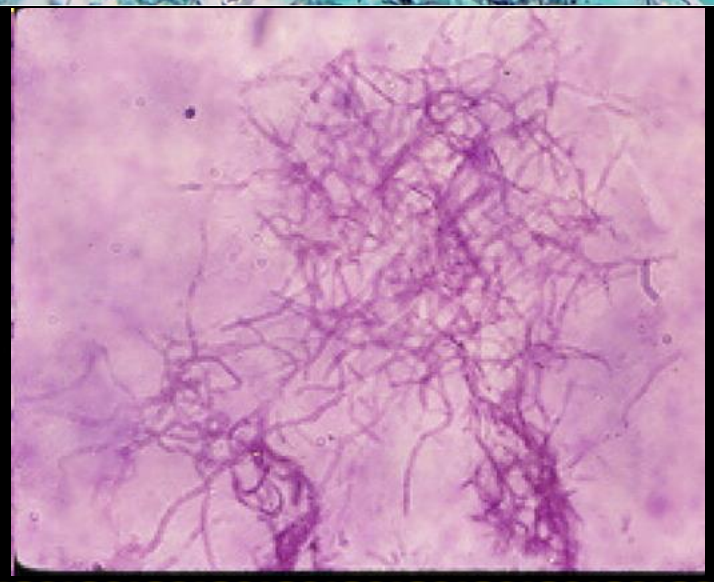
Étiologies prise de contraste « en grappes »

1. Croissance lobulaire des agents infectieux

Bourgeonnement vésiculaire
Mycélium segmenté fongique

Bactéries filamenteuses
. Nocardia
. Actinomycose





Beaman BL, Beaman L. Clin Microbiol Rev. 1994

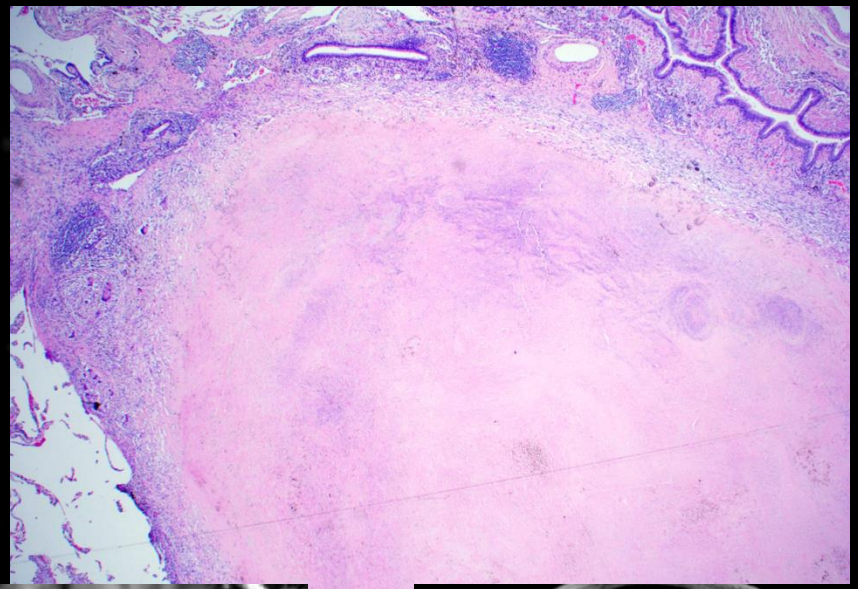
Contributed by Sixto M. Leal

Étiologies prise de contraste « en grappes »

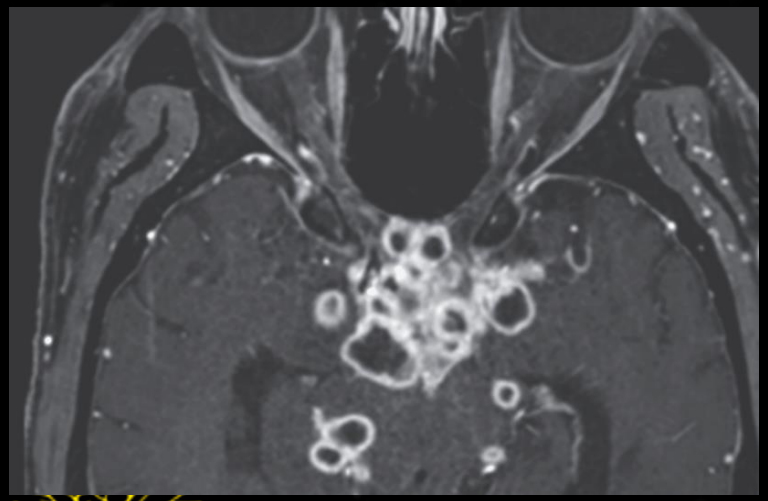
1. Croissance lobulaire des agents infectieux

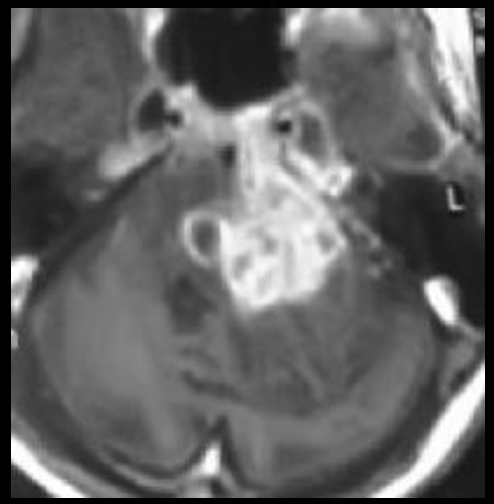
2. Encapsulation immunitaire hétérogène

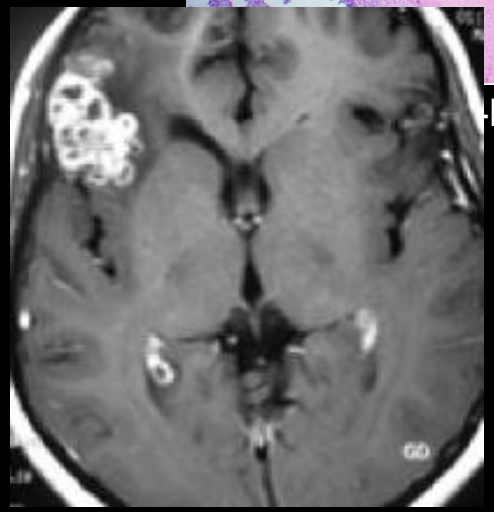
Granulomes coalescents : cloisonnement inflammatoire partiel (Tuberculose)

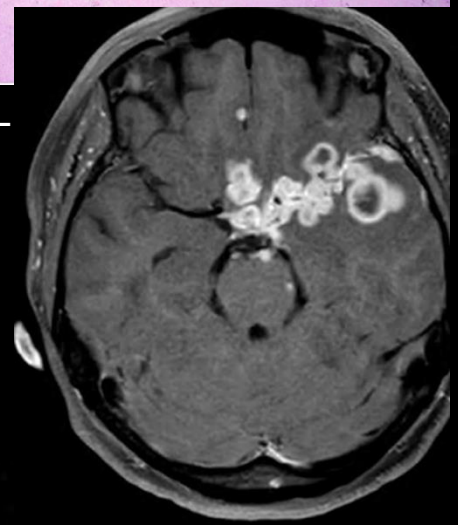


Hua L









Amado C. N Engl J Med. 2023

Jansem P. Ann Neurol. 2023

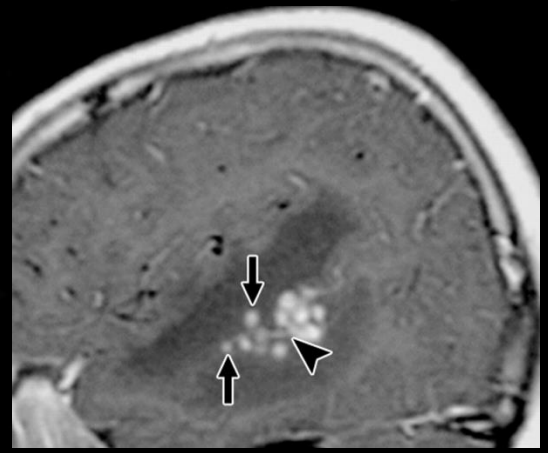
Sanei Taheri M. Radiol Res Pract.2015

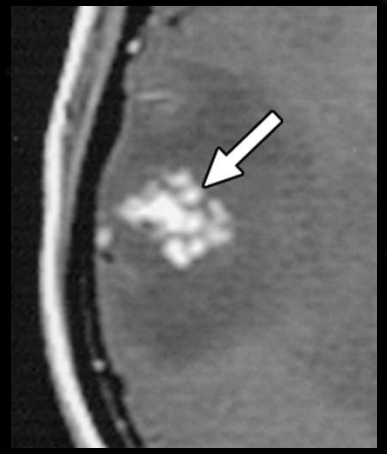
Étiologies prise de contraste « en grappes »

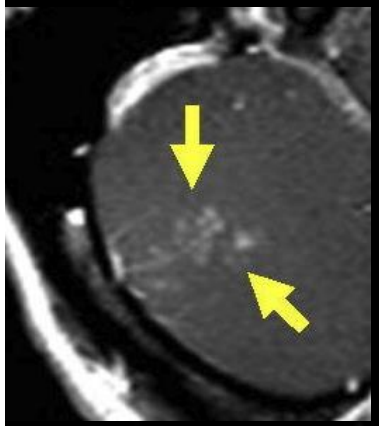
1. Croissance lobulaire des agents infectieux

2. Encapsulation immunitaire hétérogène

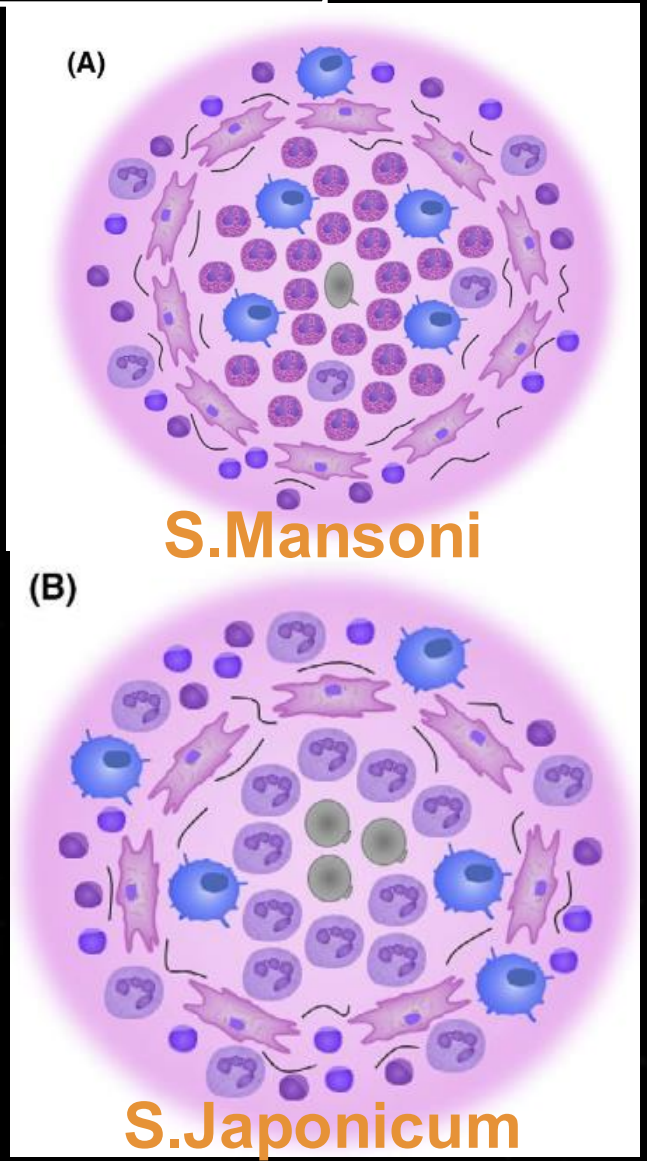
Granulomes coalescents
Bilharziose



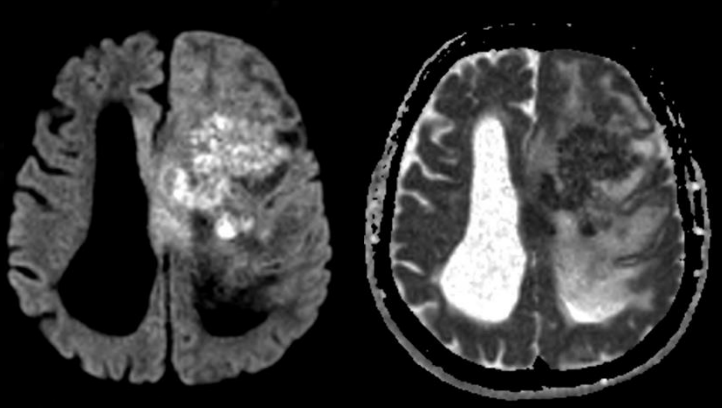
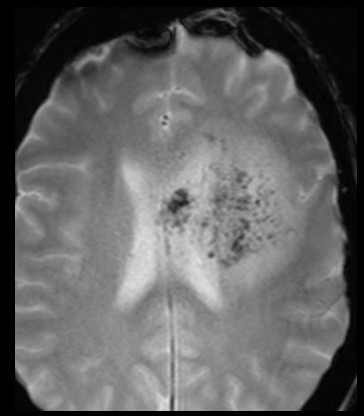
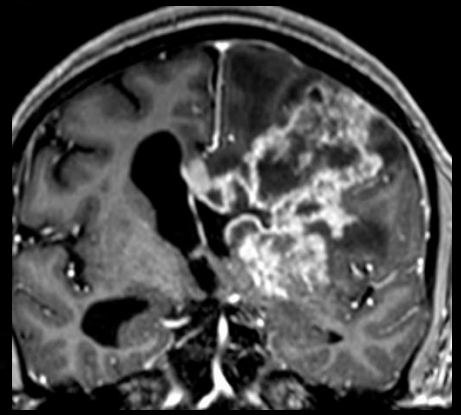




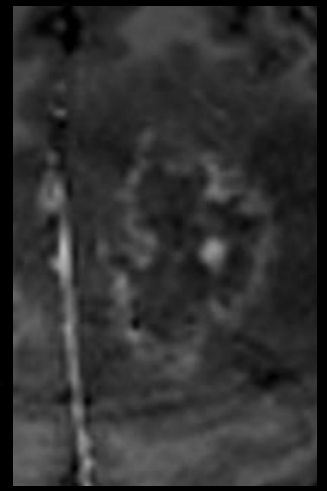
Arborisé : « Palm Tree »



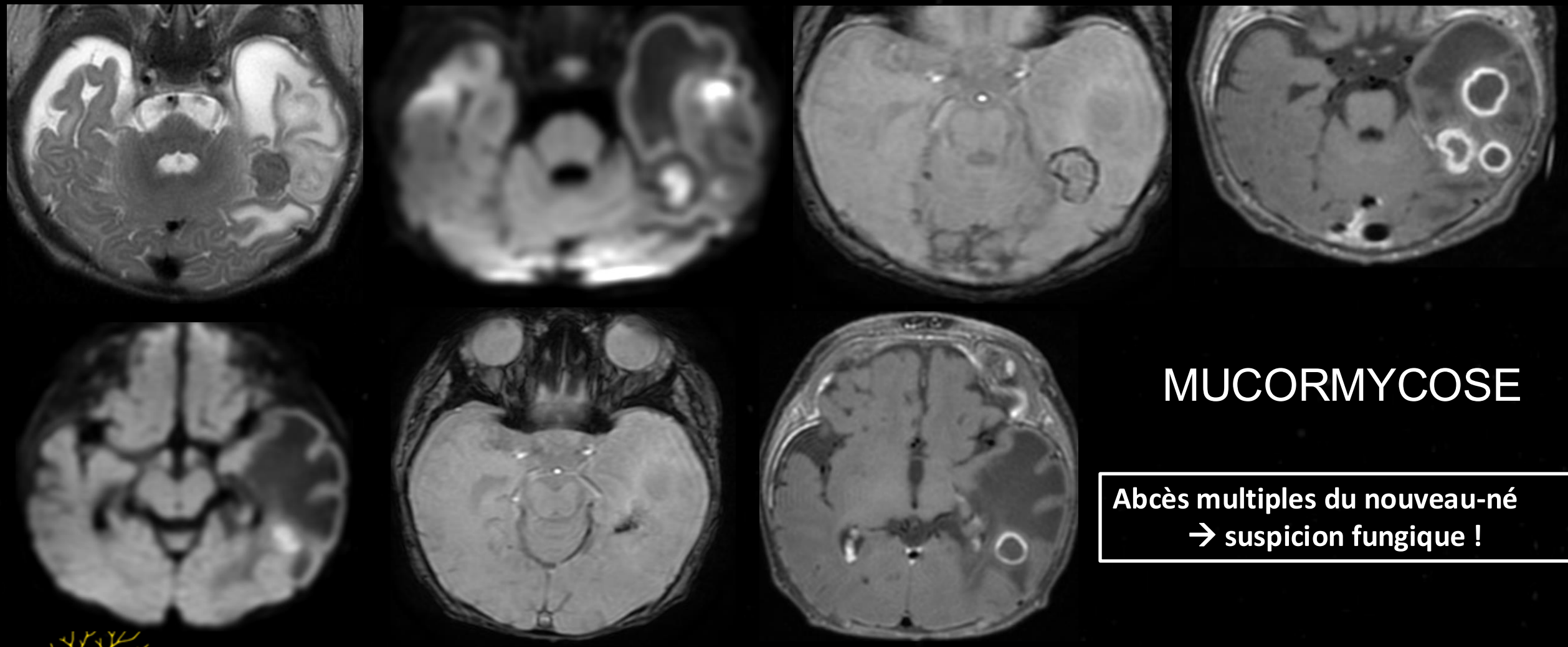
Évoquer une lésion fungique


- **Restriction diffusion + filaments ferromagnétiques + tropisme ventriculaire**
- **Tropisme LCS, EVR, ventricules, artères perforantes +++**
- **Rehaussement plus faible** que dans les autres infections
- Filaments ferromagnétiques



Cas 2 : 3 mois déficit immunitaire sévère

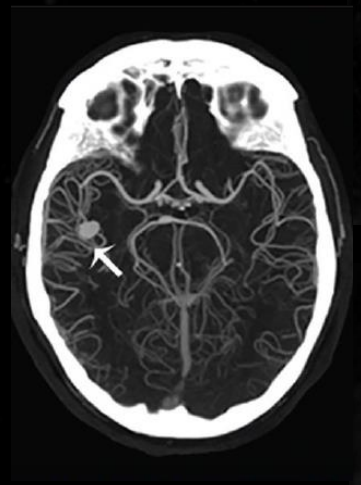


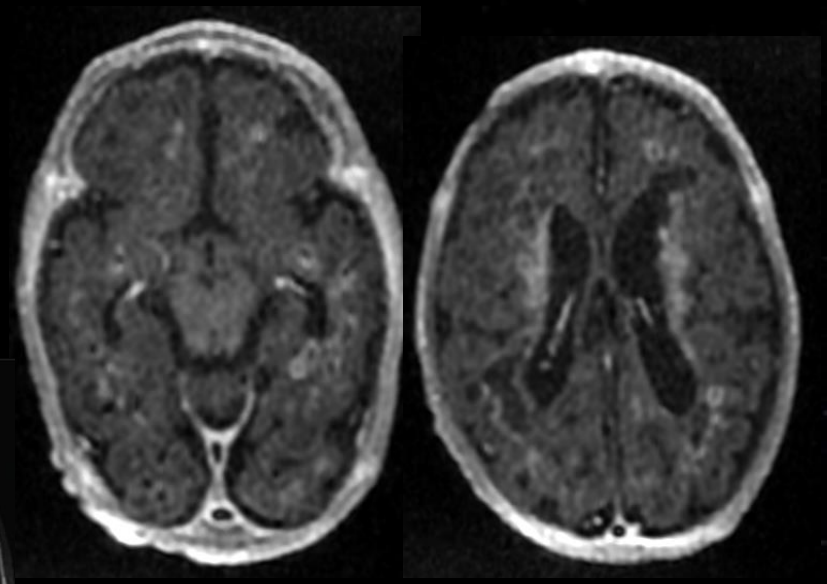
MUCORMYCOSE

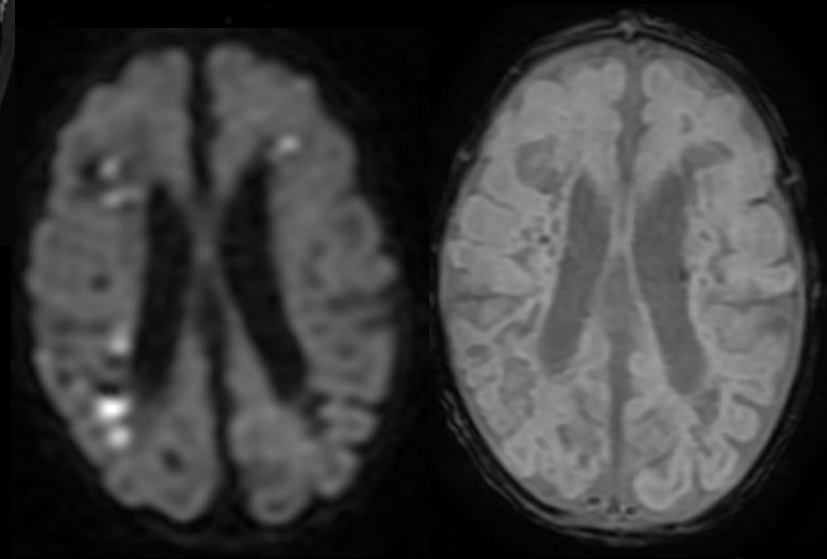
Abcès multiples du nouveau-né
→ suspicion fungique !

Candidose

Multiples **microabcès jonction SB/SG, NGC et cervelet : petite taille 3mm, souvent hémorragique**
(macroabcès rare mais possible)
Hémorragies +++
Leptoméningite non spécifique
AVC ischémique (vascularite surtout **NGC+++**)
EI Candida -> anévrismes mycotiques -> HSA
Forme exceptionnelle de myélite transverse à Candida







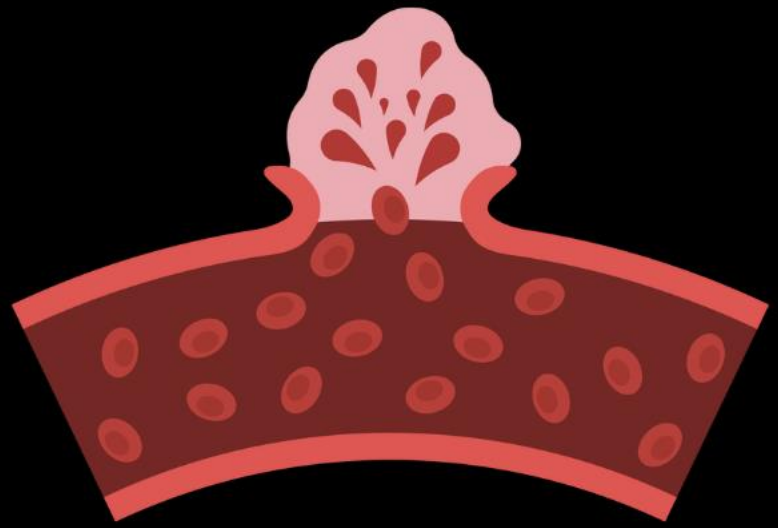
Pensez rechercher déficit CARD9 si infection par candidose !

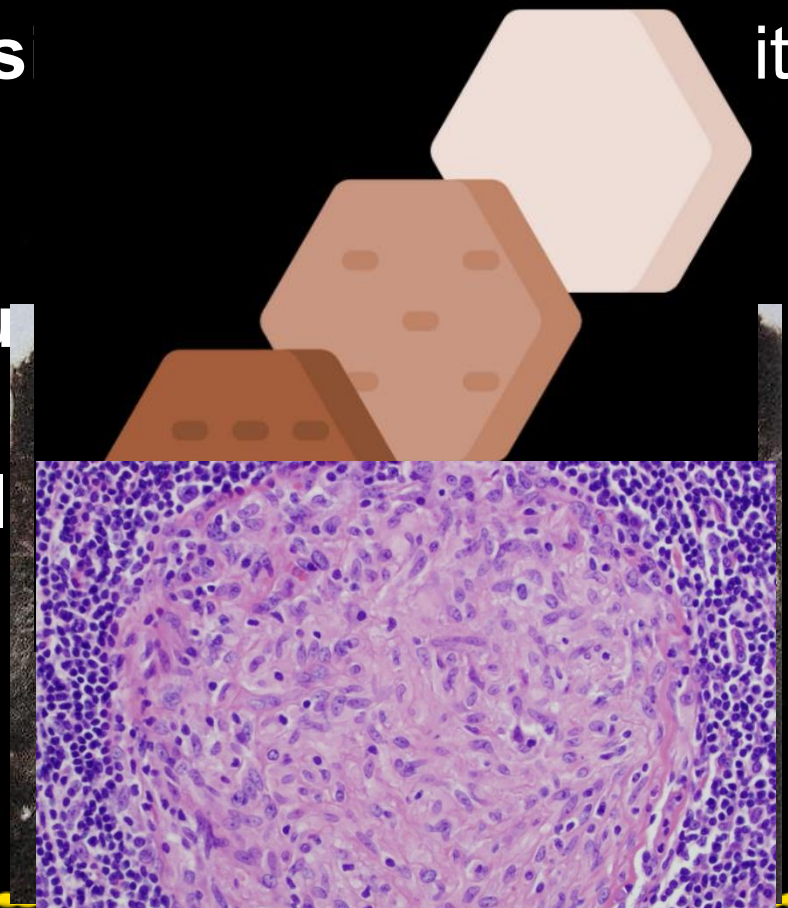
Gavito-Higuera. Clin Imaging Sci. 2016

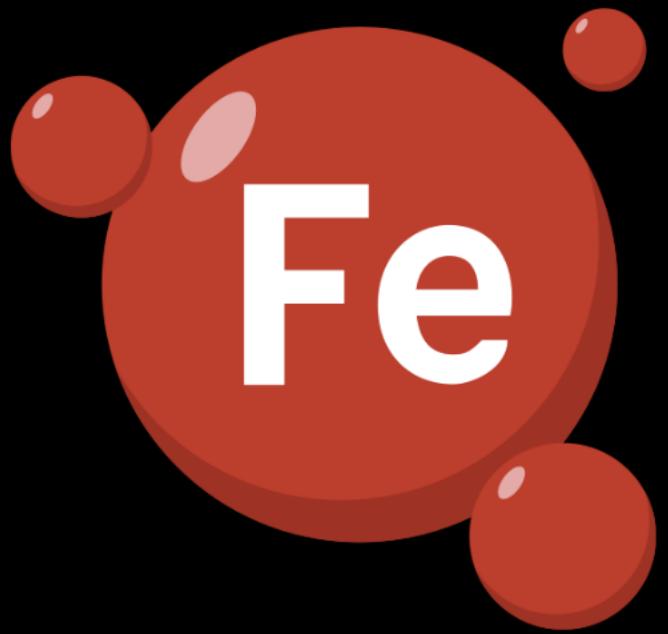
Courtoisie CHU Amiens et Necker-Enfants malades

Hyposignal T2 dans lésion fungique ?

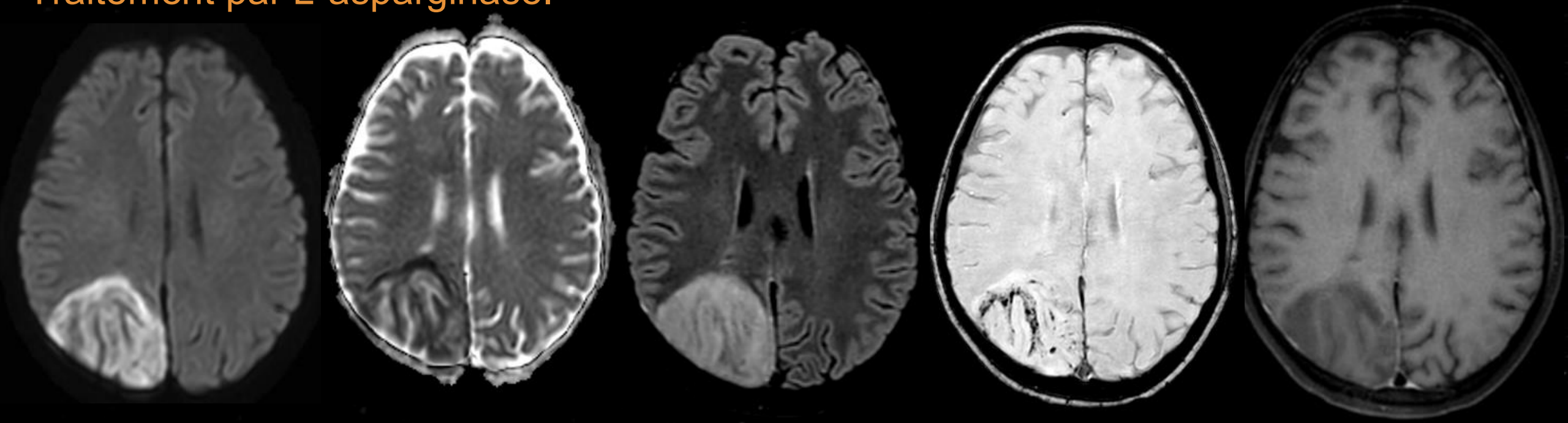
Paramagnétisme : sang dégradé, mélanine, fer → angio-invasif

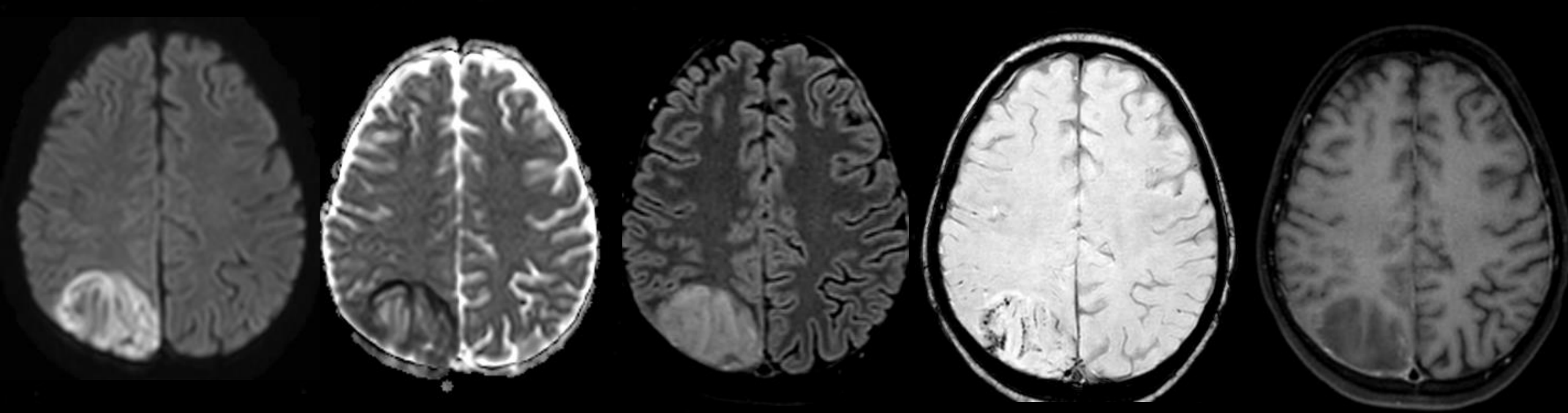






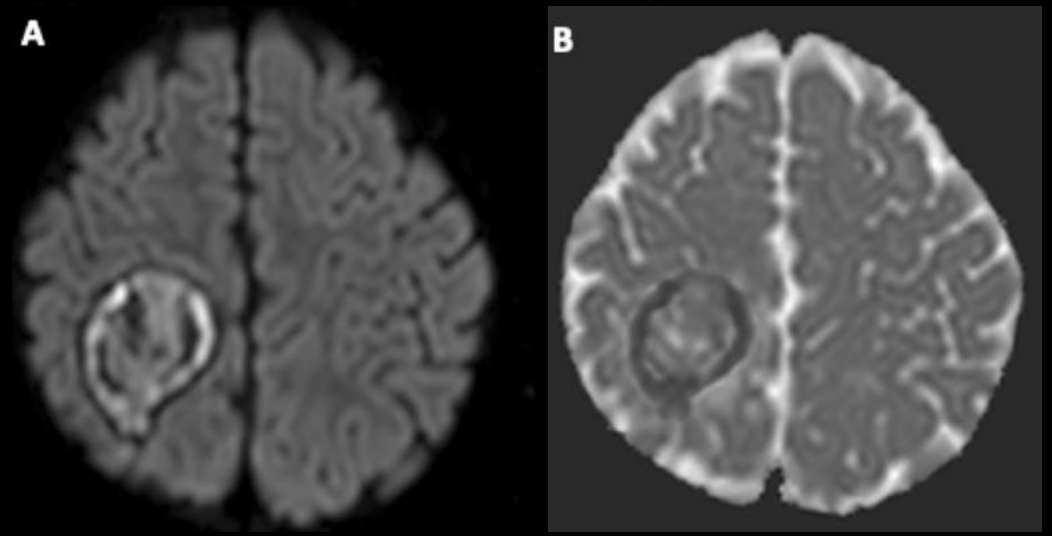
Cas 3 : 14ans, LAL B. Thrombopénie 10G/L. Flou visuel gauche depuis 5 Jours. Traitement par L-asparginase.



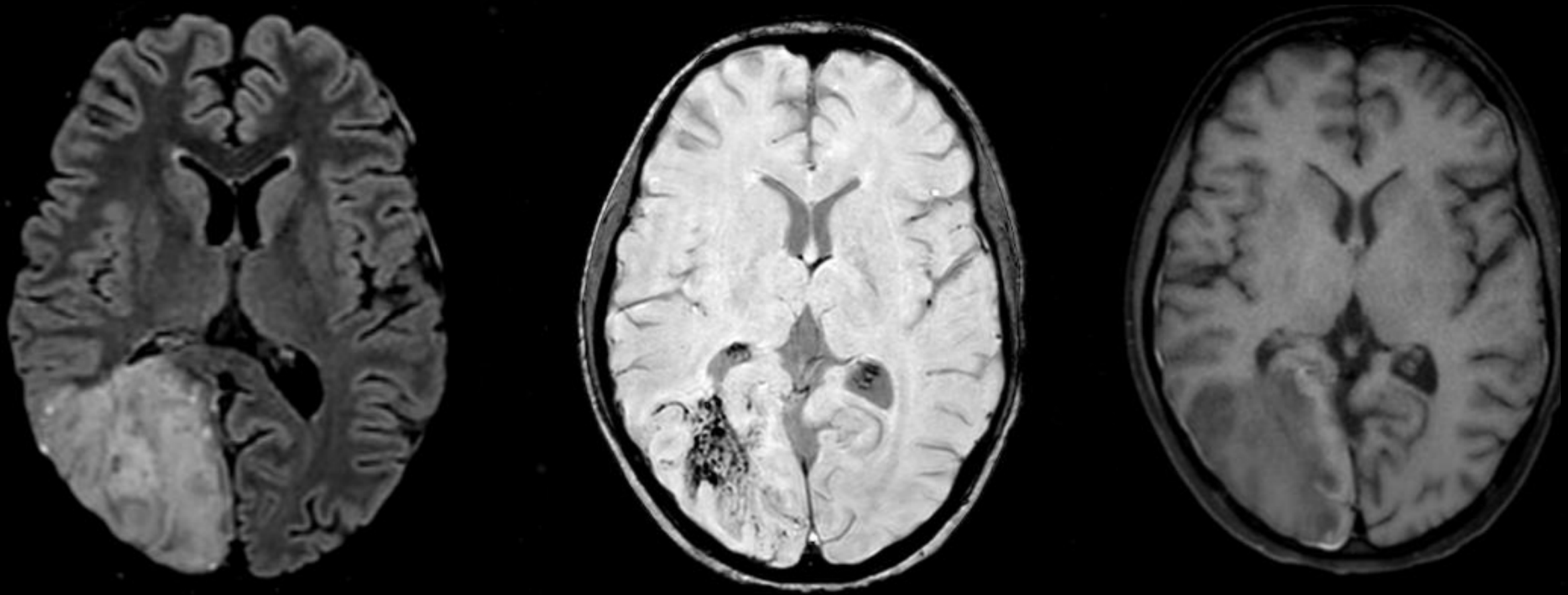


Signe du halo

Restriction diffusion en périphérie, HypoDWI et HyperADC au centre

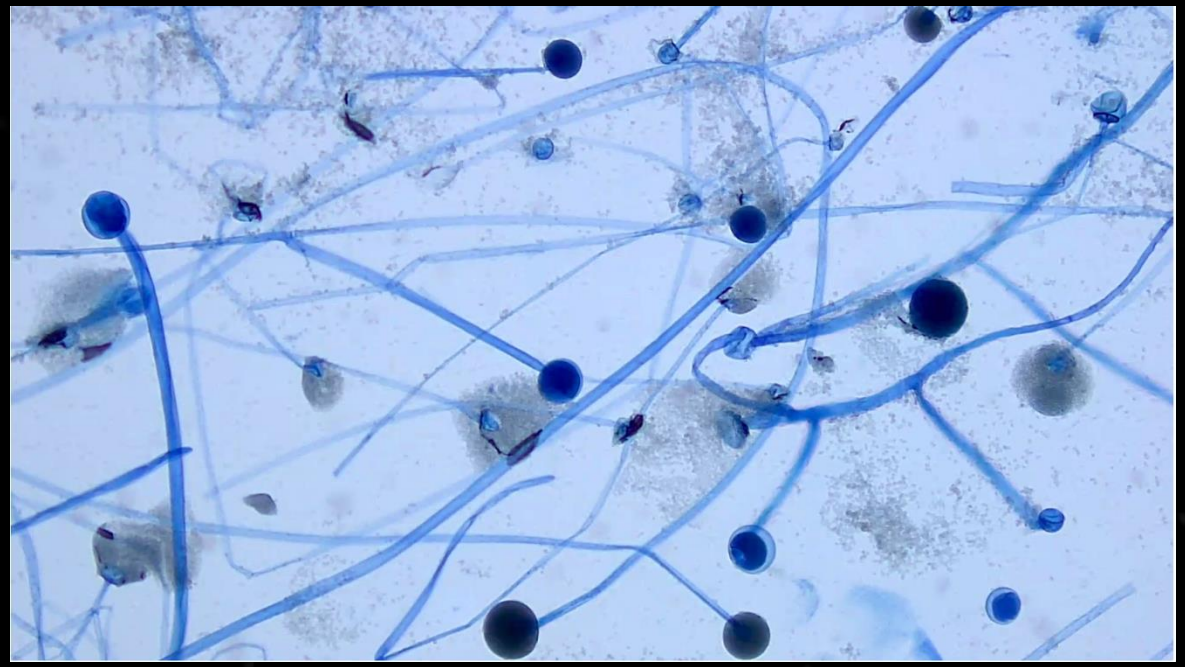


Lersy, F. *J Neurol* **269**, 1386–1395 (2022)

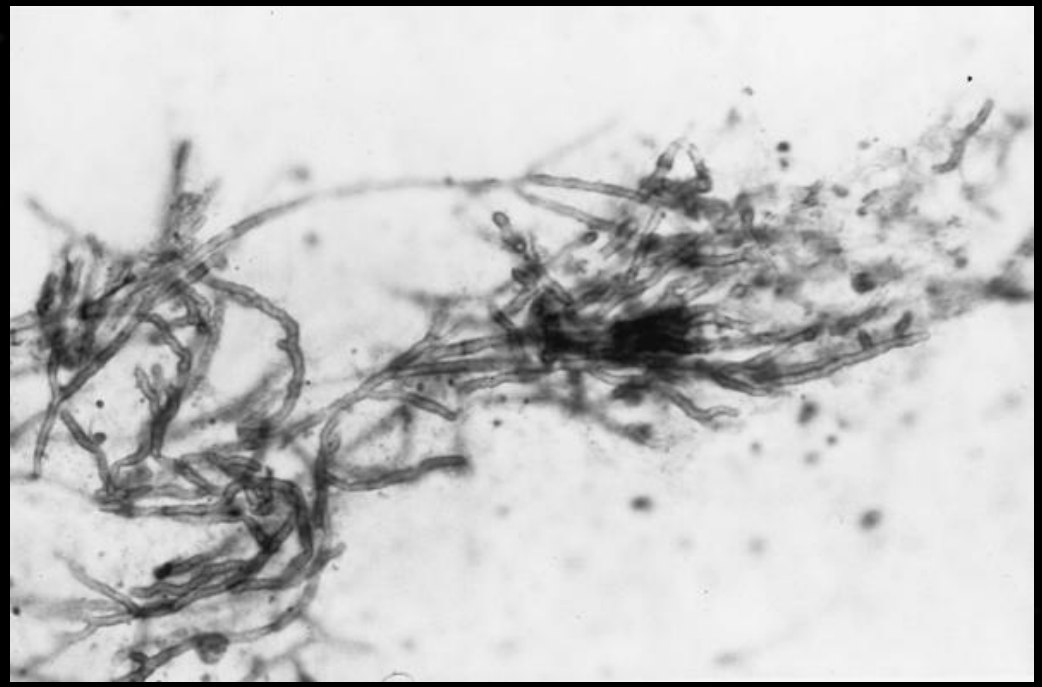


MUCORMYCOSE

Hyphes non septés



Mucormycose

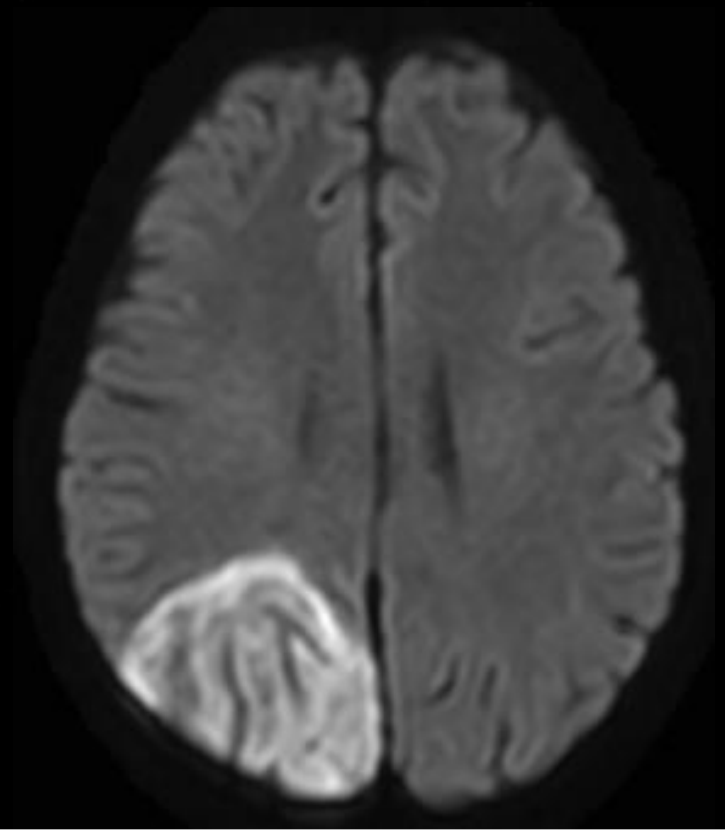


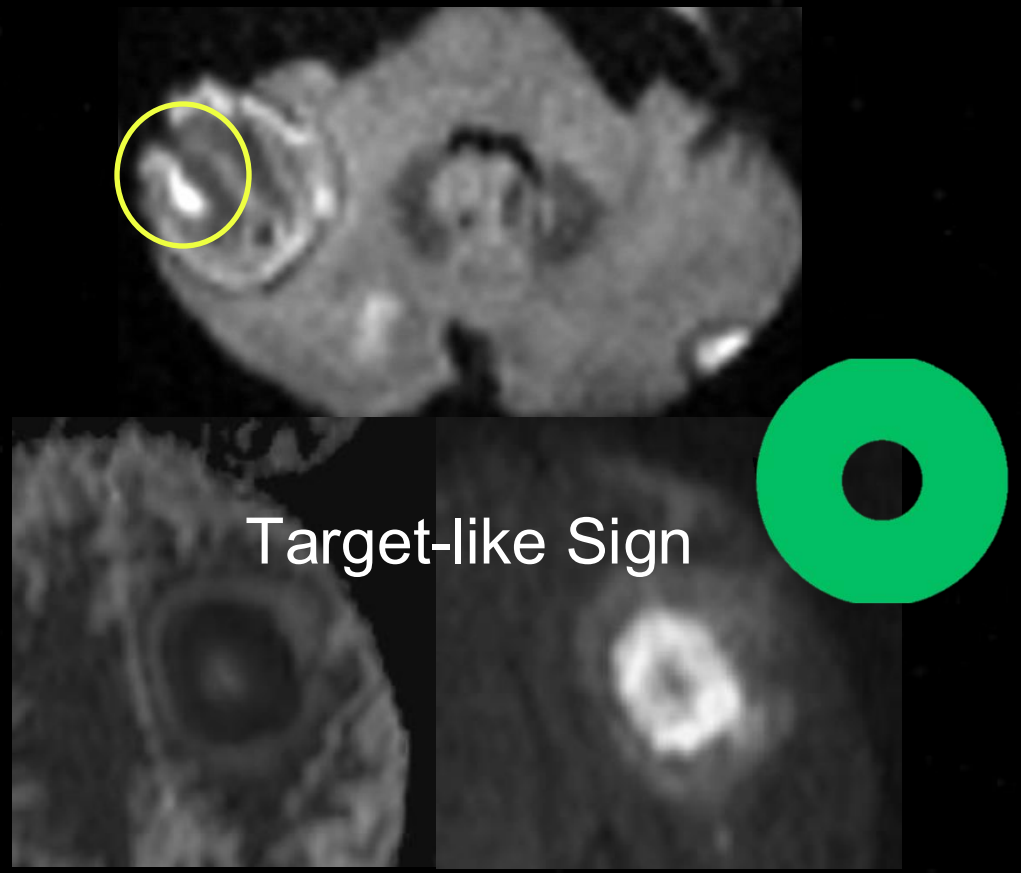
Aspergillose

Pathology Outlines.Contributed by Sixto M. Leal

Powers CN.Clin Microbiol Rev. 1998

Hyphes non septés

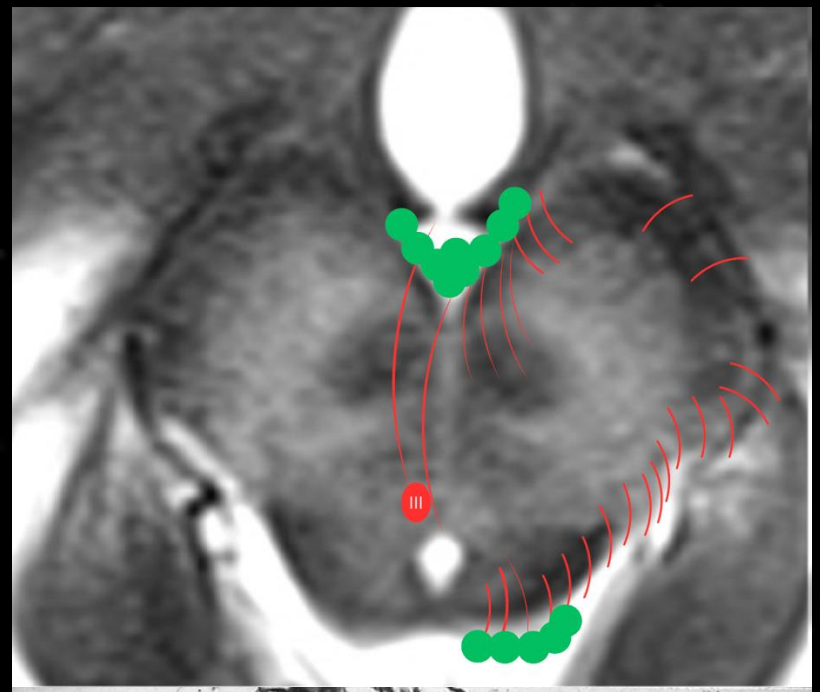


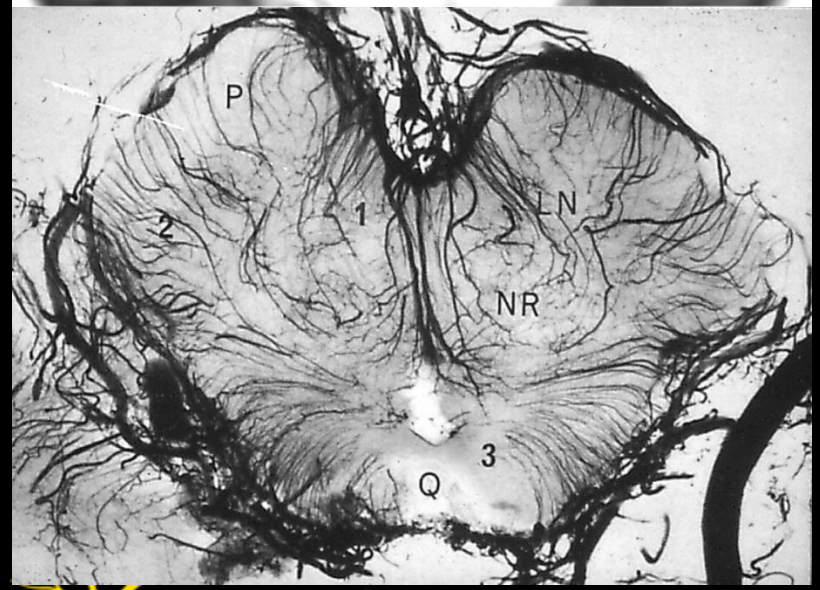


Mucormycose (non septés)
= Invasif

Aspergillose (septés)
= Projection intracavitaire

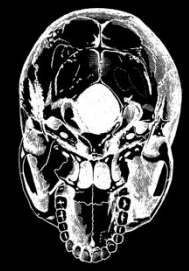
Charlot M.Eur J Neurol. 2007 AJNR Case April 8, 2013

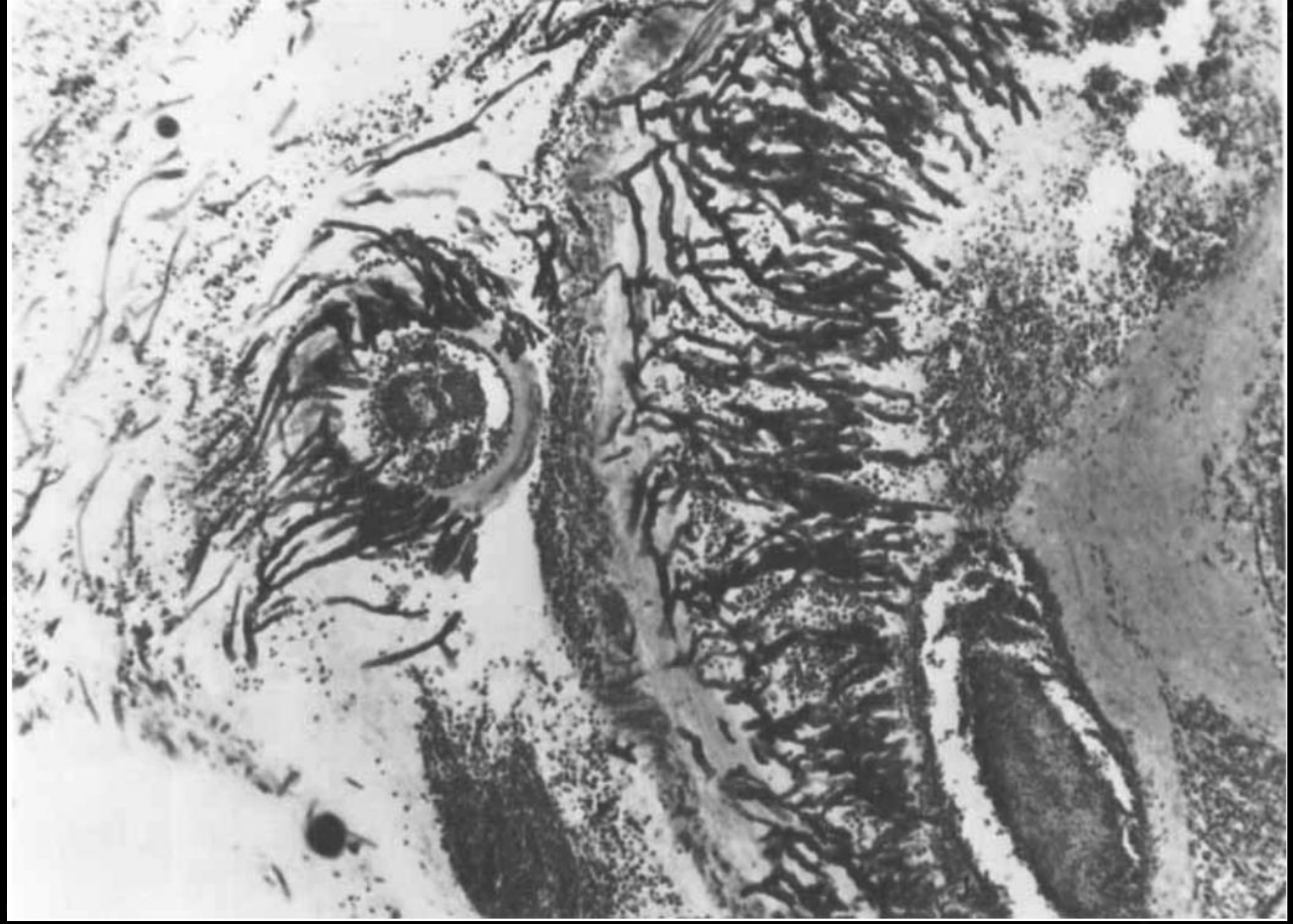




Méningite et AVC

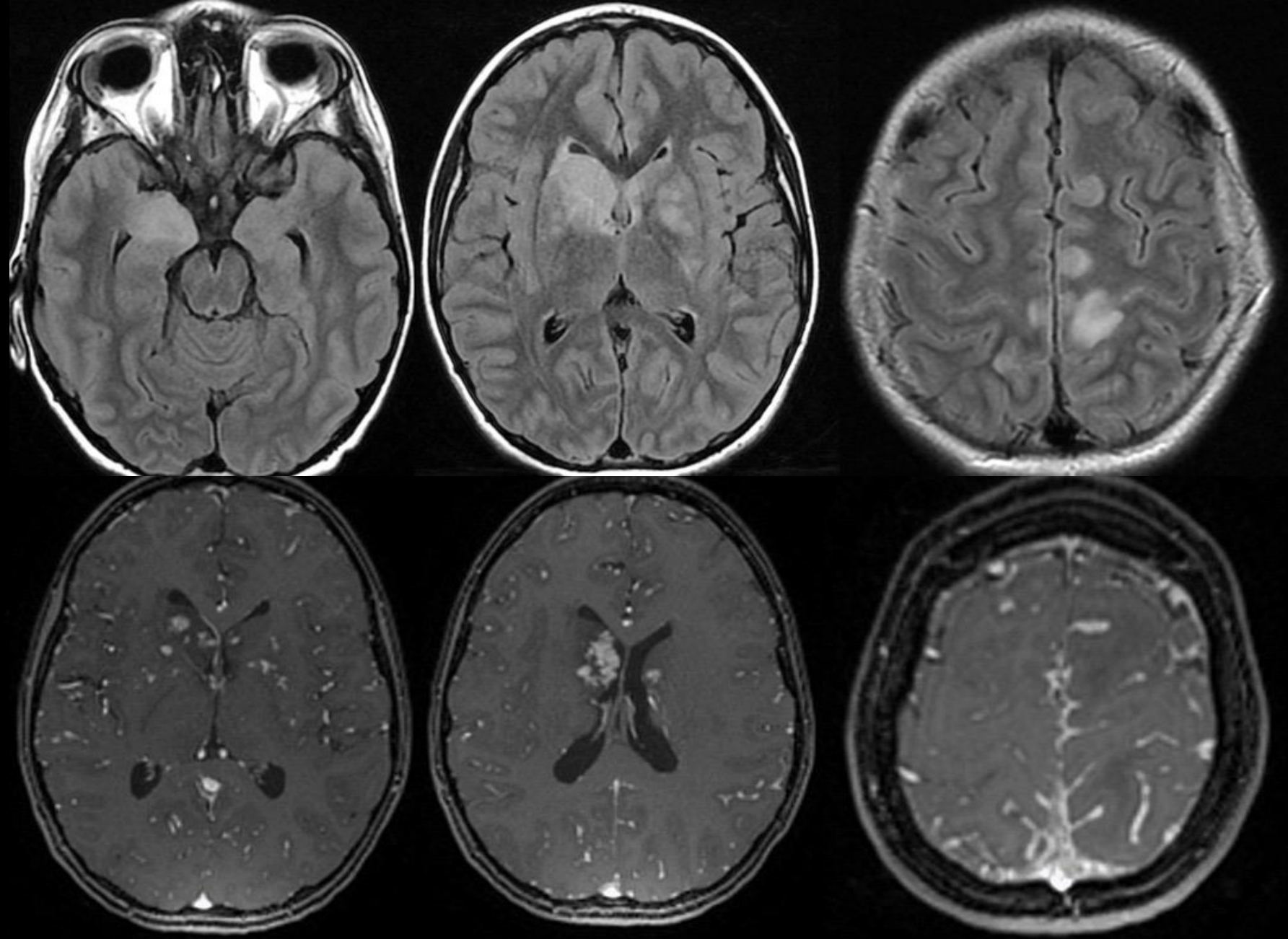
- **Infections/ Inflammatoire / Tumoral**
- **Exsudats** ESA -> **Vasculopathie/Vascularite**
- **Exsudats** ESA -> **Hydrocéphalie**
  - **Méningite base du crâne :** BK, cryptococcose, syphilis, coccidiomycose, pneumocoque



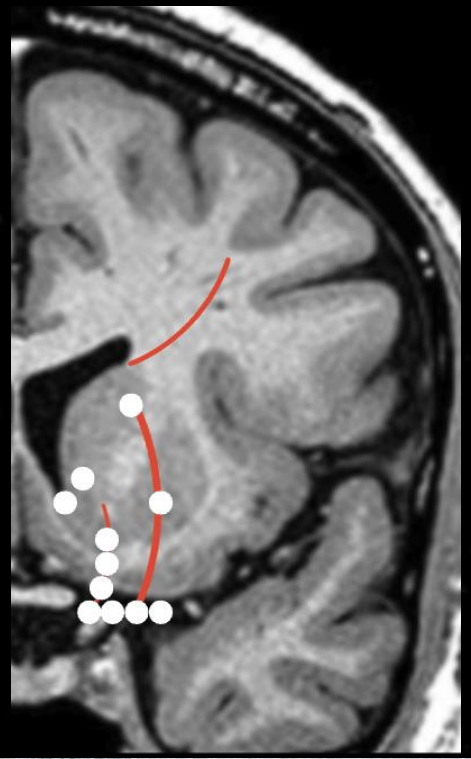


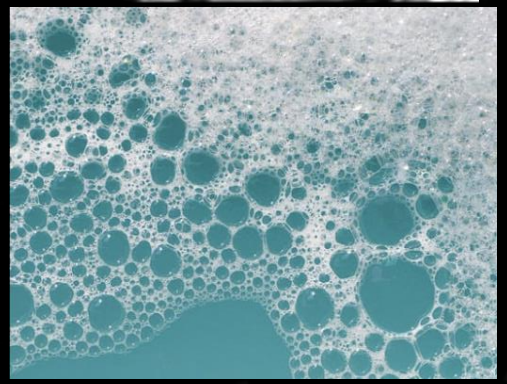
Diengdoh JV. Neuropathol Appl Neurobiol. 1983

Cas 4 :

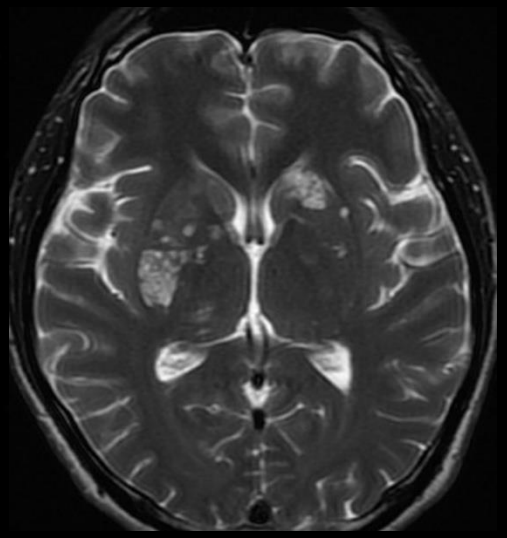


Cryptococcose VIH / Immunodépression profonde



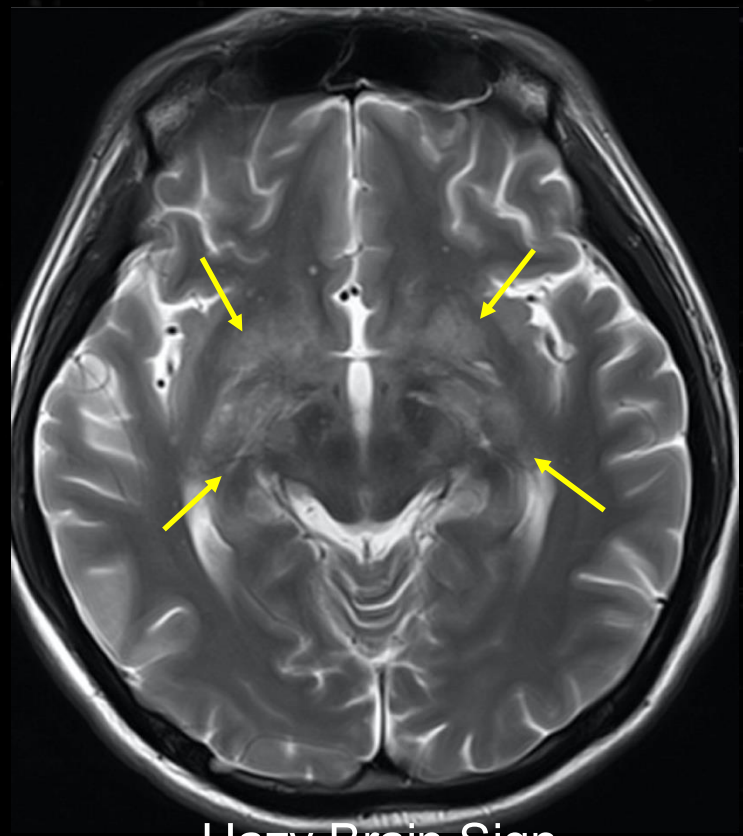


- **Pseudokystes EVR** : NGC, thalamus, mésencéphale, SB périventriculaire
- Absence de rehaussement si CD4<50
- HyperT2 non supprimé en FLAIR (**gélatineux**)



Pseudokystes

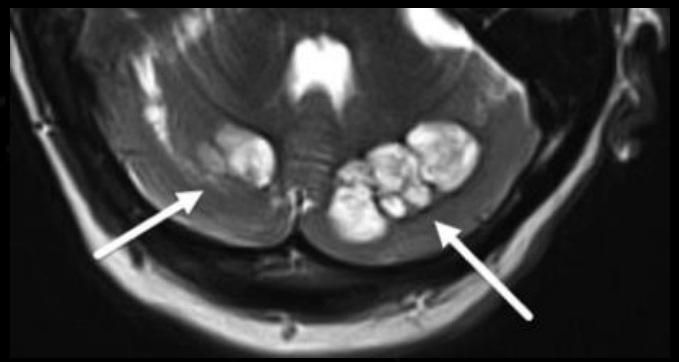
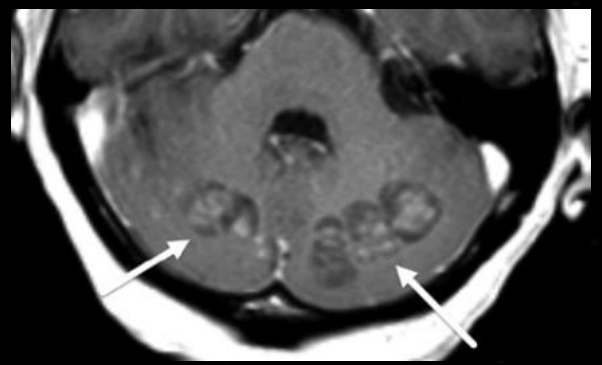
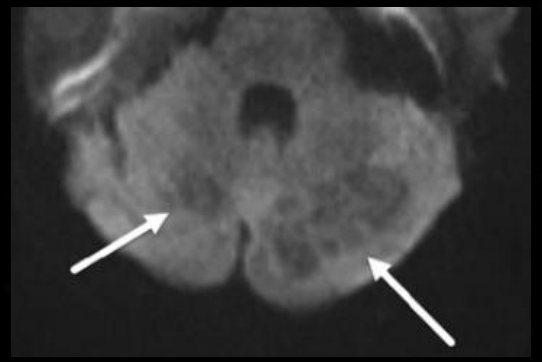
- **Hazy Brain sign :**
  Œdème sur pénétration dans EVR



Hazy Brain Sign

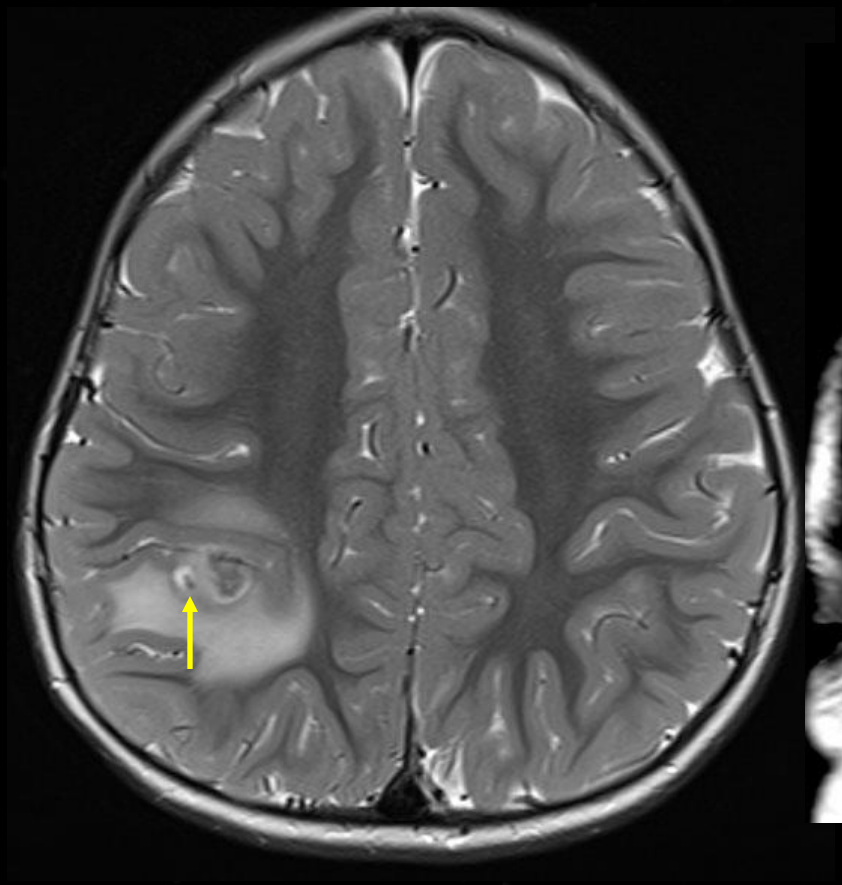
Cryptococcose NON-VIH / Immunodépression moins profonde

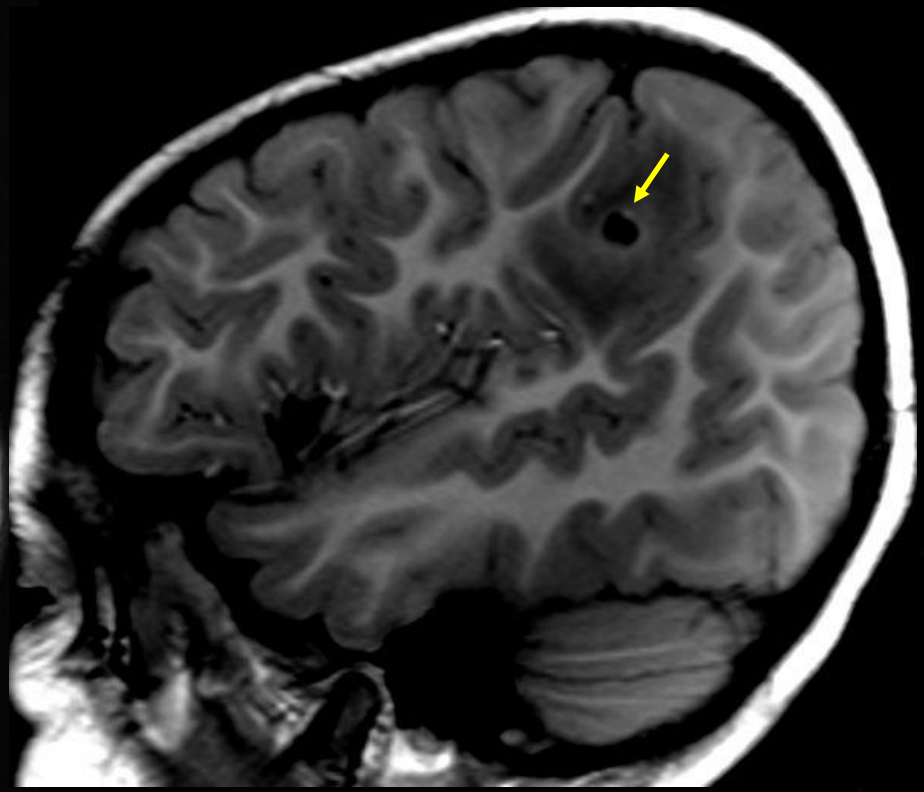
- **Méningite base du crâne** : rehaussement leptoméningé
- **Exsudats** ESA -> **Vasculopathie/Vascularite (atteinte III et colliculus)**
- **Exsudats** ESA -> **Hydrocéphalie**
- **Cryptococcomes : nodule HyperT2 , œdème périlésionnel, +/- rehaussement interne classique, diffusion variable / Plexite, épendymite**

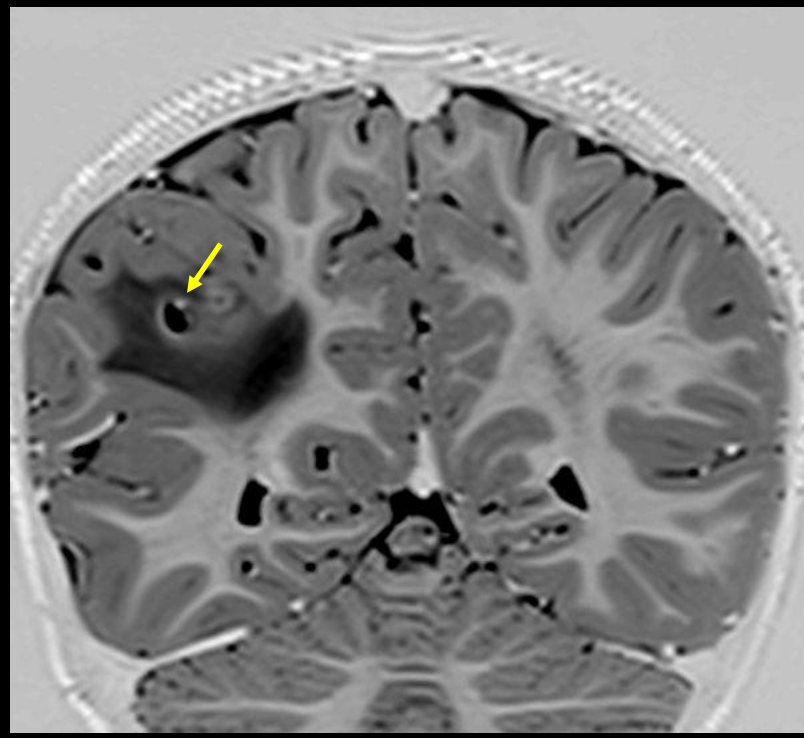




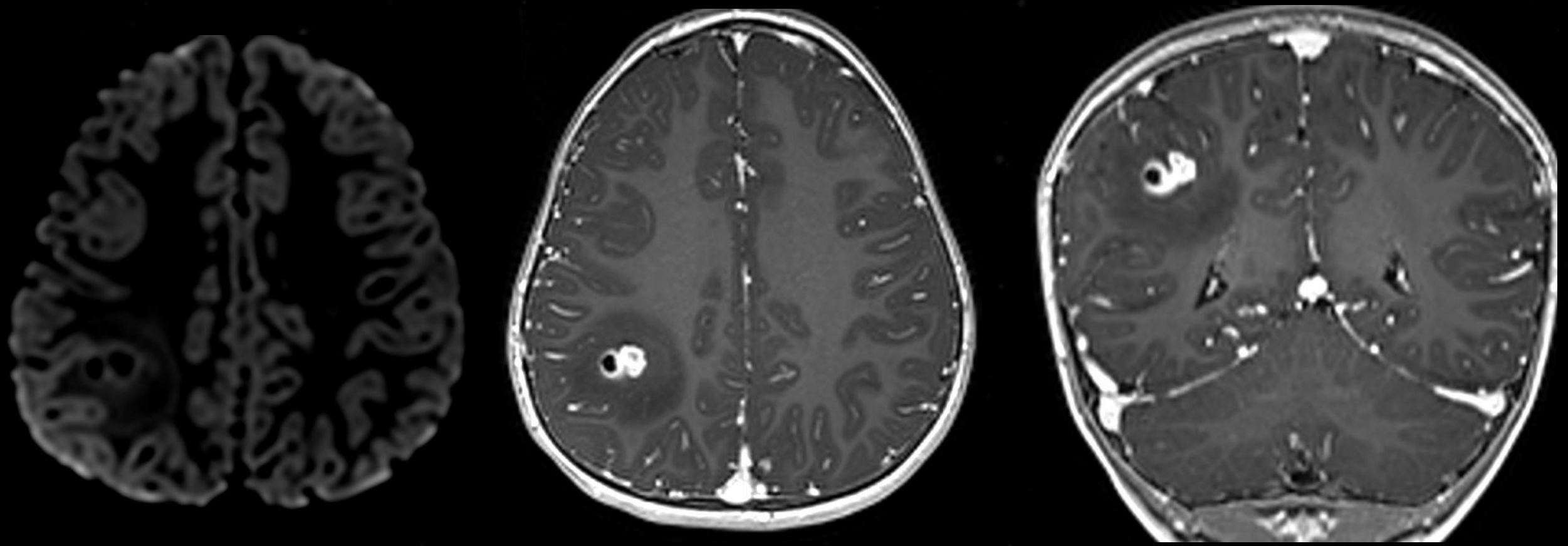
Le monde des parasites

Cas 5 : 2ans, crise convulsive apyrétique. Voyage à Madagascar il y a 1 an. Notion d'épisode de fièvre de 48h pendant le séjour.



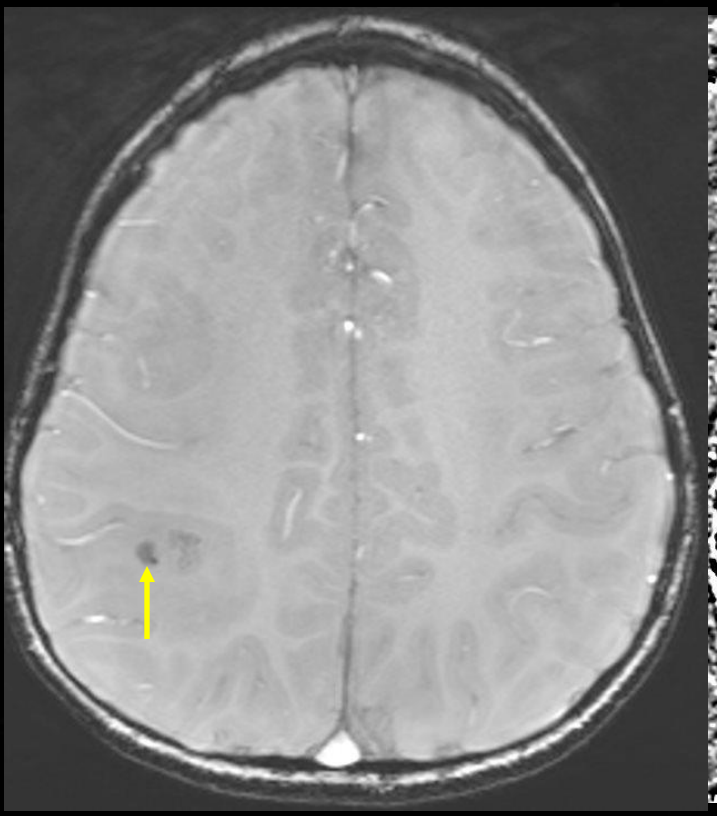


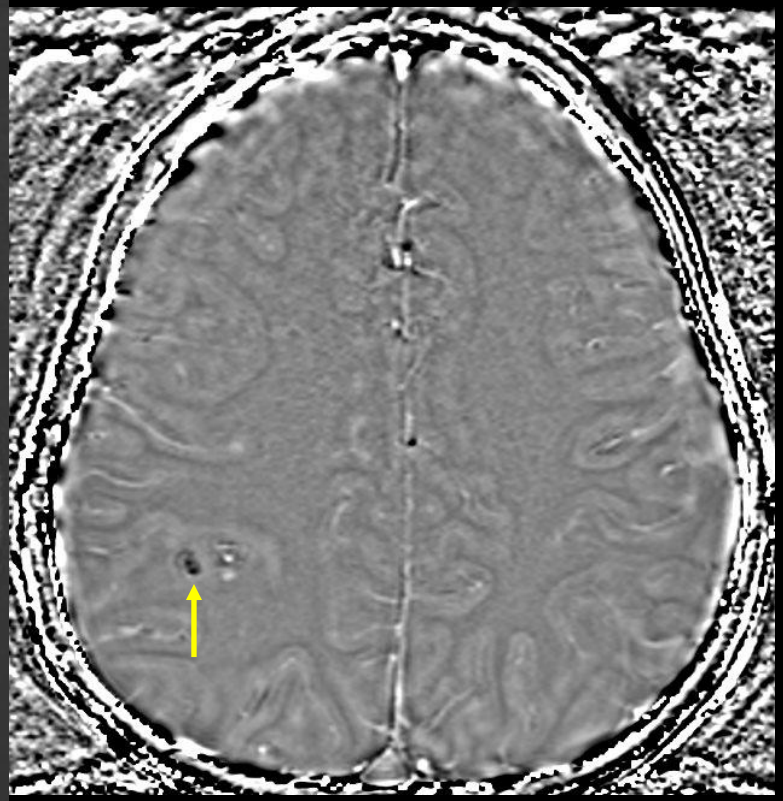


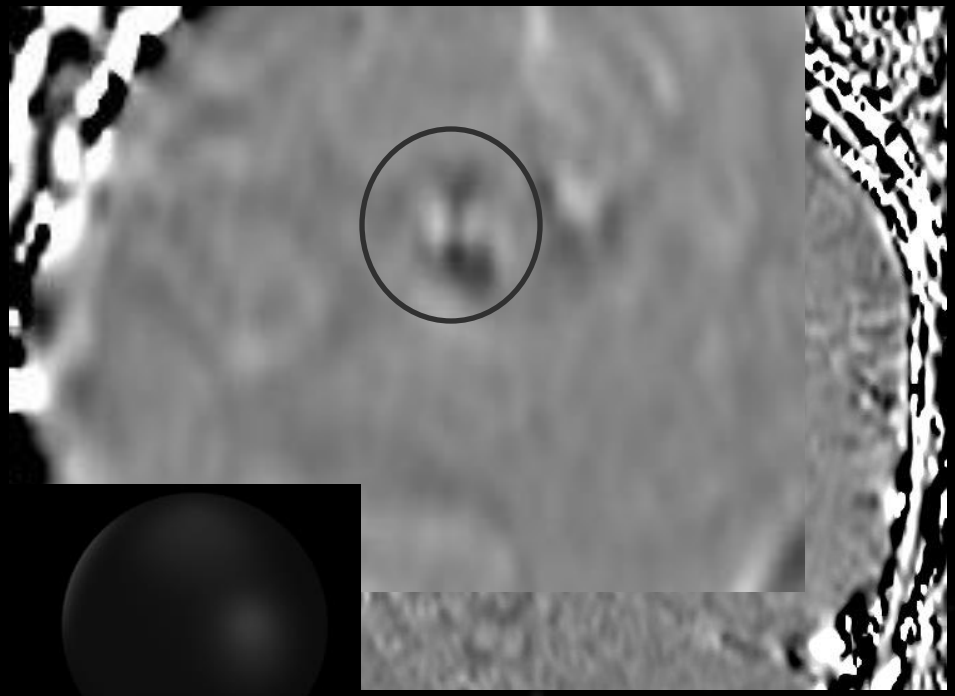


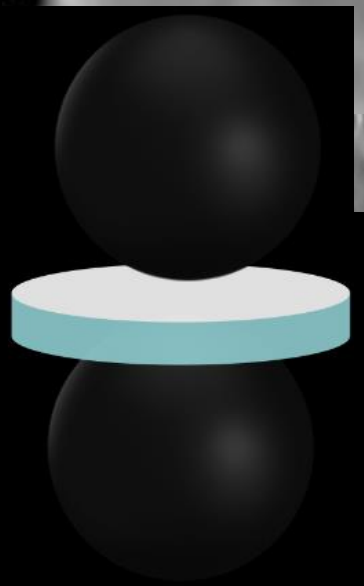
NEUROCYSTICERCOSE : stade colloïdal

TROUVEZ LE SCOLEX

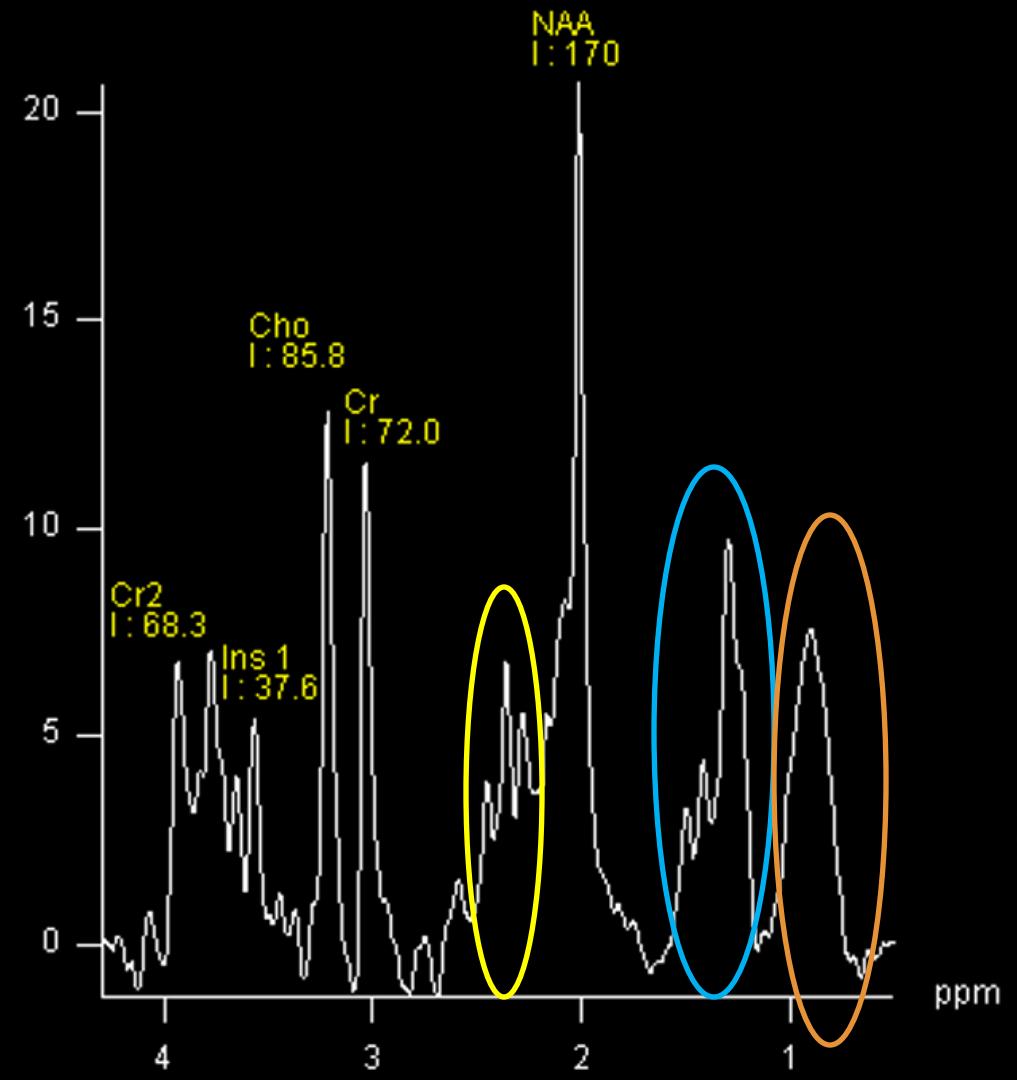


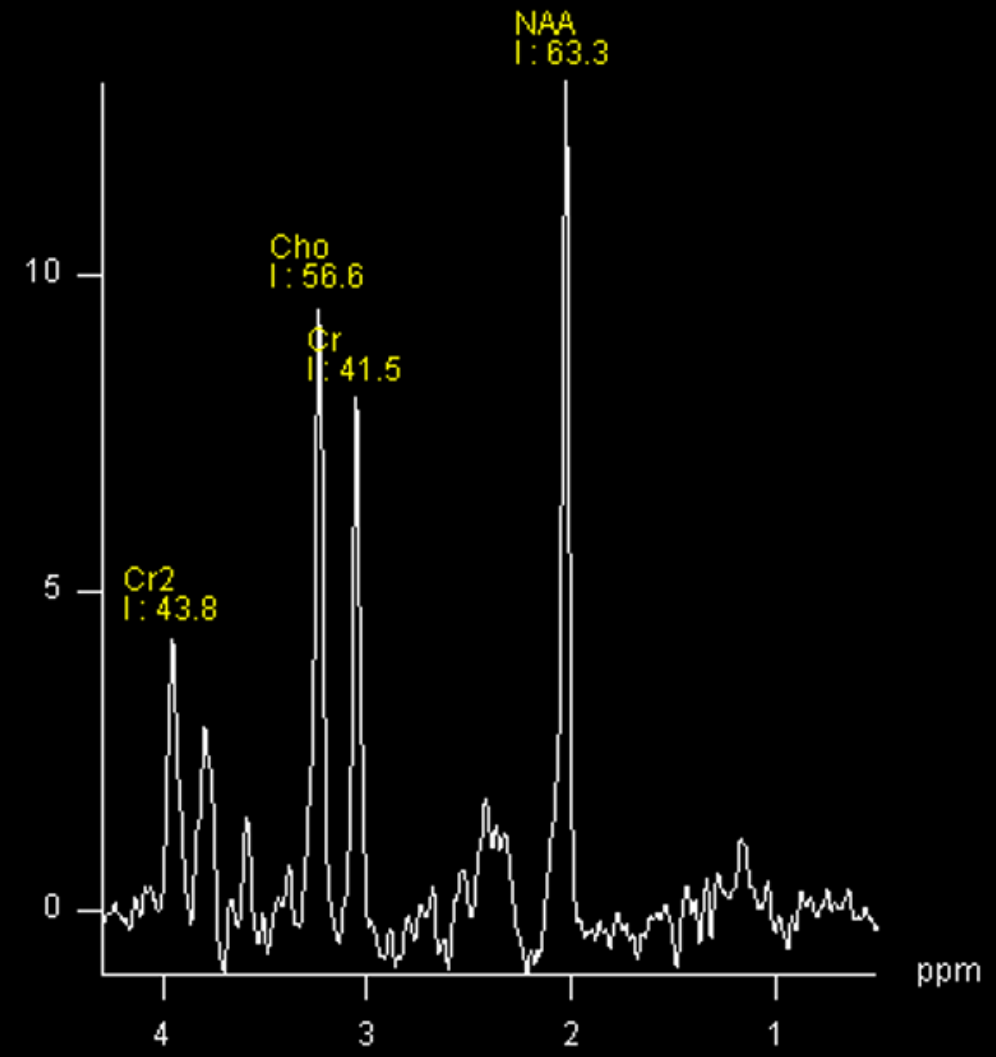






Dipôle diamagnétique





Pic de succinate 2,4ppm → INDICE majeur pour kyste parasitaire !

MESSAGES CLÉS

- **HISTOIRE CLINIQUE +++**
- Connaitre étiologies PDC « en grappes »
- Fungique = filaments ferromagnétiques + projection intracavitaire + tropisme ventriculaire
- Microabcès = Candidose
- Cryptococcose : méningite base du crâne, vascularite
- Toute lésion nodulaire = chercher scolex !
- Succinate= signature du kyste parasite !

Infections fongiques et parasitaires

Dr Thibault AGRIPNIDIS

AP-HM - Timone

20/06/2025