

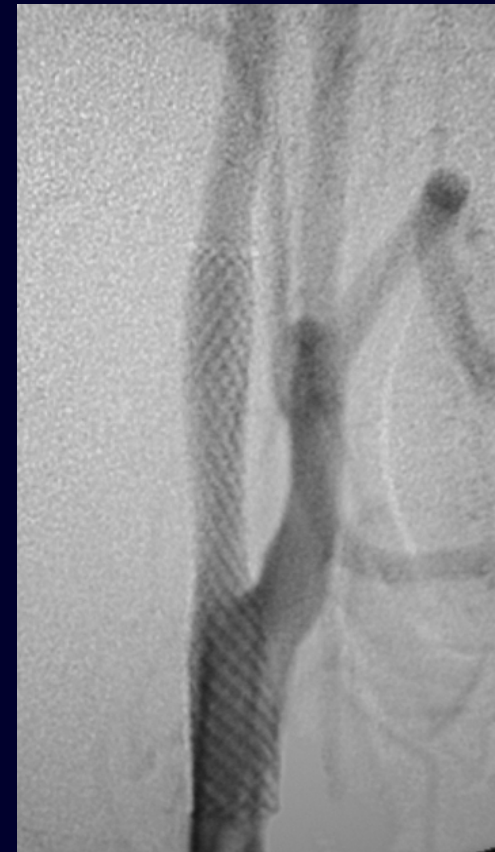
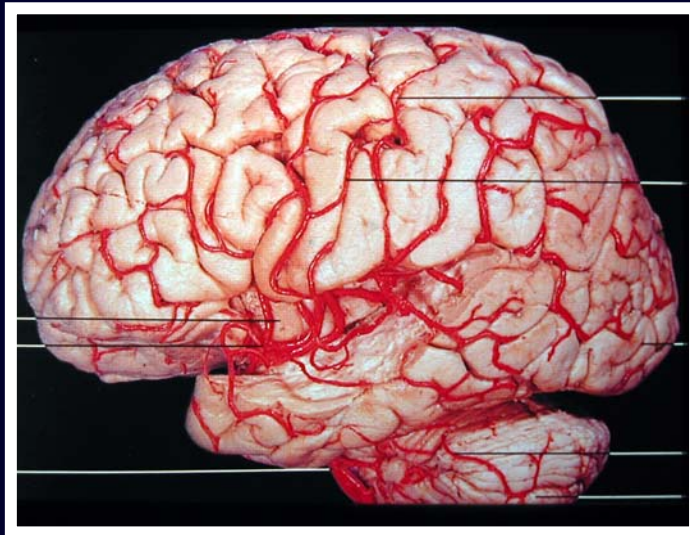
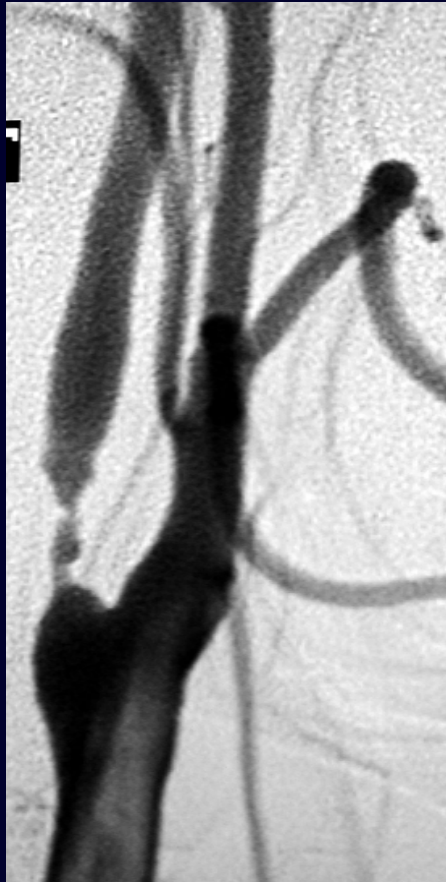
Why I do not treat carotid stenosis without brain study

Emmanuel Houdart

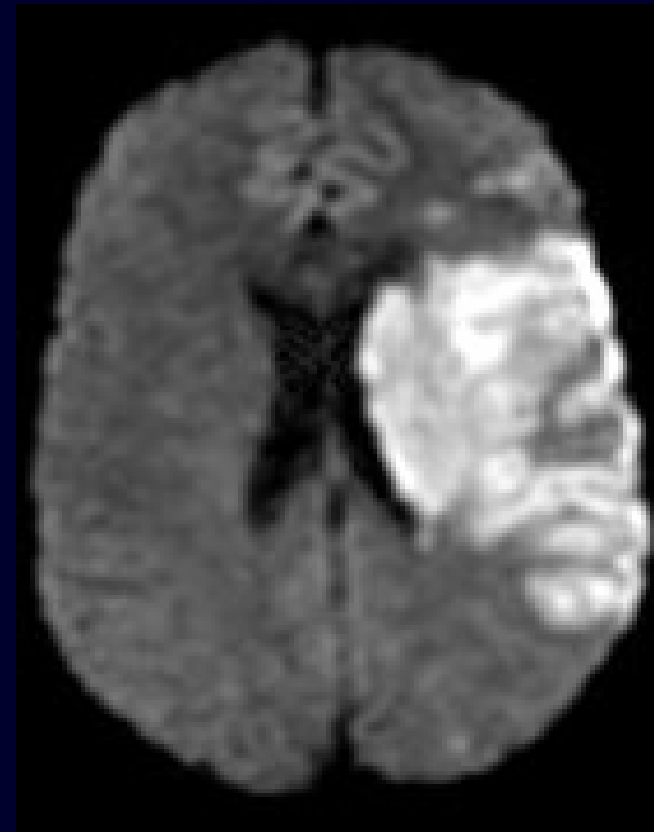
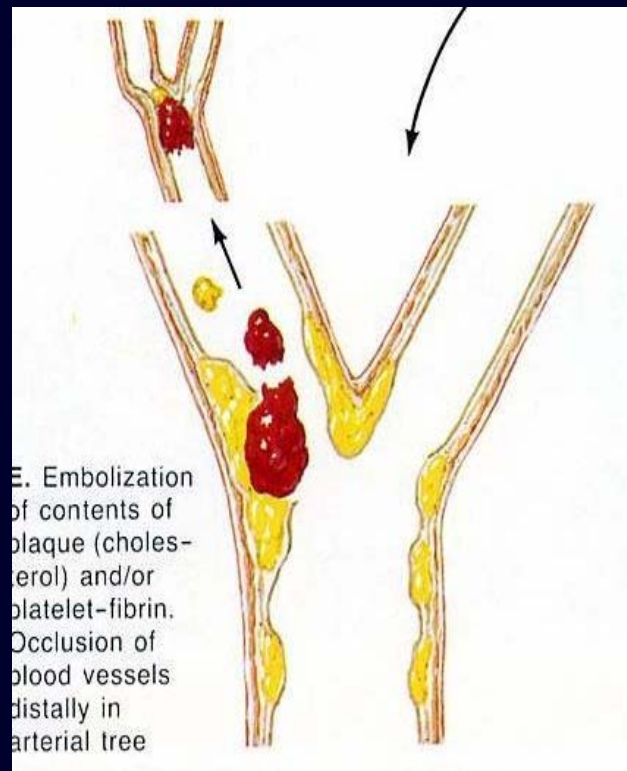
Department of Interventional Neuroradiology

Hôpital Lariboisière, Paris, France

Stenting a carotid without studying the brain is praying without thinking to God

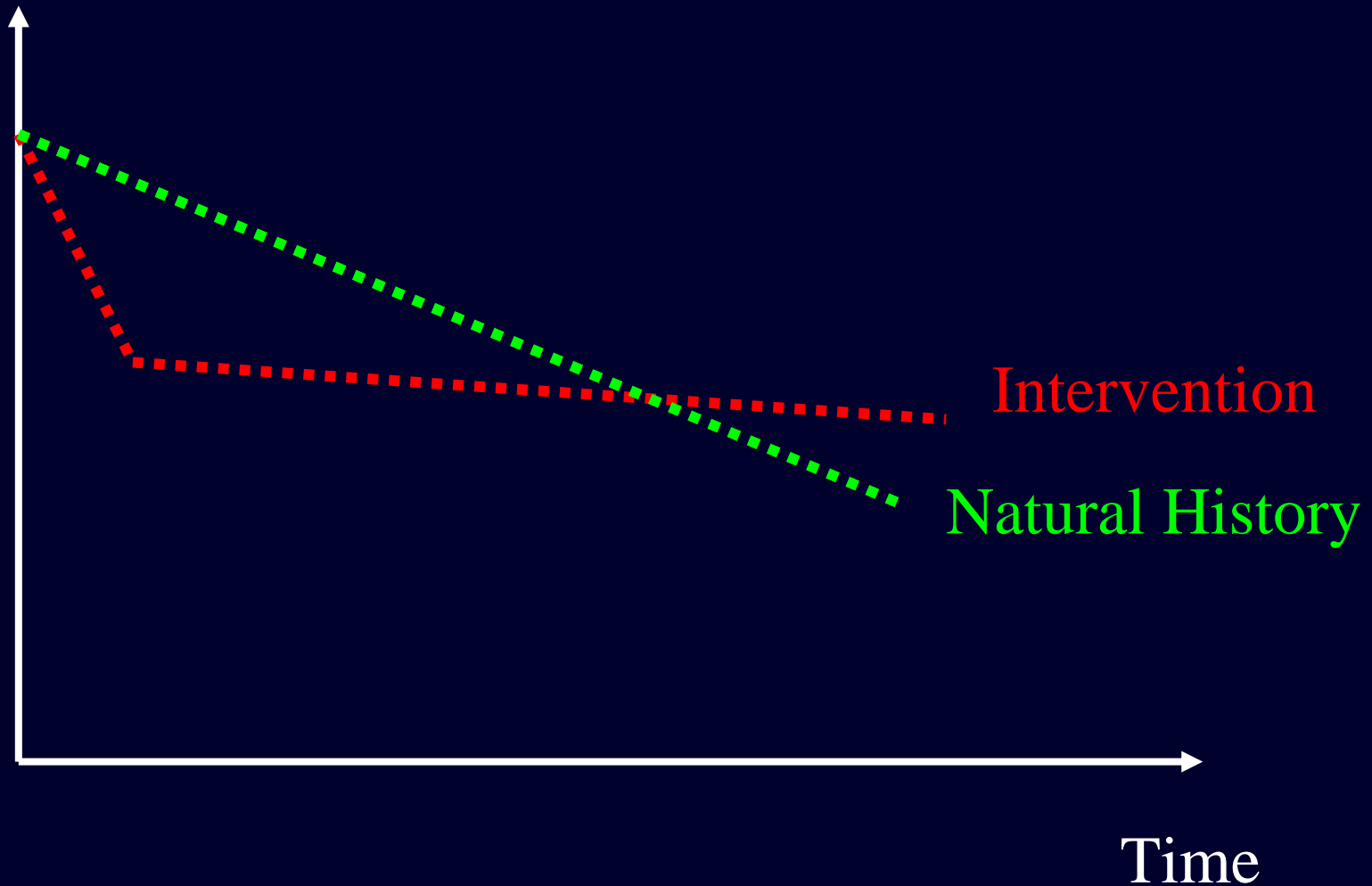


Carotid treatment has only a preventive purpose : to avoid a brain *territorial* infarct in its territory



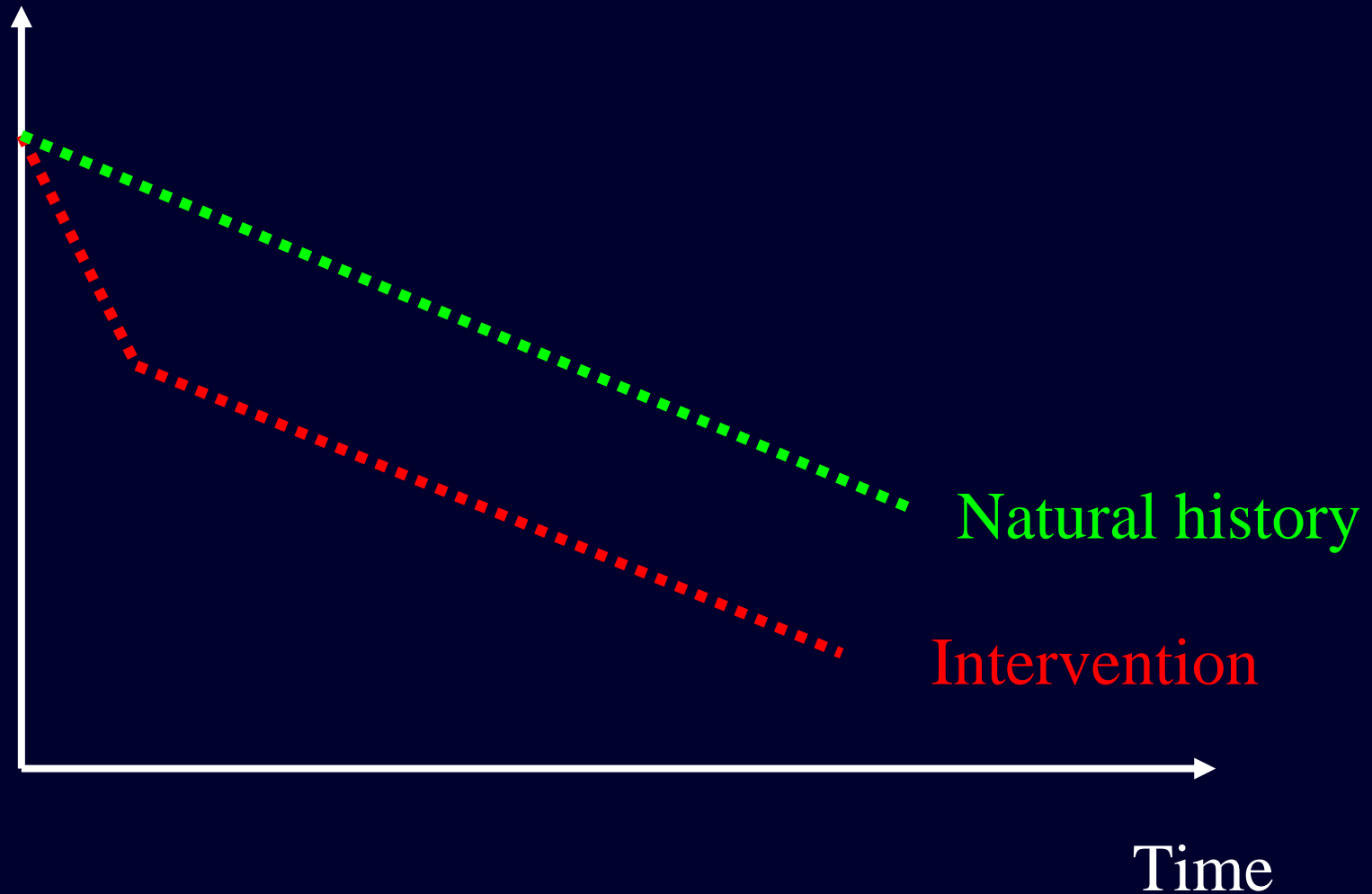
Efficient preventive treatment draws a triangle

% Patients stroke-free



Poor patient selection leads to worse schema

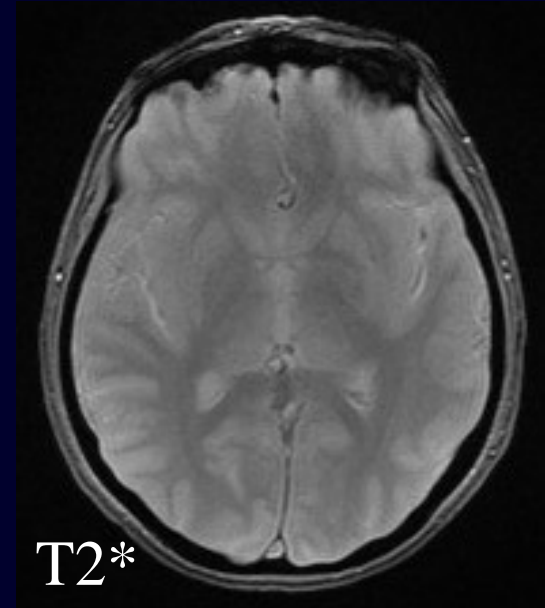
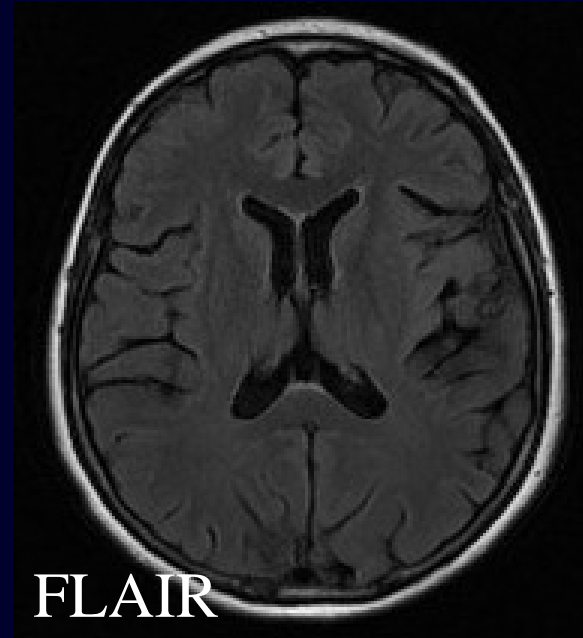
% Patients stroke-free



**Main purpose of brain study : to
achieve a correct patient selection**

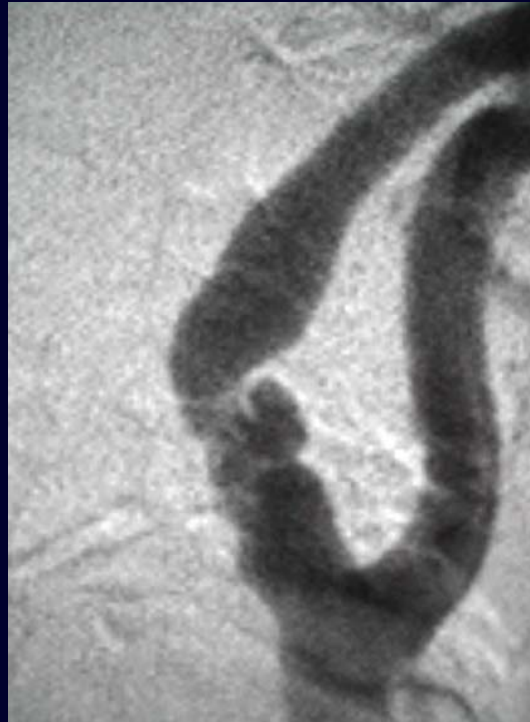
Brain MRI before treatment

Four systematic MRI pictures

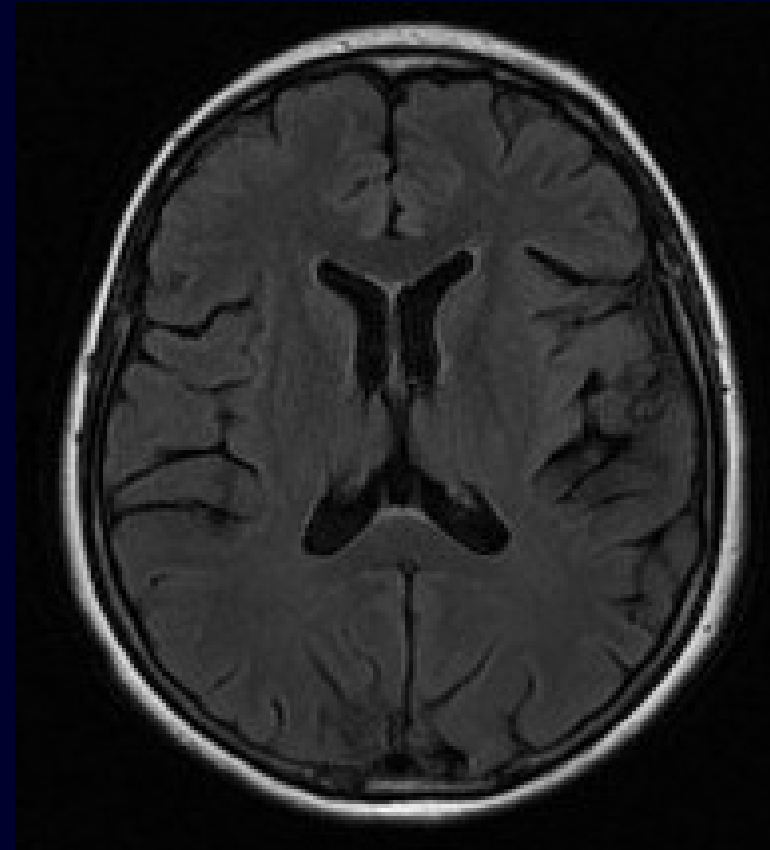
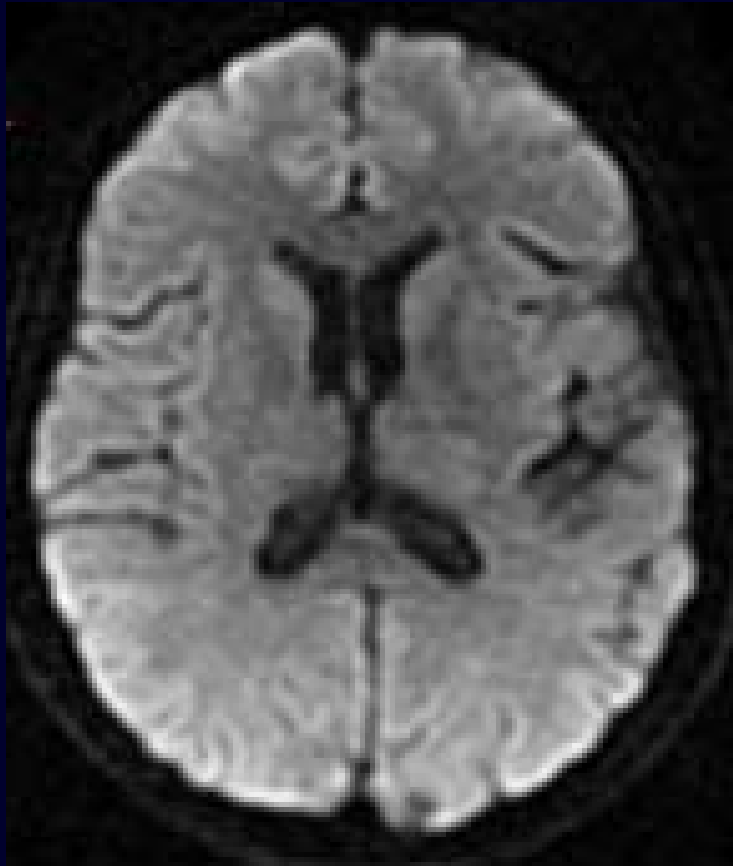


MRI in proper indications

Carotid stenosis has impaired or can impair the cortex in its territory



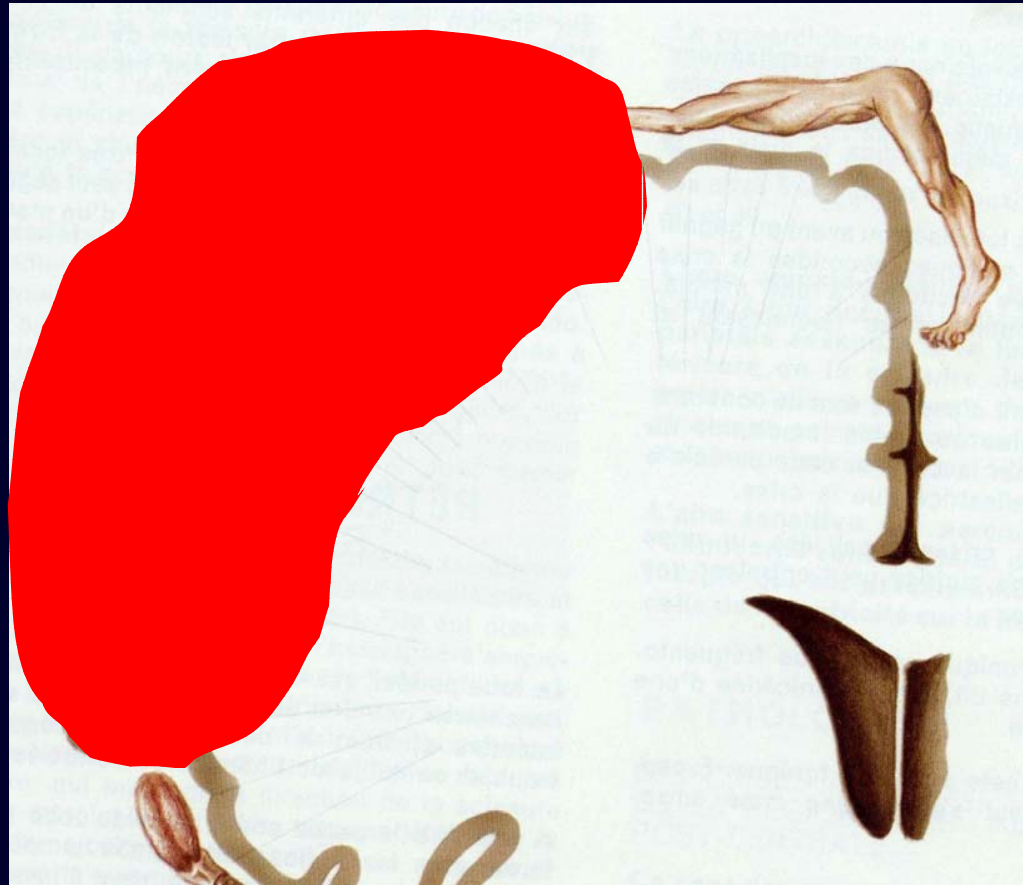
1-TIA : MRI is normal but clinical transient symptoms are concordant with cortical territories of ICA (excluding diplopia or dizziness)



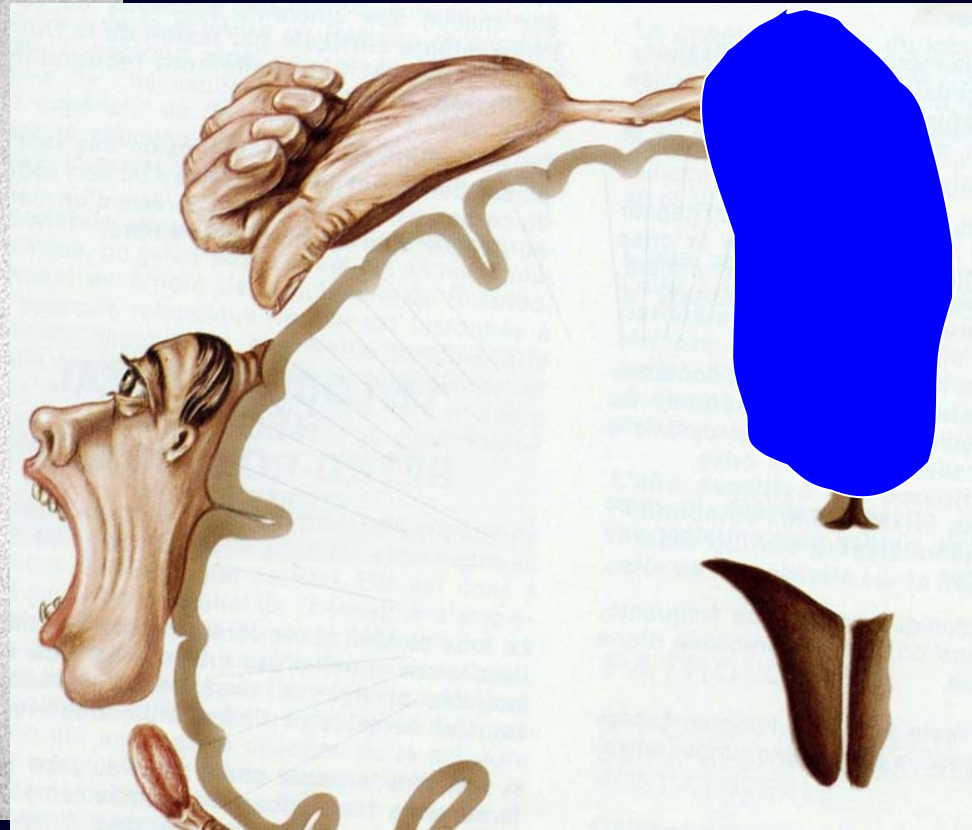
MCA cortical (superficial) territory



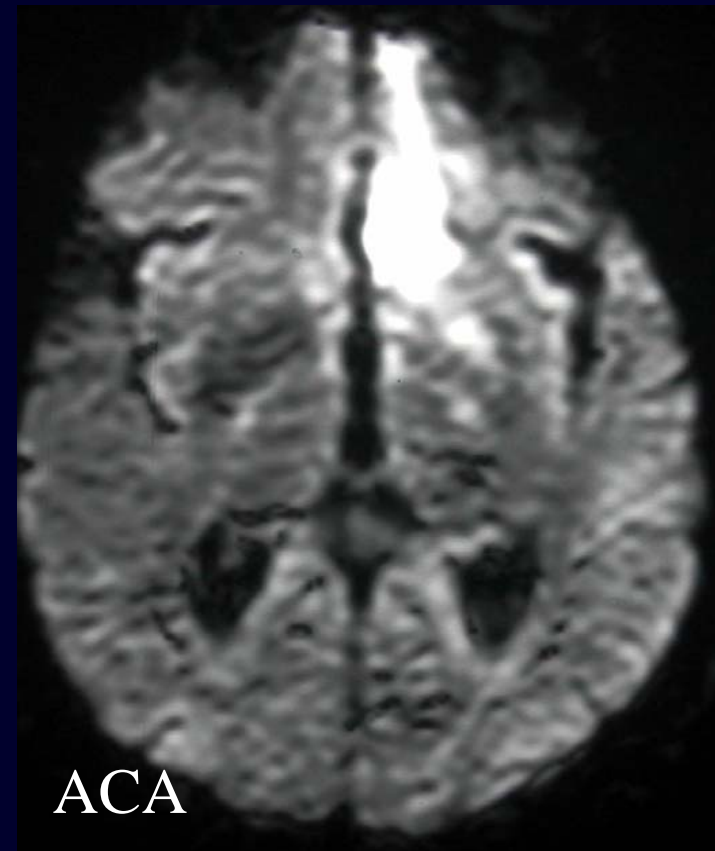
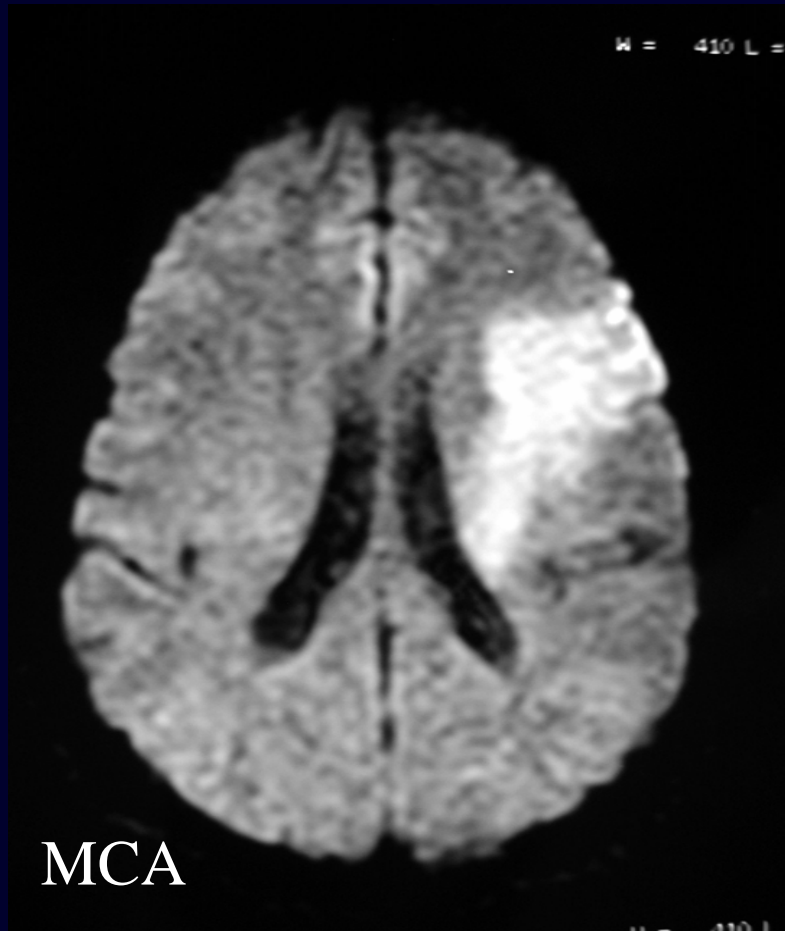
Motor consequences of superficial MCA TIA : arm & face deficit



Anterior cerebral artery : leg deficit



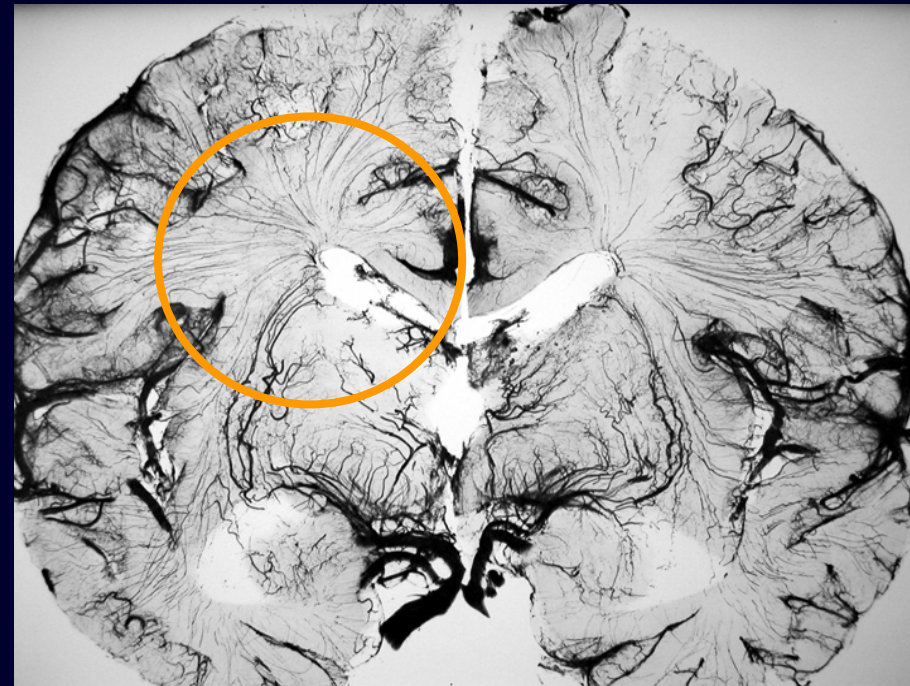
2- Infarct : MRI shows hypersignal of those cortical territories



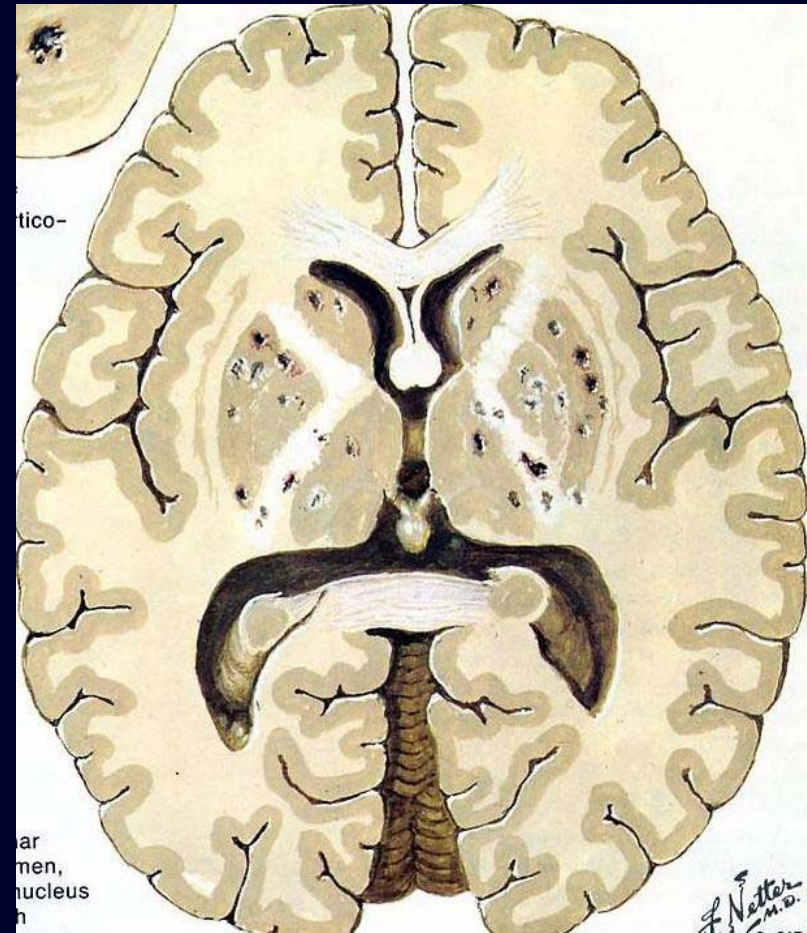
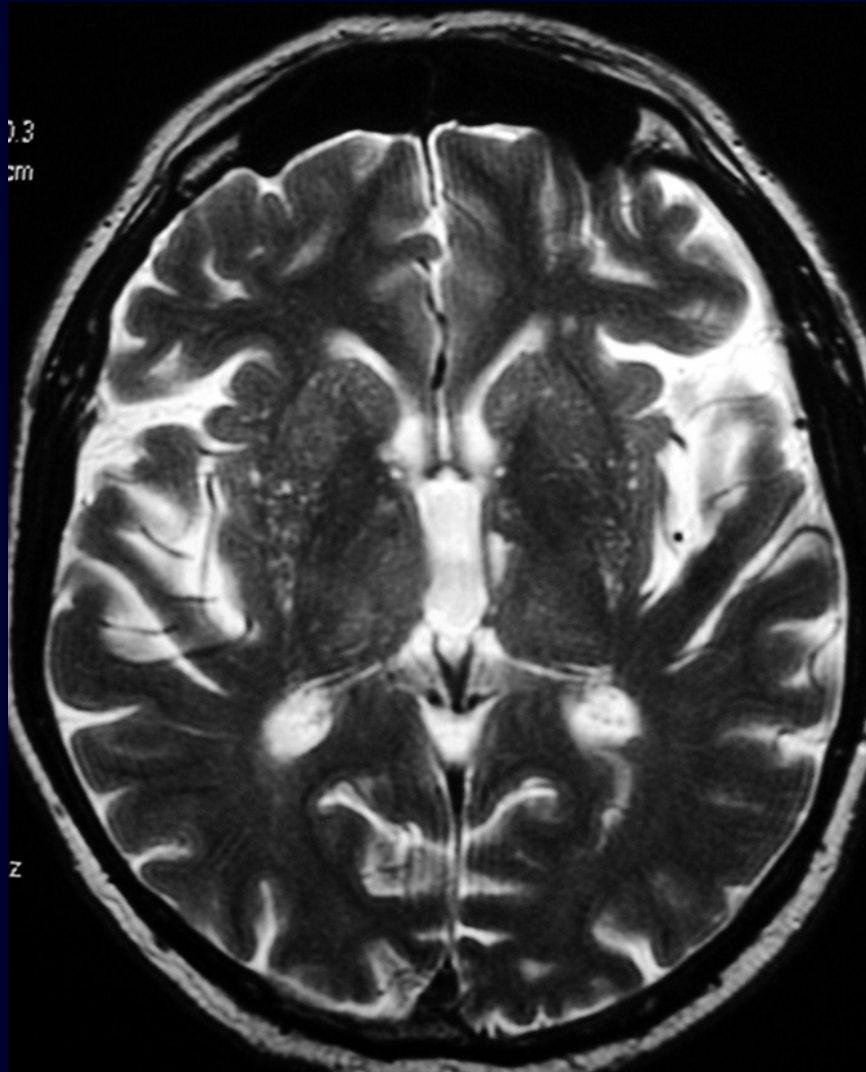
MRI in improper indications of ICA bifurcation revascularization

Lacunar infarct

- Infarct < 15 mm
- Multiples
- Deep area of the brain
- Mechanism : thickening) of the *wall* of small arteries of 300-500 μ
- Cause : HBP (same as for atherosclerosis)

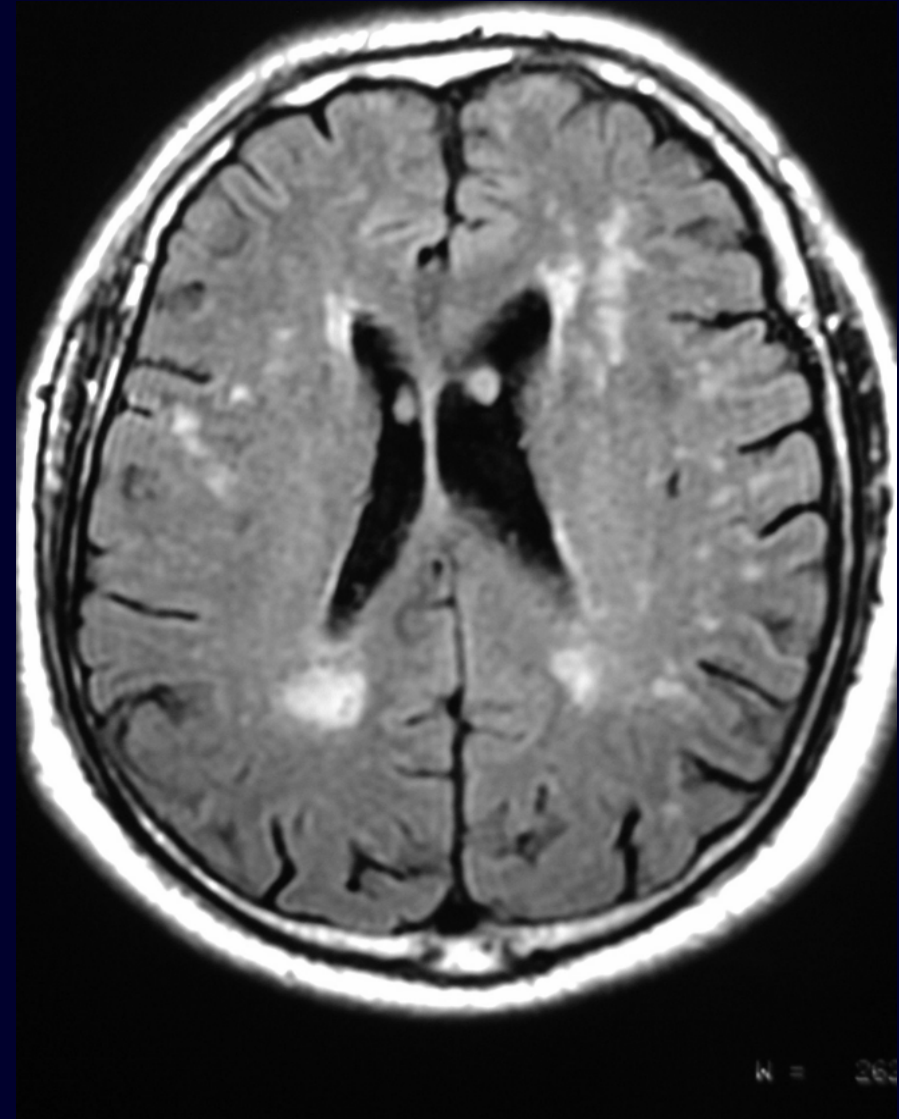


Conventional T2 (CSF white)

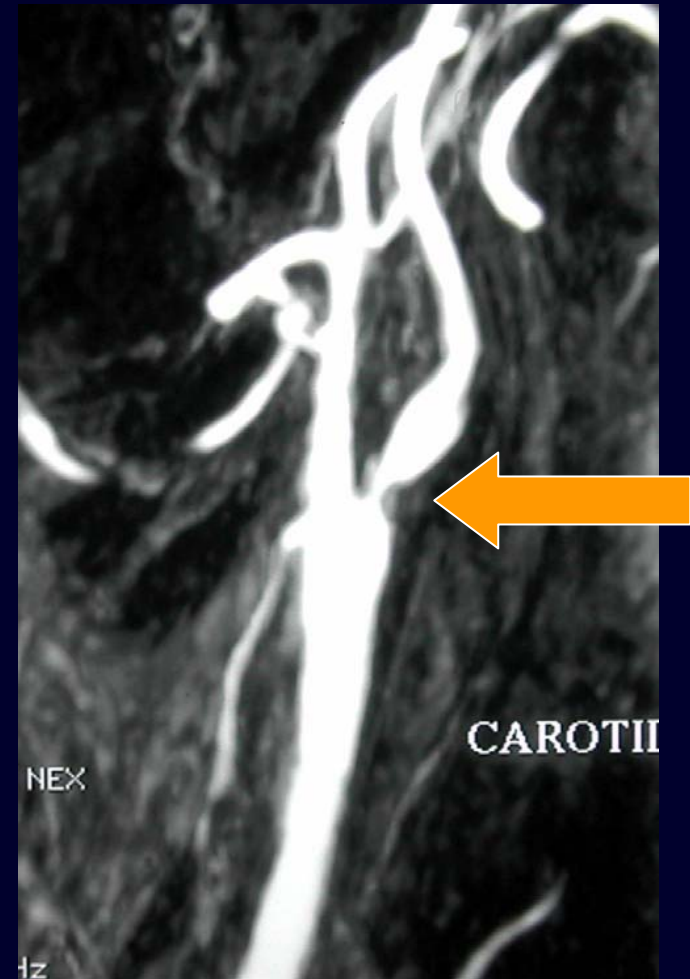
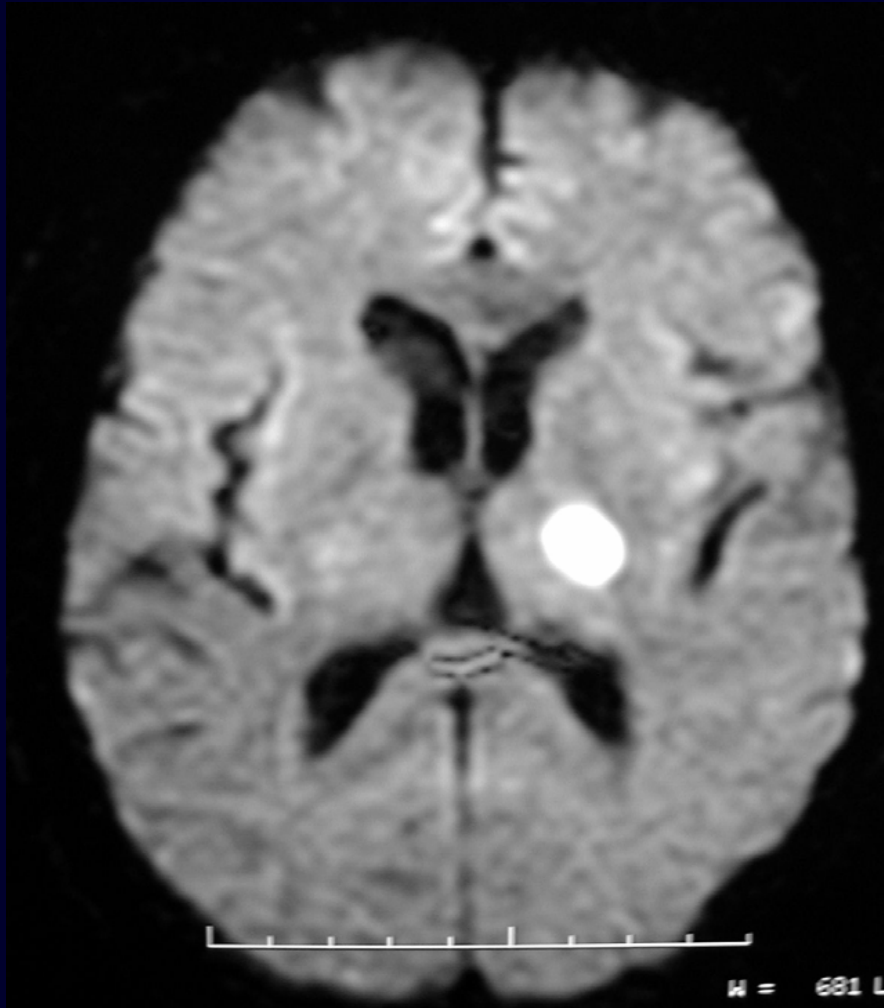


FLAIR

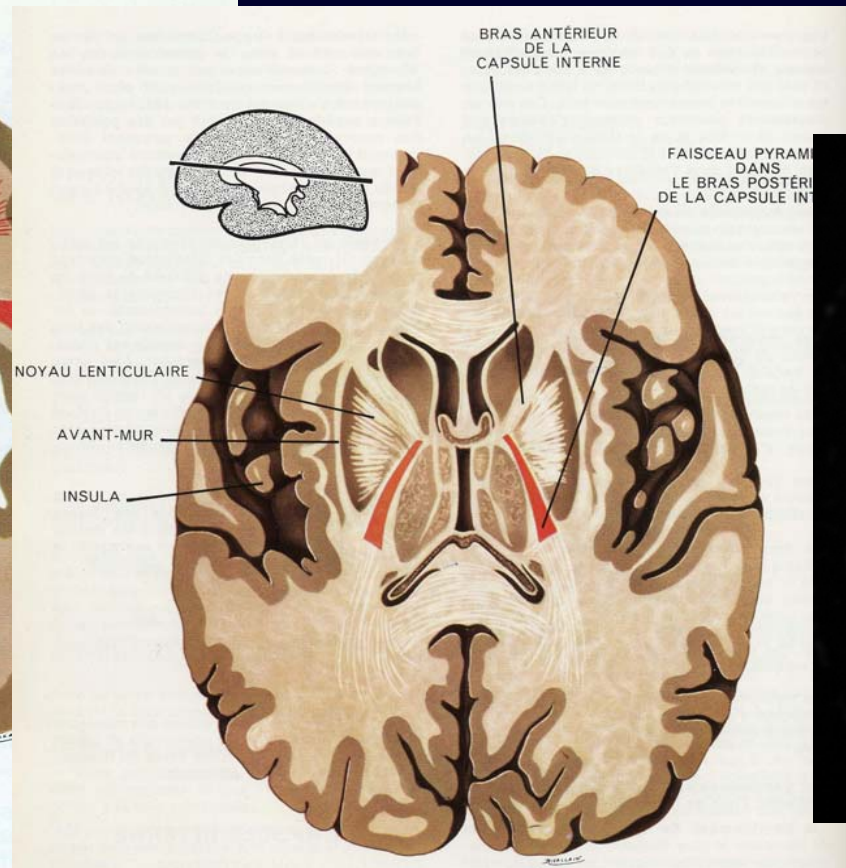
- *T2 with black CSF*
- Water in parenchyma (infarct) appears in white
- Shows better the small infarct located close to ventricles



Proportional hemiplegia : is it due to this left ICA stenosis ? Should we treat this stenosis ?

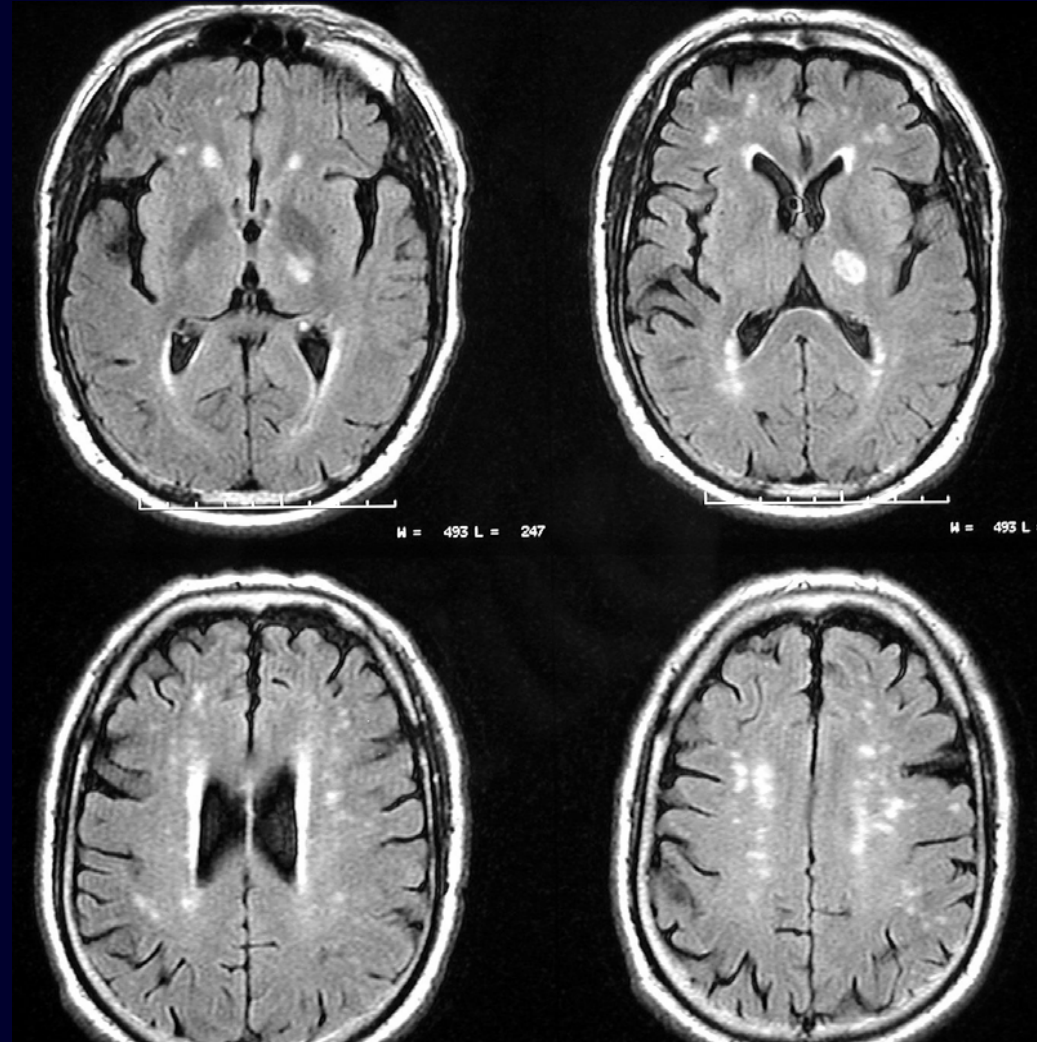


Proportional hemiplegia : infarct of the internal capsule



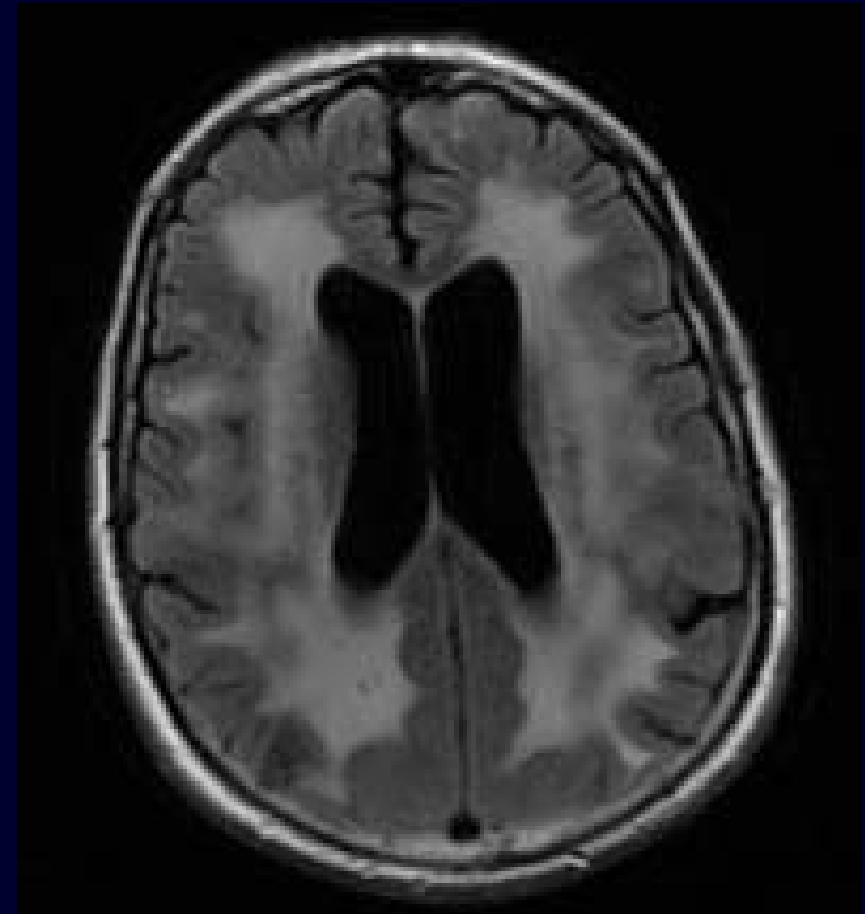
Same patient

- Multiple lacunar infarct
- No indication for carotid stenosis treatment that would not change the prognosis



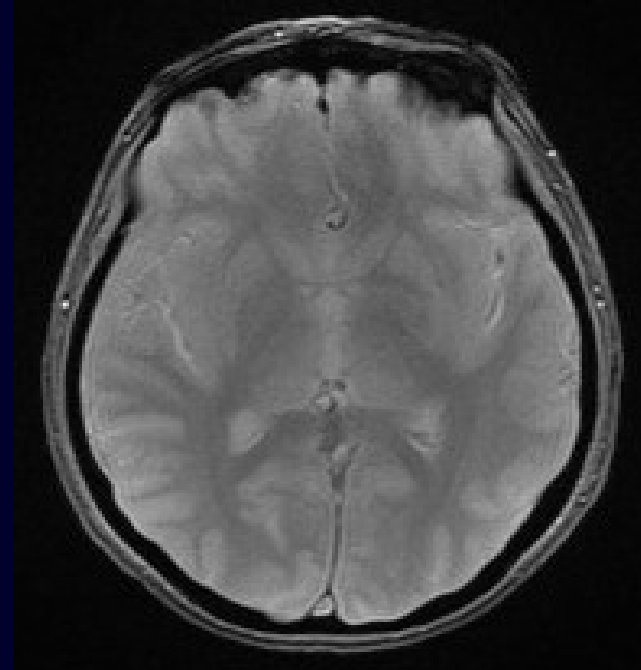
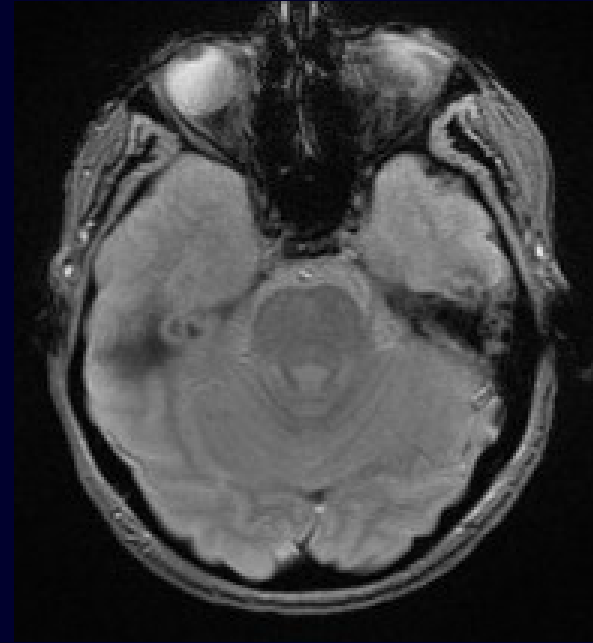
Prognosis of small arteries disease

- Can induce with time a vascular dementia
- Inappropriate treatment can worsen the situation



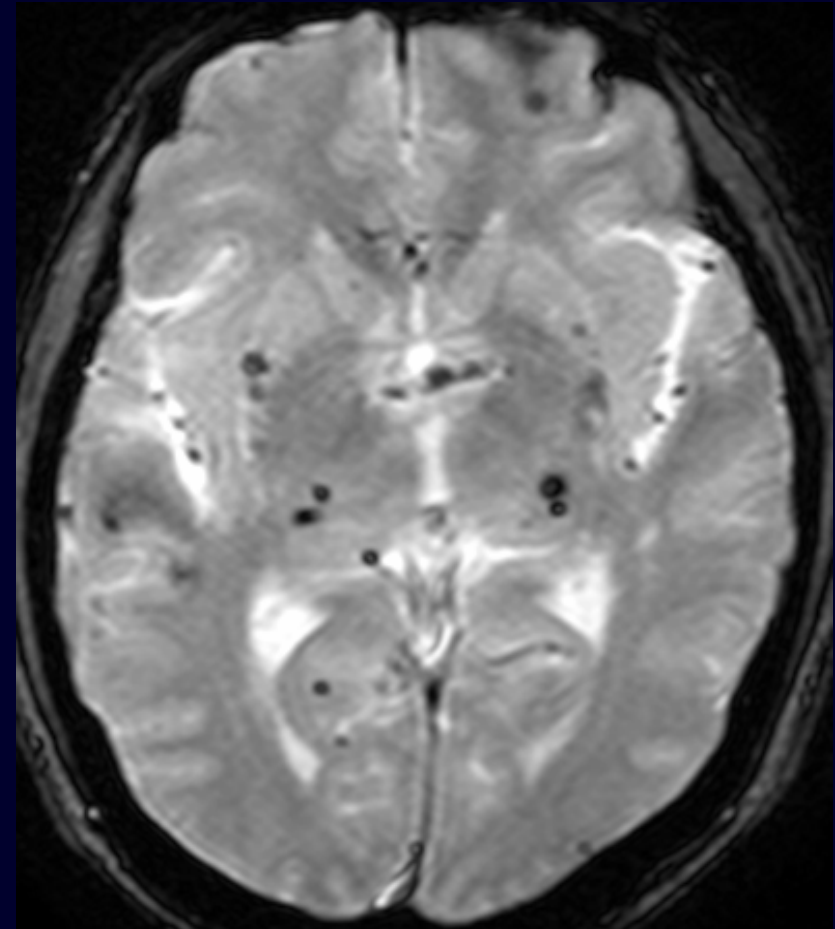
Interest of T2* in brain study

- T2 (CSF is white) with high magnetic sensibility
- Able to depict old bleeding in brain

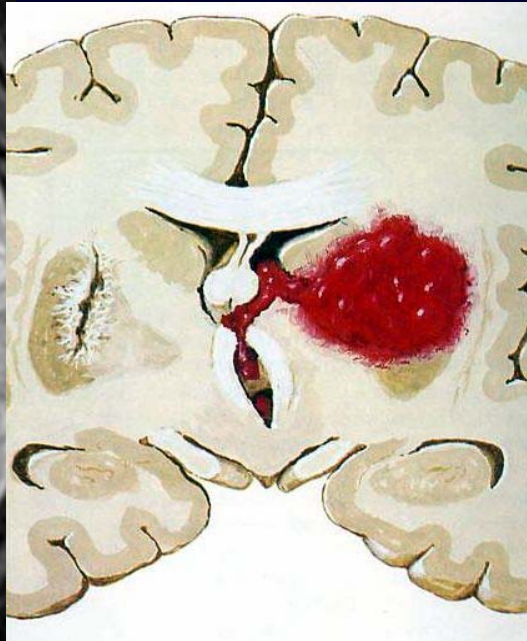
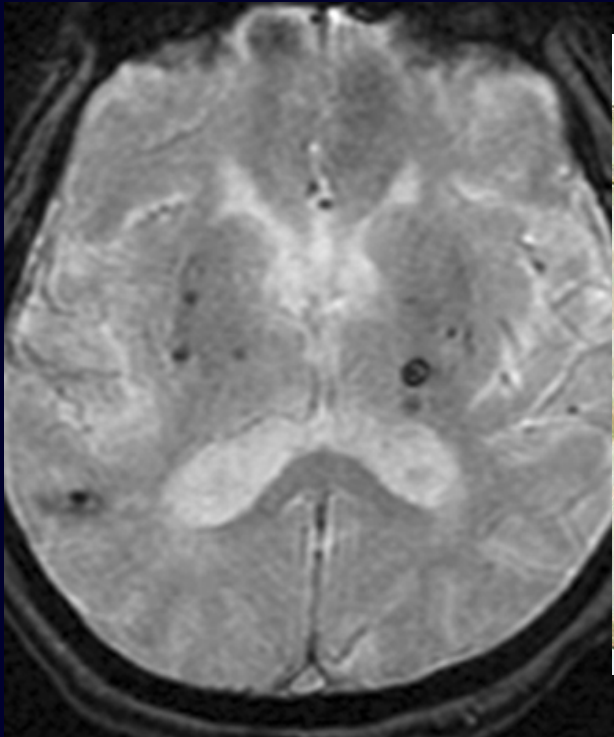


T2* in small arteries disease

- Small deep hemorrhage appear in black points
- Can be associated with small deep infarct

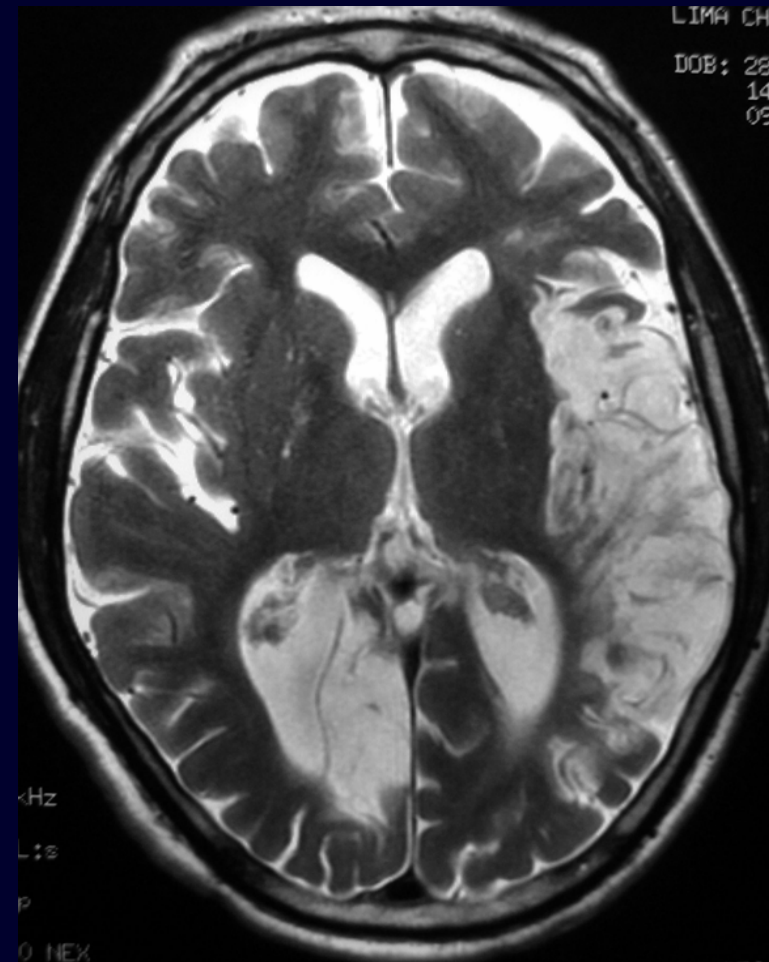


Be careful with antithrombotic in those patients !



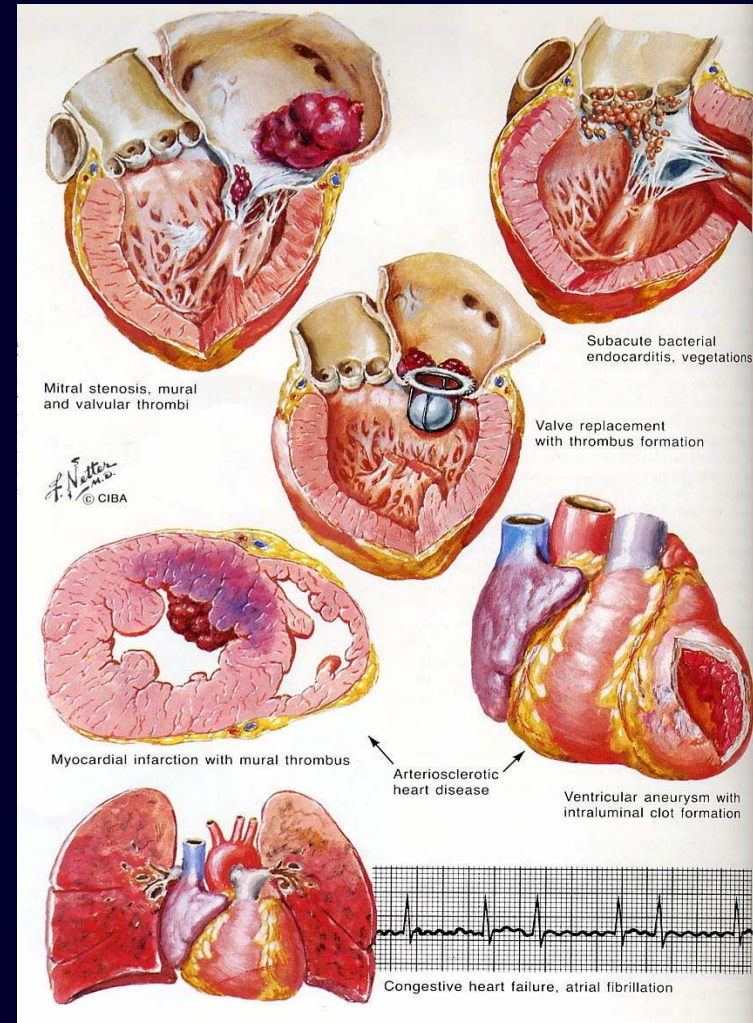
Cardiac embolism

- Left MCA
- Right PCA
- Cannot be explained by a single left ICA stenosis

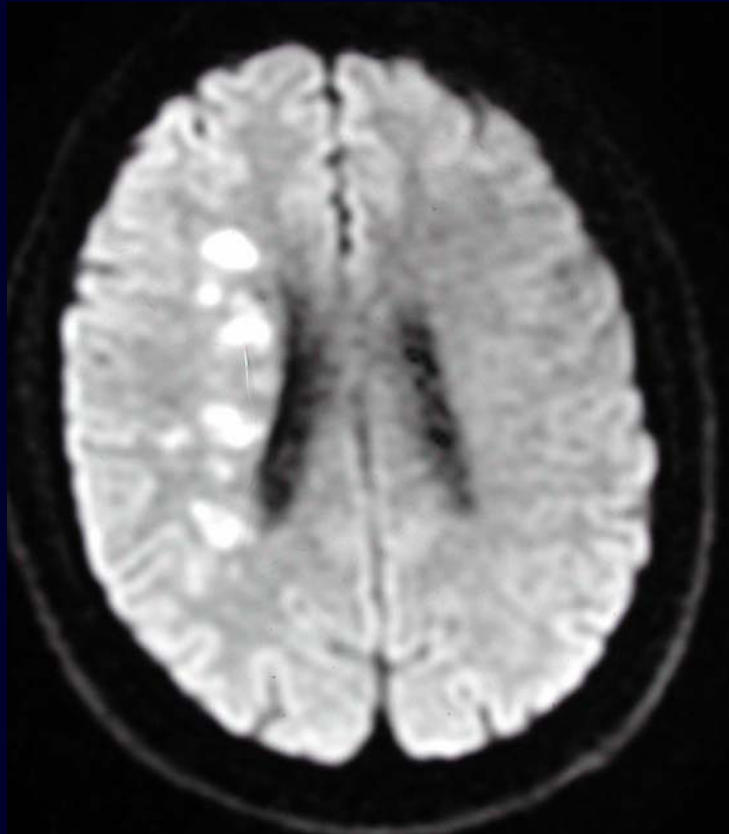


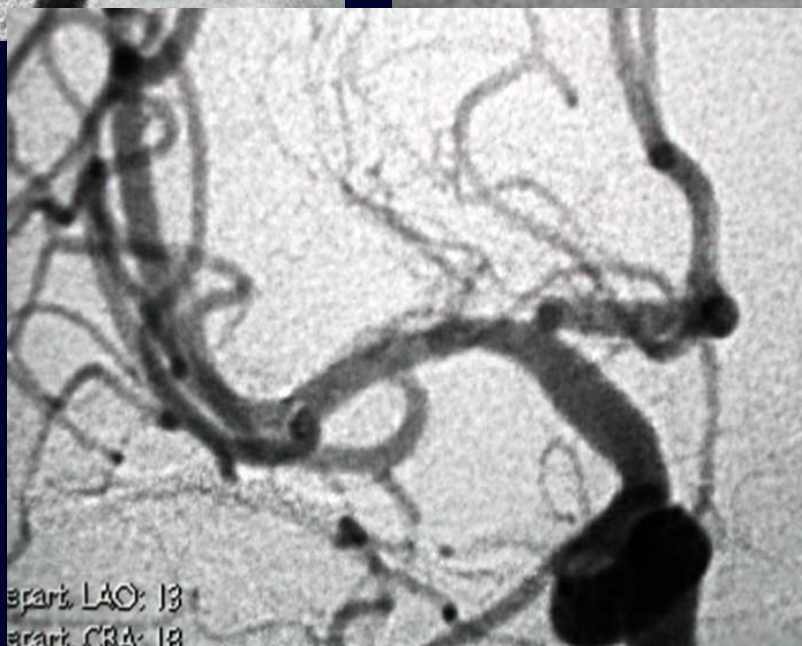
Cardiac embolism

- Require general anticoagulation
- Carotid revascularization is useless



Intracranial stenosis





erart LAO: 13
erart CRA: 18

To conclude ...

- Treatment of a carotid stenosis cannot be decided in XXI century only on a cervical Doppler !
- Brain MRI is crucial to achieve a correct selection of patient