Clinical Neuroimaging in Psychiatry

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What we will cover

- Requests
  - CT vs MRI
  - MRI protocol
- Normal MRI
  - Approach to interpretation
- Cases
  - Alzheimer disease (AD)
  - Vascular dementia (VD)
  - Frontotemporal lobar degeneration (FTLD)
  - Lewy body dementia (LBD)
  - many mimics and classics
CT vs MRI
CT

**PROS**
- affordable
- fast
- accessible

**CONS**
- general radiologists
- poor contrast resolution
- single physical characteristic being assessed
- gives you cancer and cataracts :)

CT protocol

- **Routine**
  - (traditional / old school)
    - Thick slices (e.g. 5-10mm)
    - Axial acquisition only

- **Volumetric CT**
  - Thin slices (e.g. 0.6mm)
  - Allows coronal and sagittal reconstruction

- **Contrast**
  - not usually indicated
  - tumour?
  - meningitis?
MRI

• **PROS**
  • amazing contrast and spatial resolution
  • all sorts of physical (and functional) characteristics can be assessed
  • usually read by less ‘general’ radiologists

• **CONS**
  • expensive and limited access
  • long and challenging for many patients
  • contraindications
MRI protocol

• Routine
  • Structural imaging
    • T1, T2, FLAIR
    • Sagittal, Axial and Coronal
  • Advanced imaging
    • Diffusion weighted imaging (DWI)
    • Susceptibility weighted imaging (SWI)

• Bells and whistles
  • Perfusion
  • Tractography (DTI)
  • Functional (fMRI)
So, which one?

- **CT**
  - Rapid screening for acute pathology and space occupying lesions
  - Patients who can’t tolerate MRI
  - Contraindications e.g. PPM
  - Doctors who can’t access MRI

- **MRI**
  - Everything else
The art of writing a good request
Not very useful

Cognitive problems.

?neurodegenerative disease
46 yo male with progressive (>6 month) decline in behaviour with some disinhibition but also probable impairment of short term memory. No verbal decline. No history of drugs/alcohol/head injury.

Likely frontotemporal dementia
DDx: - Alzheimer's (frontal variant)
    - ?other (e.g. frontal tumour)
Cases

- All the cases we are going to show are from Radiopaedia.org
- You can review all of them at your leisure by visiting

radiopaedia.org/playlists/456
Cases
The End