Een kijkje achter de schermen

Radiologie en MS

ijsselland ziekenhuis

Hier gaat het om u.

Aarnout Plaisier
Neuroradioloog IJsselland ziekenhuis
DTO 13-11-2023

Disclosure sheet

Vereniging Medische Staf Disclosure belangen spreker: Aarnout Plaisier Presentatie: Radiologie en MS	
Geen potentiële belangenverstrengeling	X
Voor bijeenkomst mogelijk relevante relaties[1]	X
• Sponsoring of onderzoeksgeld • Honorarium of anderen (financiële) vergoeding • Aandeelhouder • Andere relatie, namelijk….	• • • •

ijsselland ziekenhuis

Diagnose MS

- 2017 McDonald criteria
  - Disseminatie in tijd en plaats
    - Klinisch of mbv MRI

- Dus een cruciale rol voor MRI
  - In de primaire diagnostiek
  - Uitsluiten van andere oorzaken van de klachten
  - Monitoren van de ziekte en de behandelrespons

- Dagelijkse praktijk

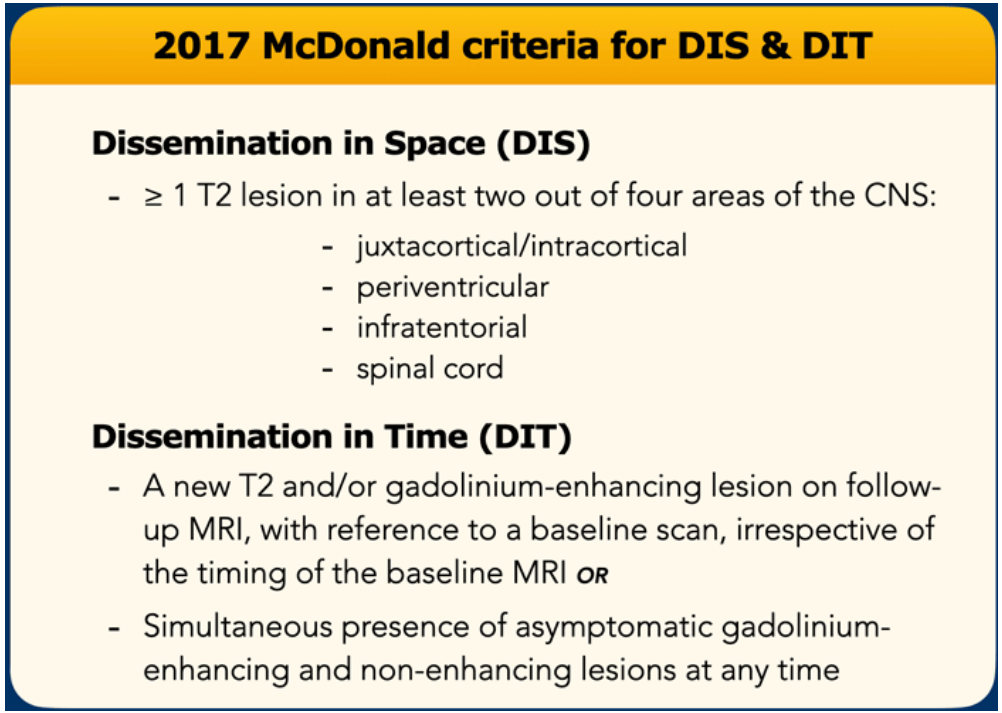
MRI

1. Sterk magnetisch veld
   - Waterstofatomen in lijn
2. Radiogolven
   - Waterstofatomen uit evenwicht
3. Relaxatie (terug naar de begin stand)
   - Atomen zenden een RF signalen
   - Sterkte en duur van het signaal is afh. van het weefsel waar het vandaan komt
4. Ontvangen van RF signalen
5. Beeld reconstructie
   - Afh. van verschillende parameters worden de signalen vertaald naar verschillende beelden/ sequenties

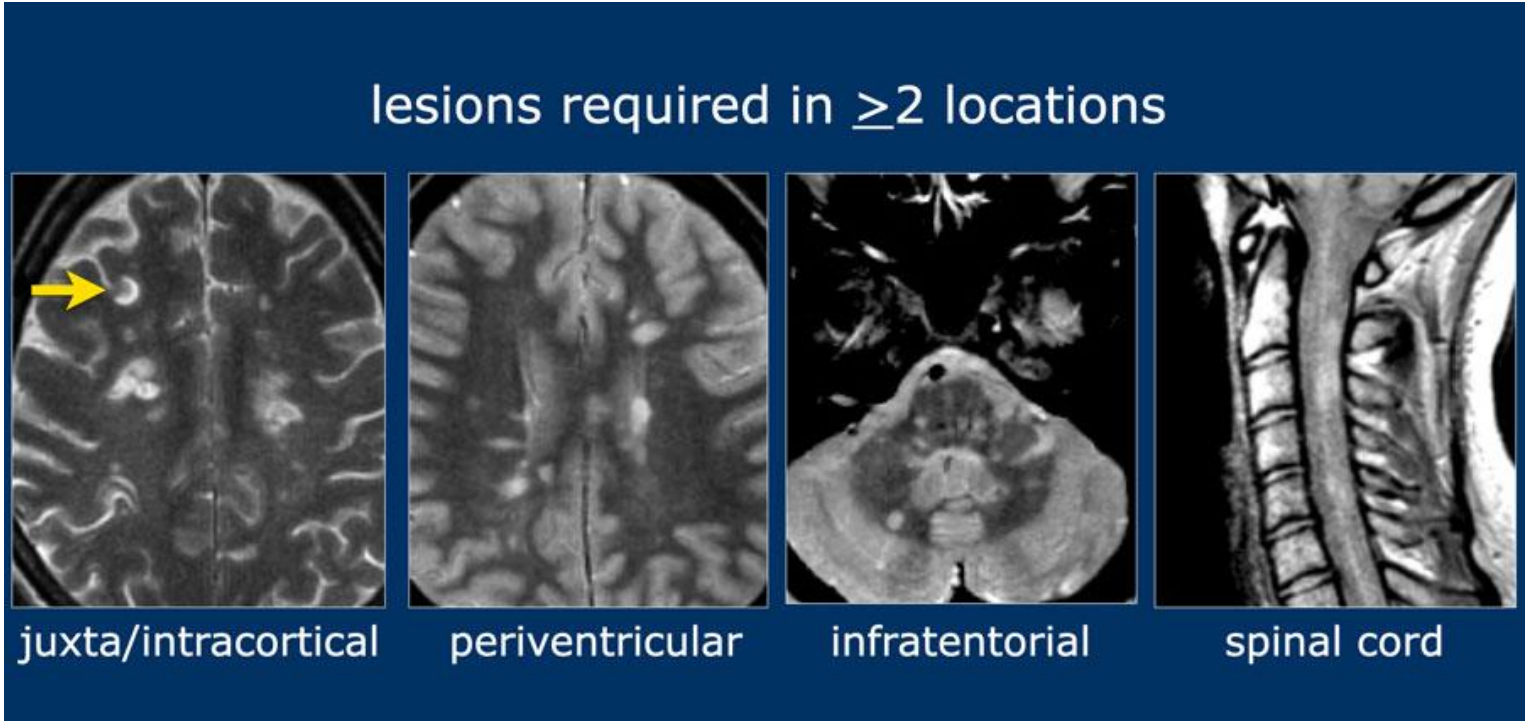
Voorbeeld MS MRI protocol

Terug naar MS

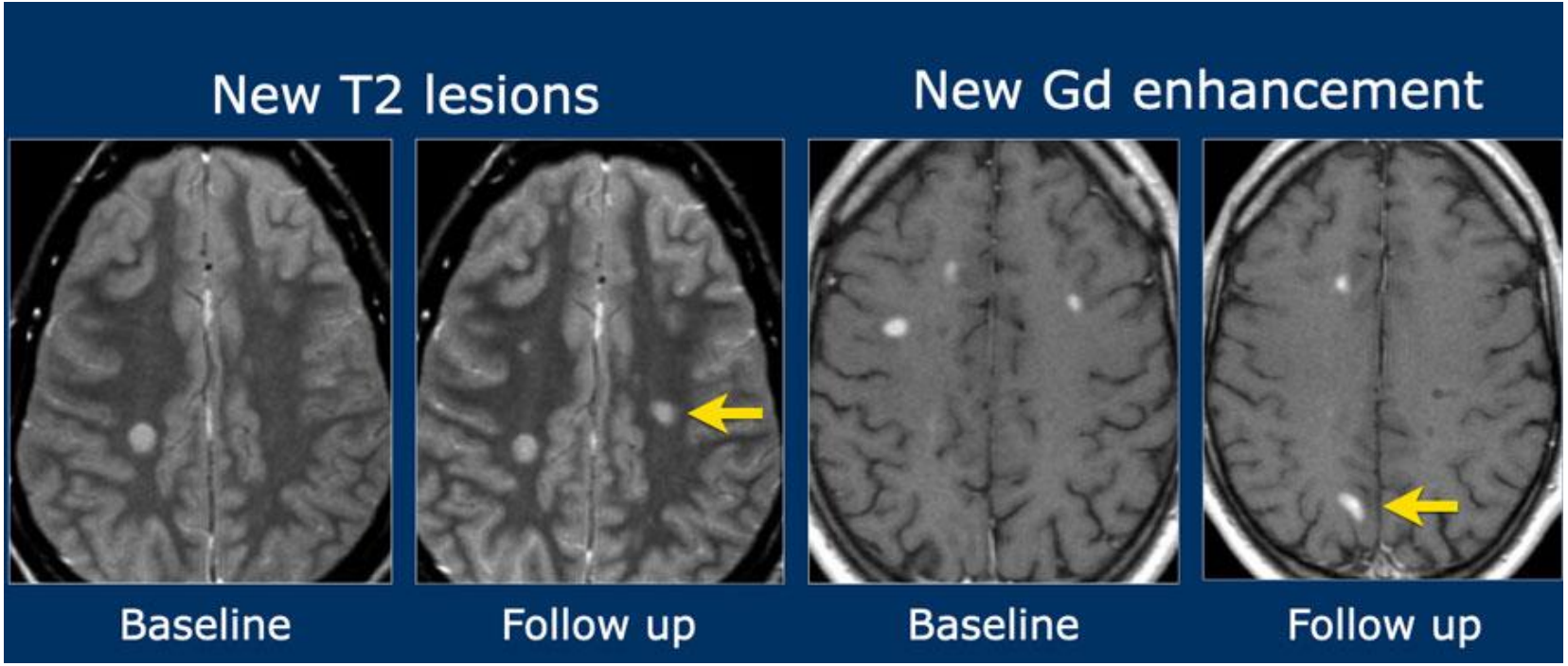
- MRI
  - DIS en DIT



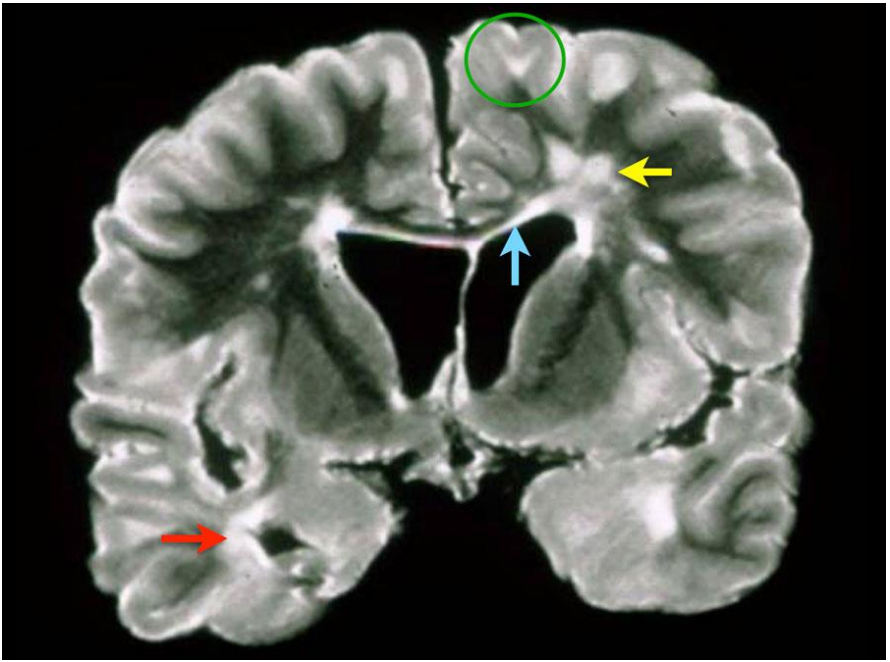
DIS



DIT



Typische MS laesies



Typical MS lesions

Juxtacortical and cortical lesions
must touch the cortex

Dawson fingers
ovoid lesions perpendicular to the ventricles

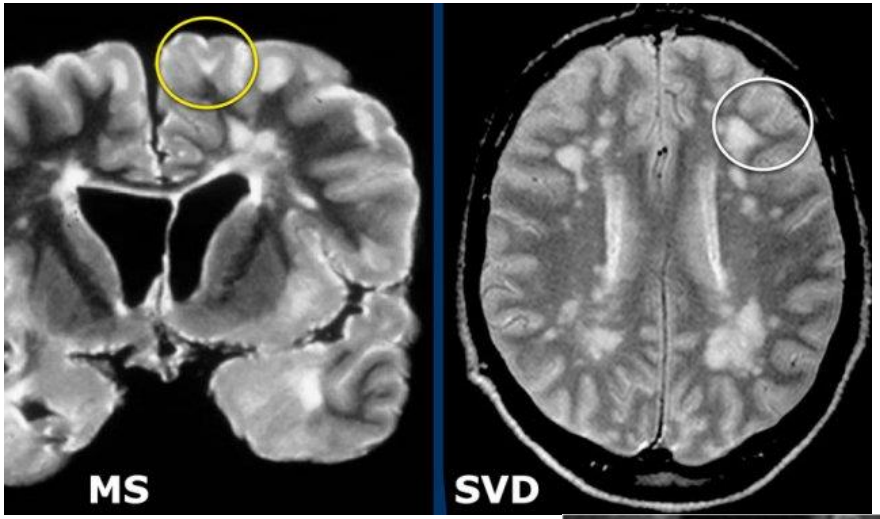
Brainstem lesions
typically peripheral

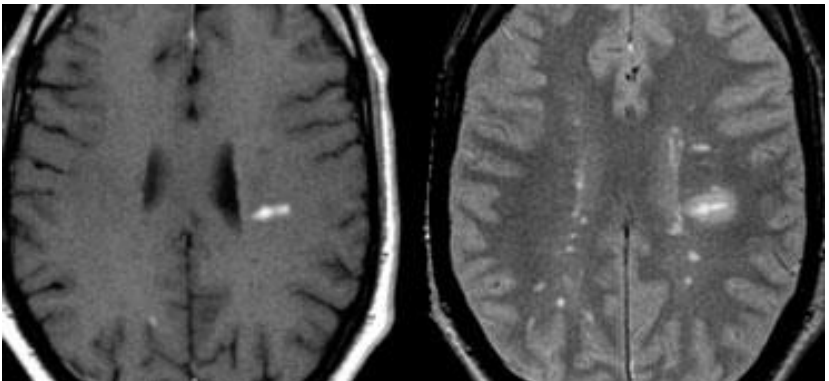
Temporal lobe involvement

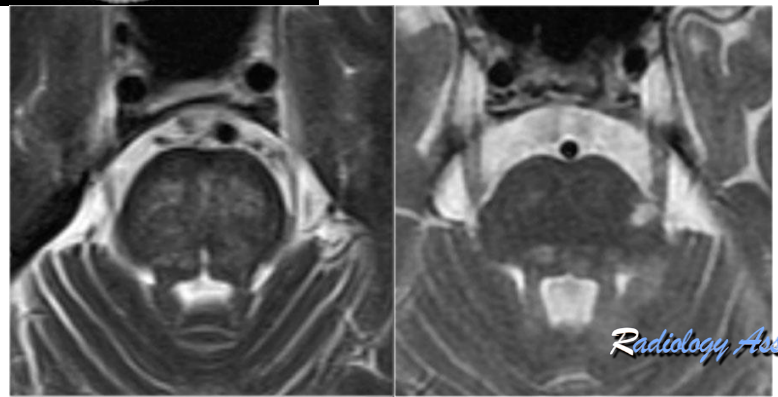
Corpus callosum

Spinal cord lesions
small and peripherally located

Typische MS laesies







Myelum laesies

Cord MRI in MS – multifocal lesions

- present in majority of MS patients
  - around 85% in early MS
- typical shape and location
  - peripheral location, wegde-shaped
  - short segment, sigar shaped
  - incidentally: swelling, focal atrophy
  - enhancement uncommon
  - cervical region > thoracic region

MS vs SVD

Geassocieerd met cardiovasculaire risicofactoren en leeftijd

Involvement of White Matter

	Multiple Sclerosis	Small Vessel Disease
Corpus Callosum	typical	rare
U-fibers	often	rare
Infratentorial	always	late
Temporal lobe	often	never*
Gad-enhancement	common	never
Asymmetric	never	possible
Black holes	typical	rare
Cystic lesions	never	lacunes
Spinal cord	frequent	never

if a patient is clinically suspected of having MS and multiple WMLs are found, our major concern is the differential diagnosis MS versus small vessel disease

If a patient is *not* suspected of having MS and the MR shows incidental white matter lesions, do *not* suggest MS

Casus in PACS

Vragen?

Mc donald criteria

Mc Donald criteria for MS

ATTACKS	LESIONS	ADDITIONAL CRITERIA FOR DIAGNOSIS MS
2 or more	2 or more	**None.** Clinical evidence alone will suffice
2 or more	1 lesion	**Dissemination in space on MR** (or await further clinical attack implicating a different CNS site)
1 attack	2 lesions	**Dissemination in time on MR** (or await further clinical attack implicating a different CNS site)
1 attack	1 lesion	**Dissemination in space *and* time** (or await further clinical attack implicating a different CNS site)
0 attack progression from onset		One year of disease progression (retrospective or prospective) **AND** at least 2 out of 3 criteria: • Dissemination in space in the brain • Dissemination in space in the spinal cord based on 2 or more T2 lesions • Positive CSF

2017 McDonald criteria for DIS & DIT

Dissemination in Space (DIS)

- ≥ 1 T2 lesion in at least two out of four areas of the CNS:
  - juxtacortical/intracortical
  - periventricular
  - infratentorial
  - spinal cord

Dissemination in Time (DIT)

- A new T2 and/or gadolinium-enhancing lesion on follow-up MRI, with reference to a baseline scan, irrespective of the timing of the baseline MRI *OR*
- Simultaneous presence of asymptomatic gadolinium-enhancing and non-enhancing lesions at any time