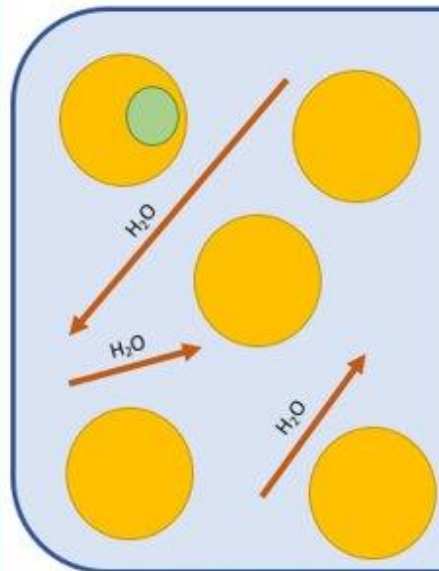


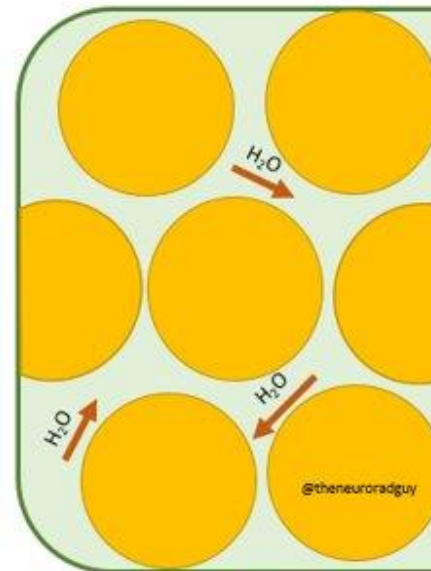


The normal situation

In the normal brain parenchyma anatomical barriers will limit H_2O diffusion to some extent

Cells, cell organelles, myelin, white matter tracts...

@theneuroradguy



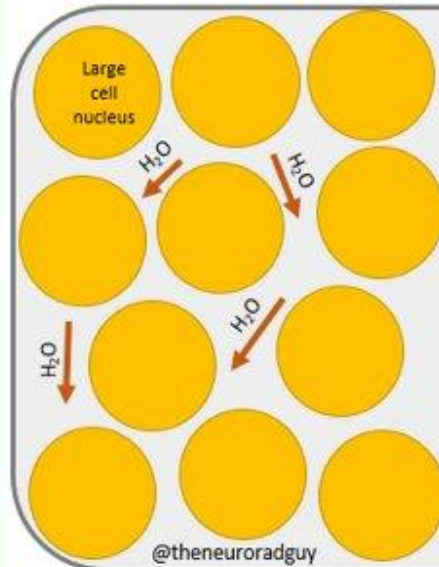
Cellular edema

Acute ischemic stroke
Some toxic-metabolic diseases
Herpes encephalitis
Postictal changes
...

How come?

Large swollen cells
Narrow extracellular spaces
Limits H_2O diffusion

@theneuroradguy



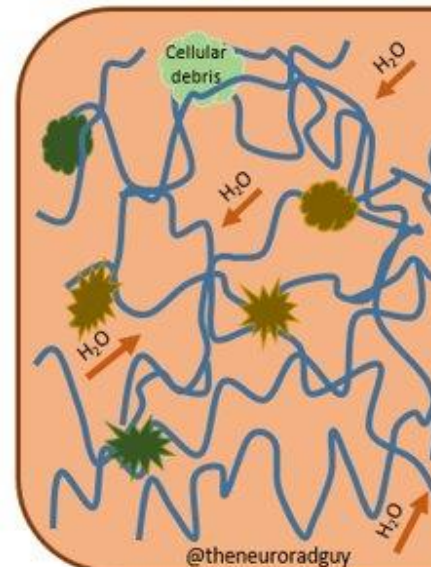
Hypercellular tumors

Medulloblastoma
AT/RT
Embryonal tumors
CNS lymphoma
...

How come?

Lot of small cells
Dense cellular packing
Narrow extracellular spaces

@theneuroradguy



Viscous fluid

Pus: brain abscess, empyema, ...
Keratin debris: cholesteatoma, epidermoid cyst

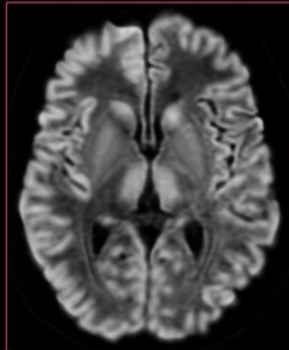
How come?

Diffusion is inversely related to fluid viscosity. Thick fluid → less diffusion

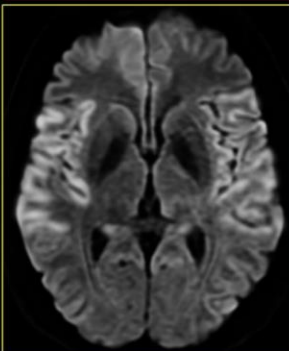
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Diffusion restriction in the brain: causes

Widespread cortical & subcortical



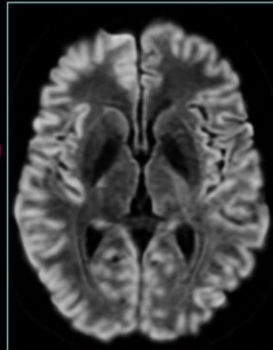
Anoxic injury
Hypoglycemia
Hyperammonemia
Eastern Equine



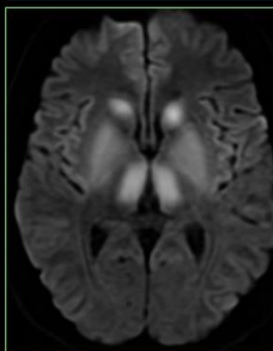
Autoimmune
Paraneoplastic
Herpes
Seizure
Anoxic injury

Limbic predominant

Widespread cortical



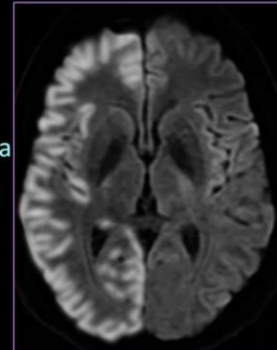
Anoxic injury
Hypoglycemia
Hyperammonemia
Status epilepticus
Sporadic CJD
Influenza



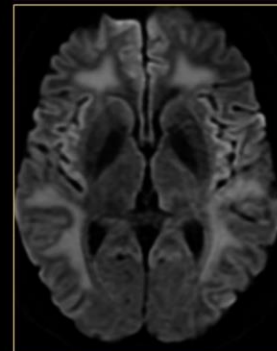
Atypical Anoxic
Variant CJD
COVID
Hypoglycemia
EBV
CO poisoning
Methanol

Isolated subcortical

Focal cortical



Seizure
Herpes
Infarct
Rasmussen
Melas



Heroin
ADEM
Post hypoxic
COVID
Lymphoma

White matter

