UKD Universitätsklinikum Düsseldorf

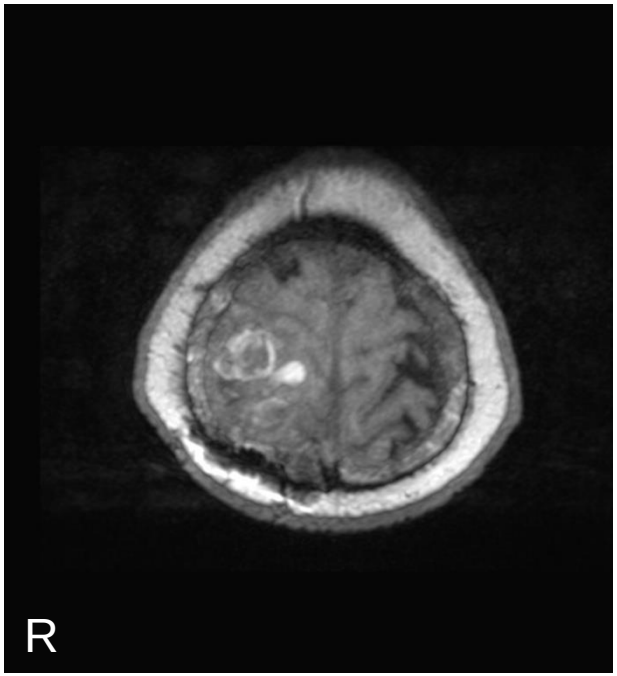
HEINRICH HEINE UNIVERSITÄT DÜSSELDORF

Being the anatomical wiseguy by knowing your landmarks

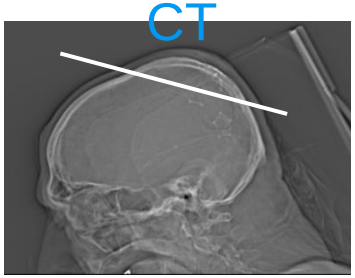
Julian Caspers

JÜLICH FORSCHUNGSZENTRUM

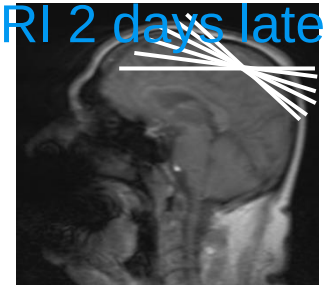
Why landmarks ...



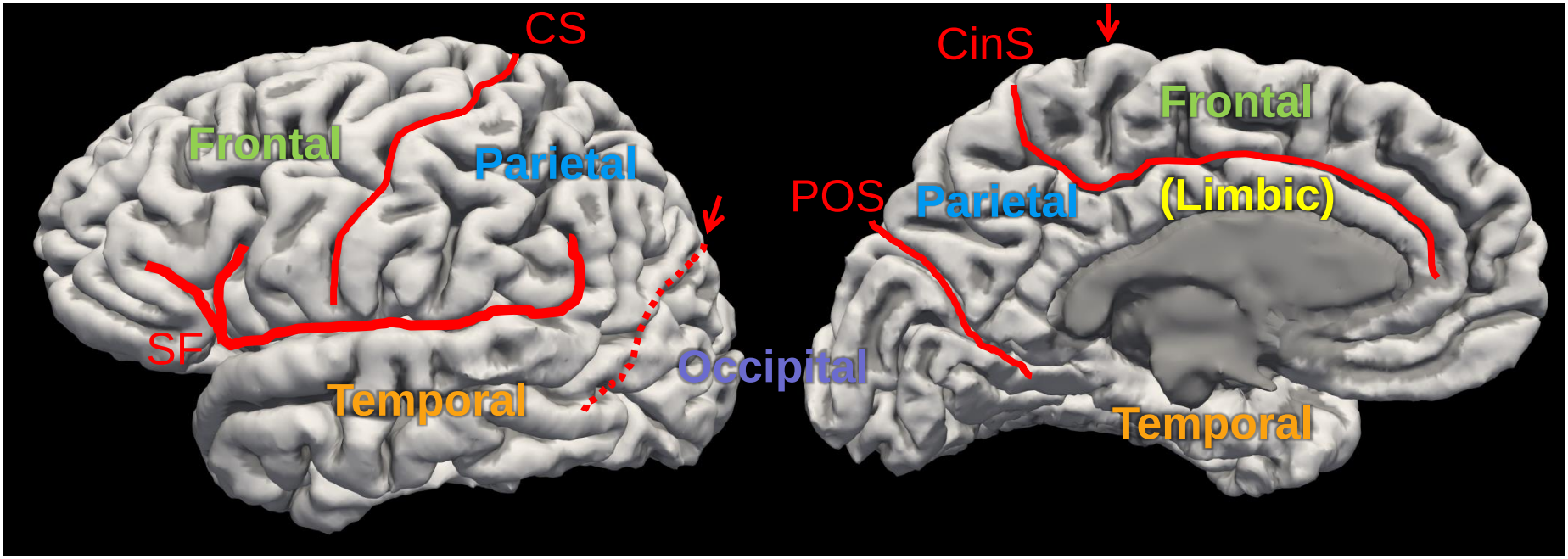
CT



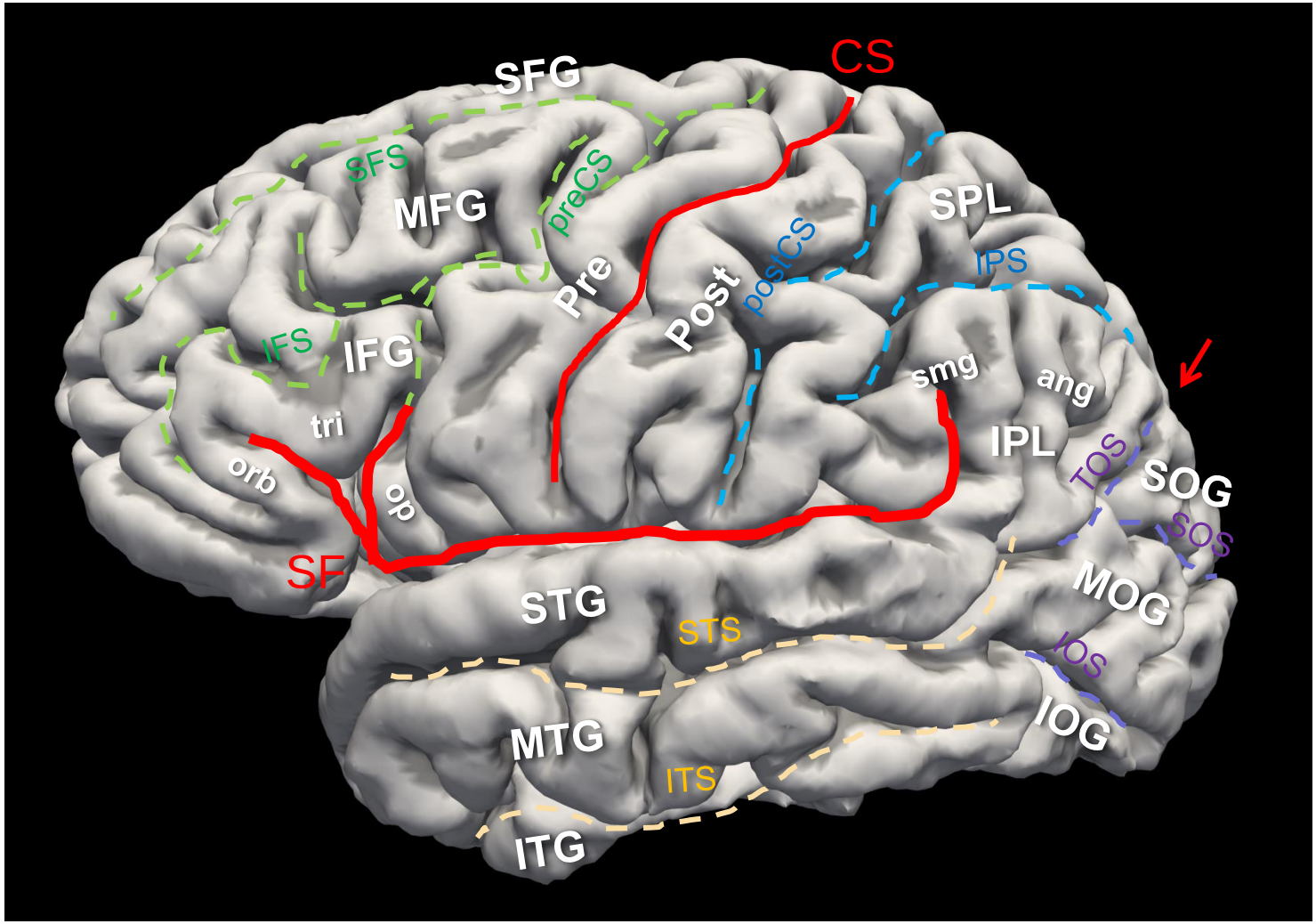
MRI 2 days later



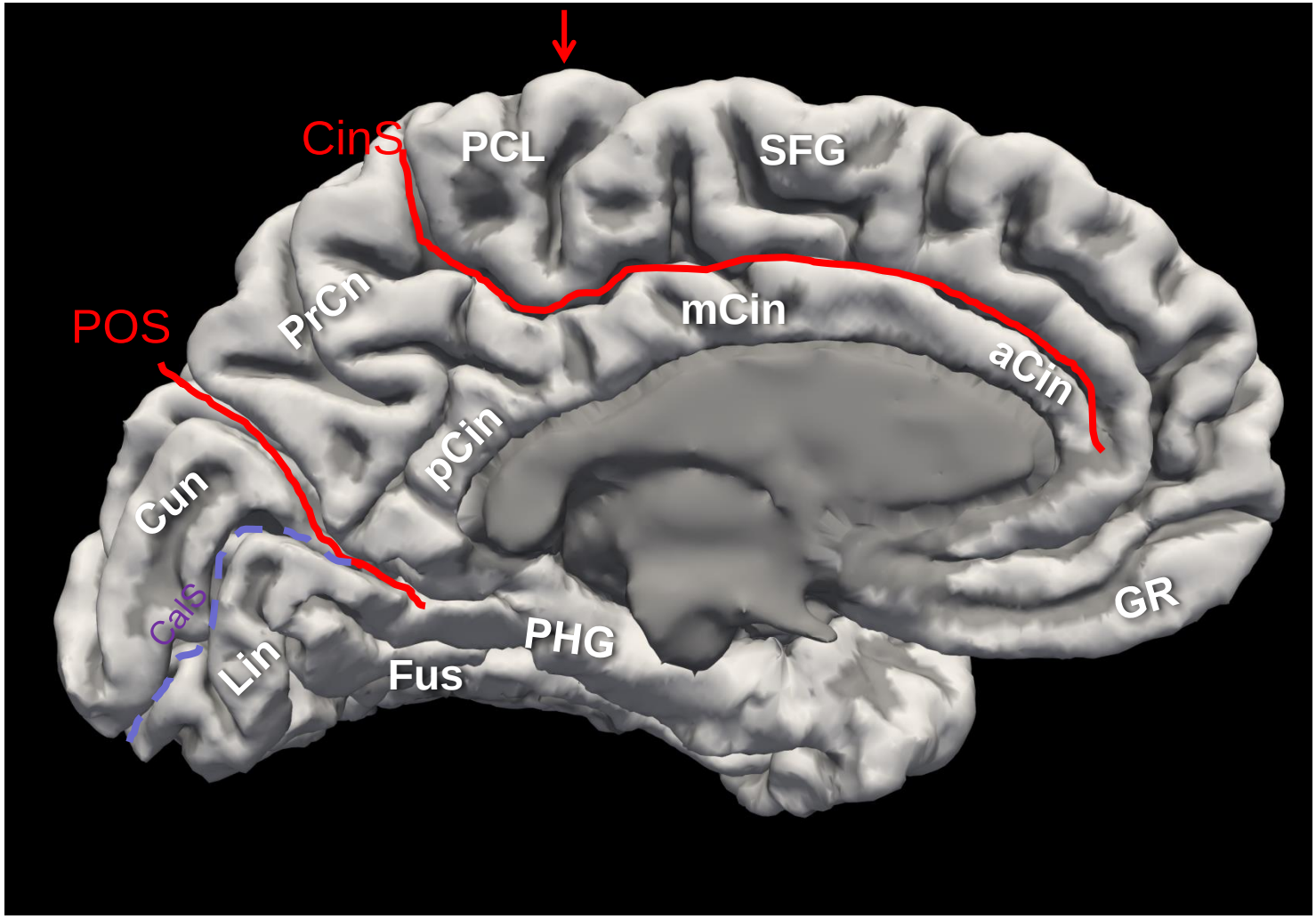
Surface Anatomy



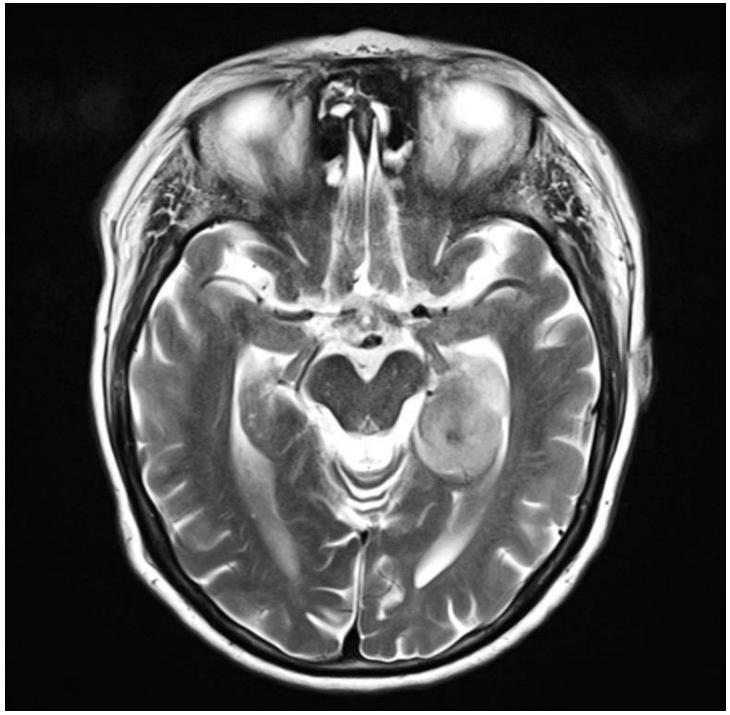
Lateral Surface

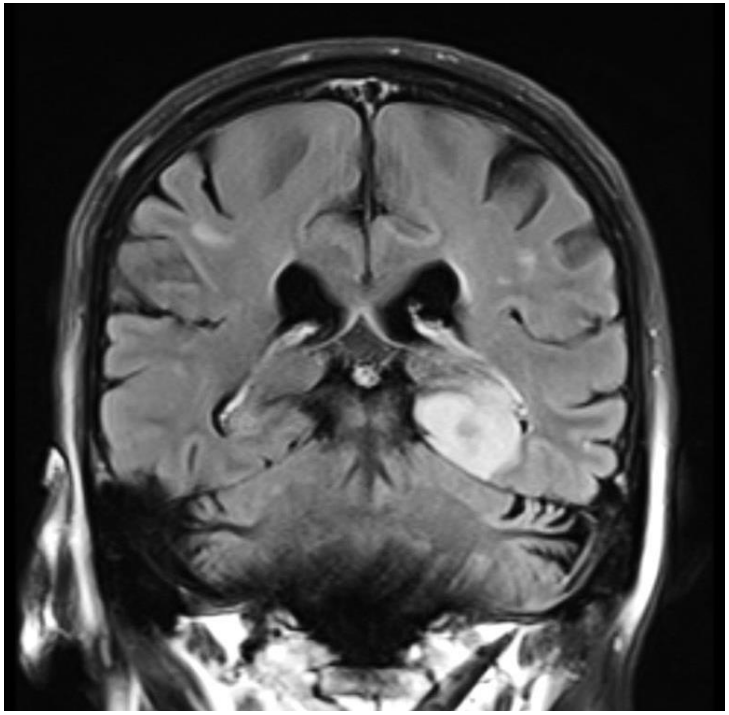


Medial Surface



Sectional anatomy: Orientation





Radiological orientation:
- upward view from the bottom / feet
- you stand in front of the subject

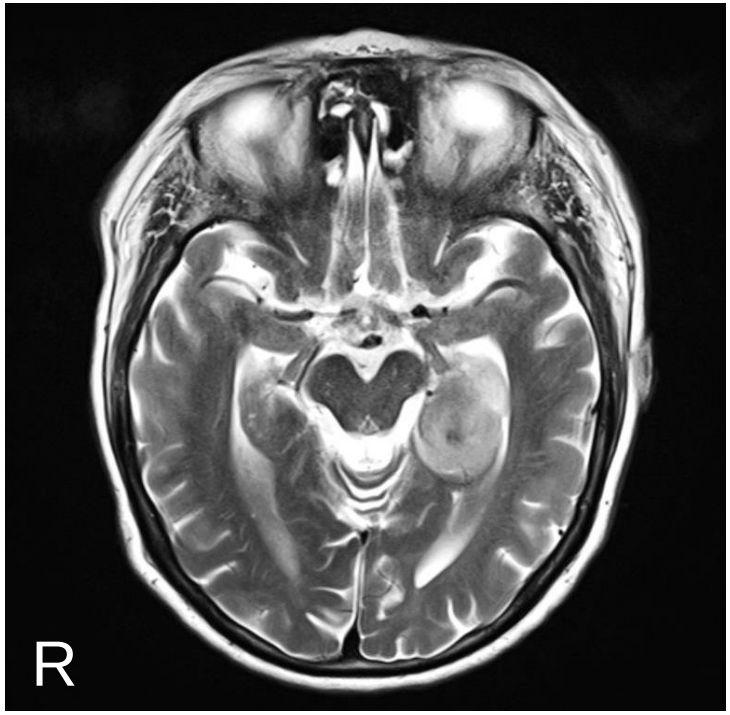
Neurological orientation:
- downward view from the top
- you stand behind the subject

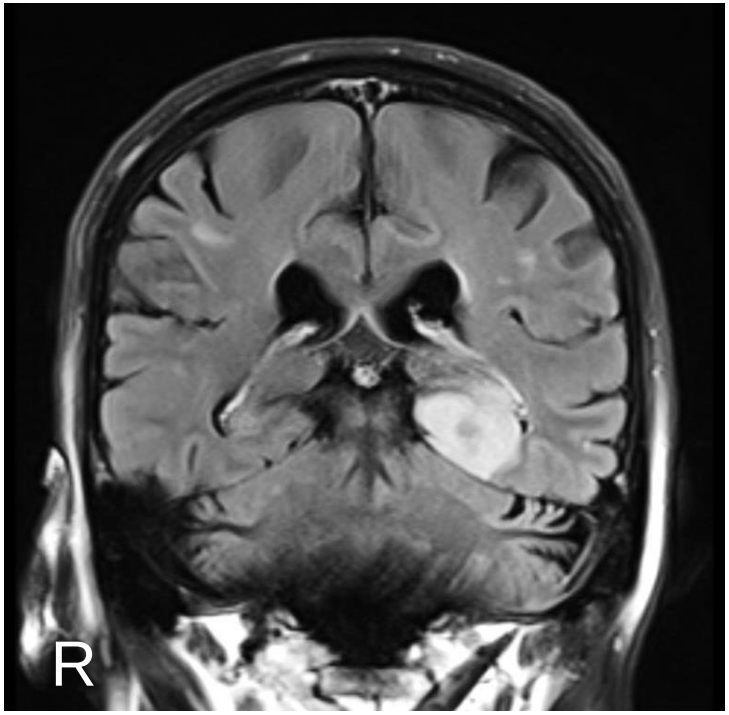
Different perspectives…

Radiologist

Neurosurgeon

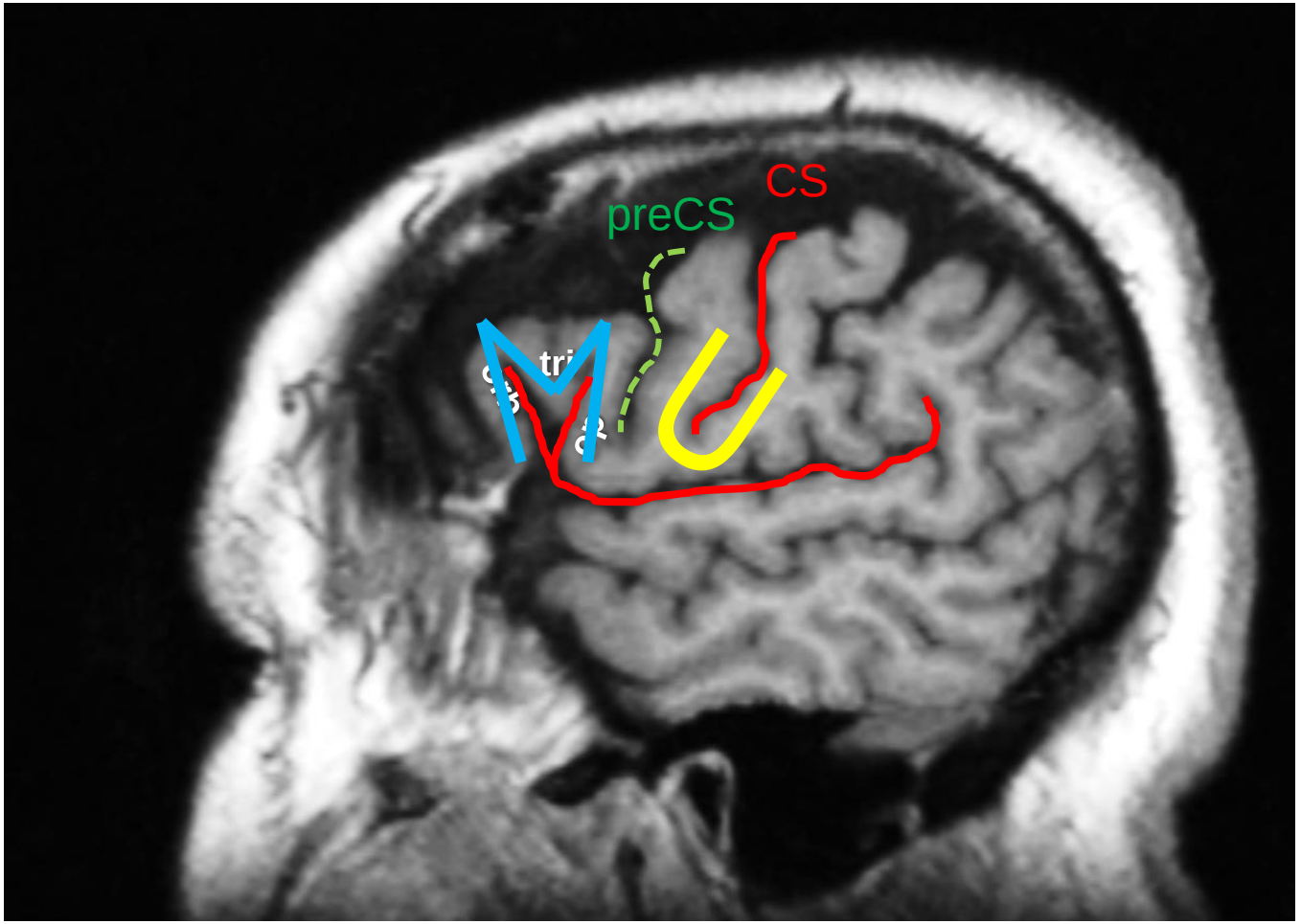
Sectional anatomy: Orientation





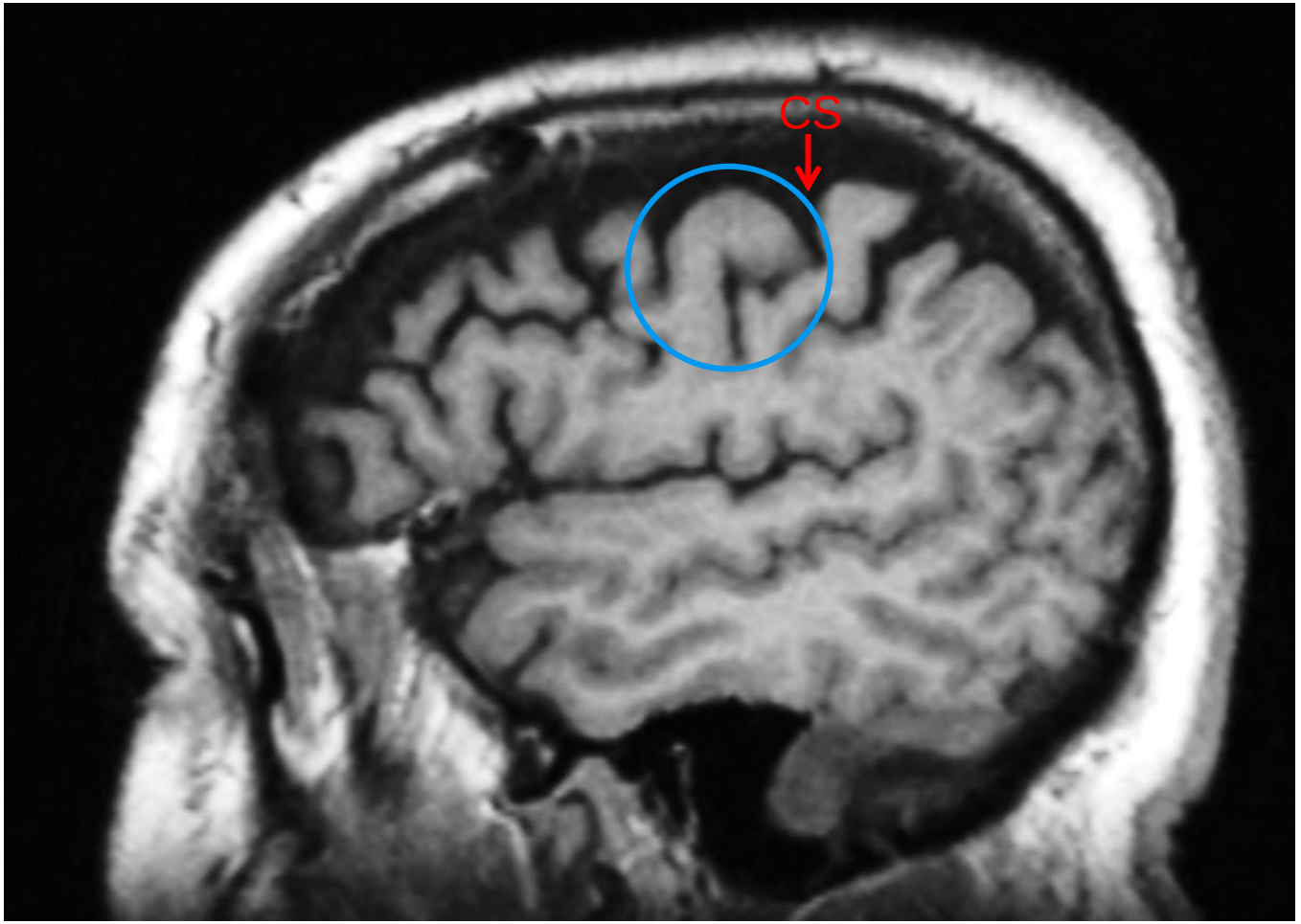
Teaching Point: Always indicate image orientation in sectional brain images.

Sagittal sections



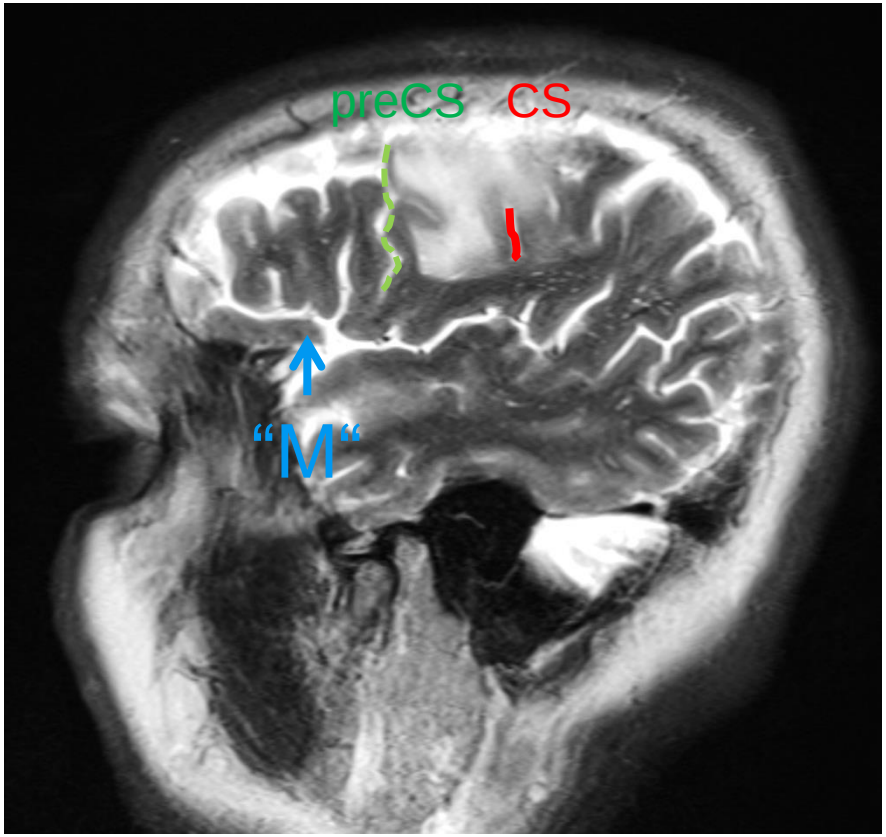
“M“-sign “U“-sign

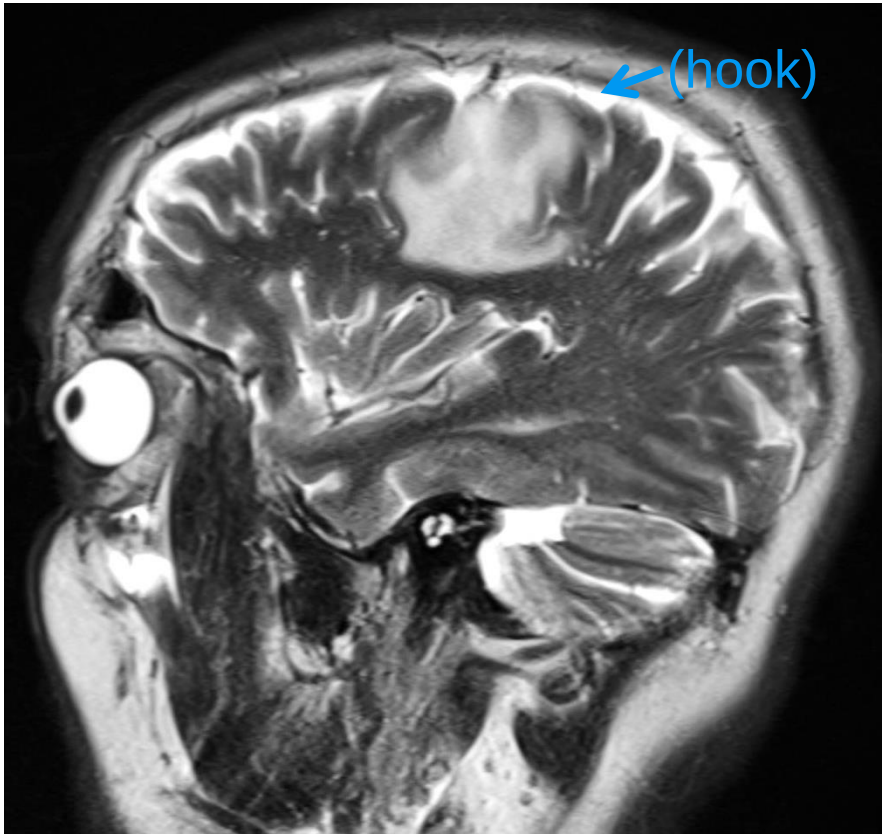
Sagittal sections



Hook-sign

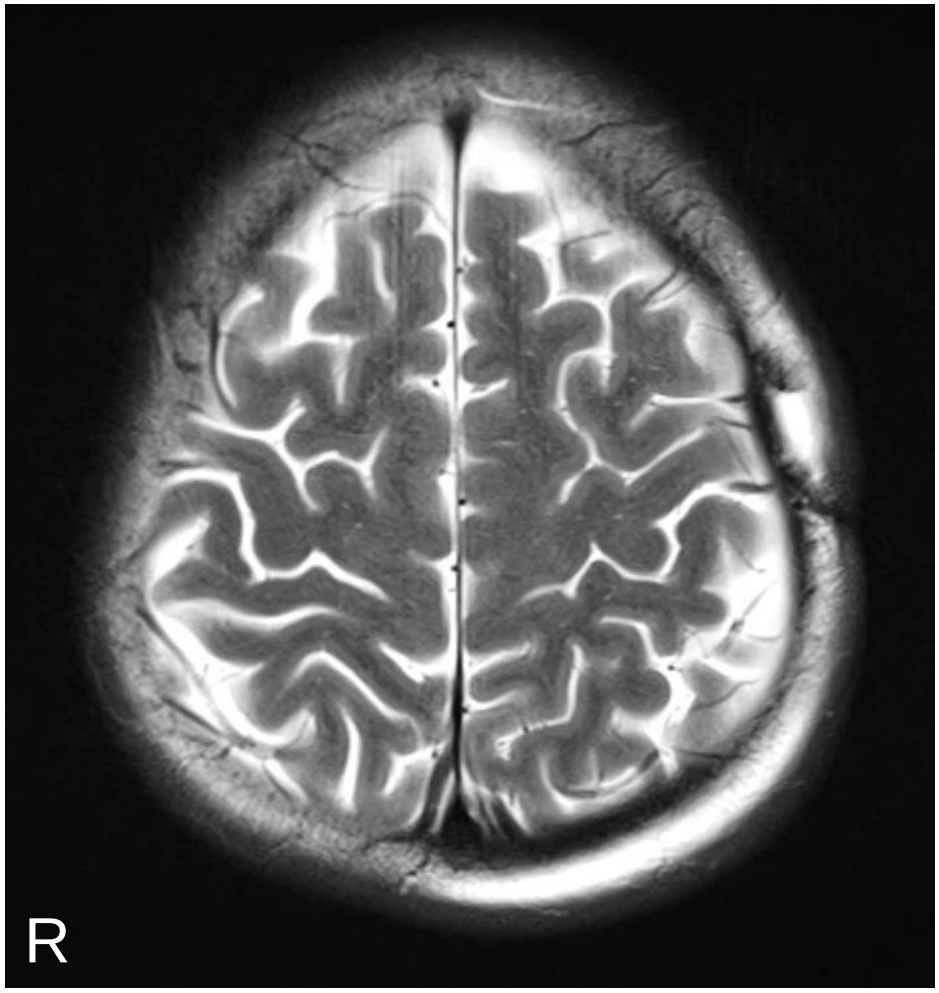
Sagittal sections





precentral glioma

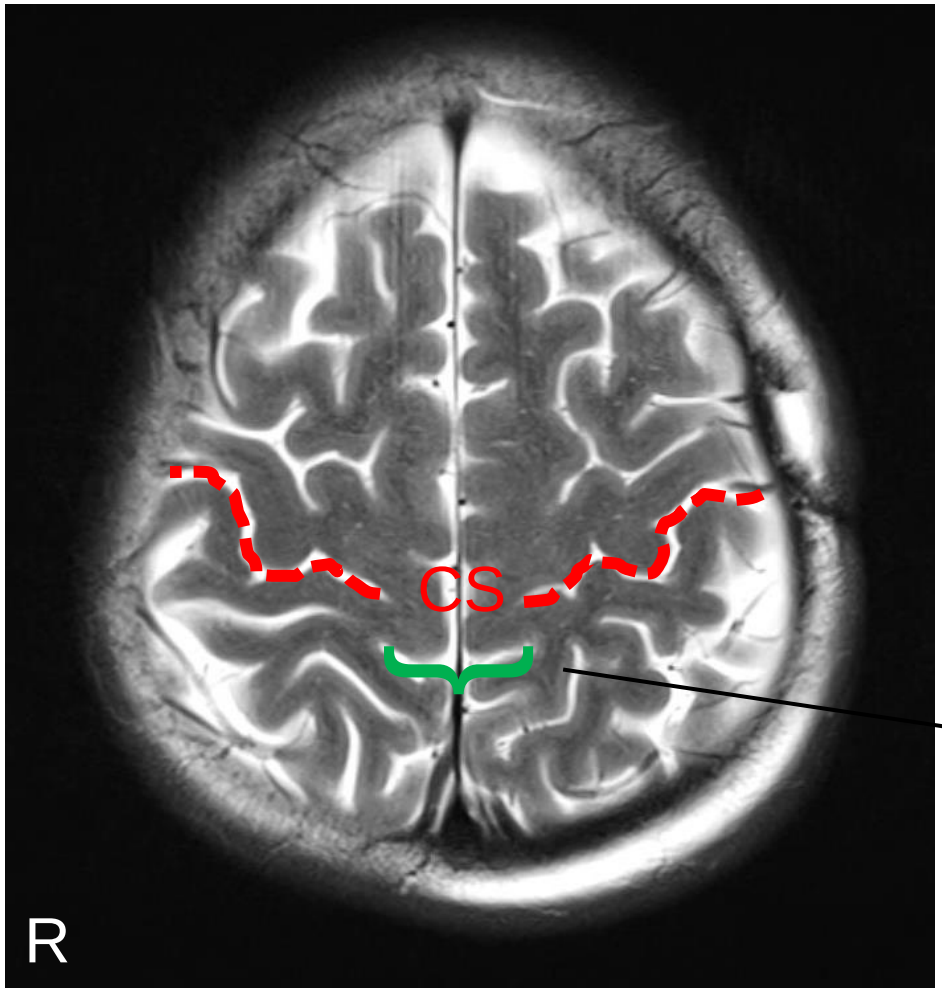
Transverse sections

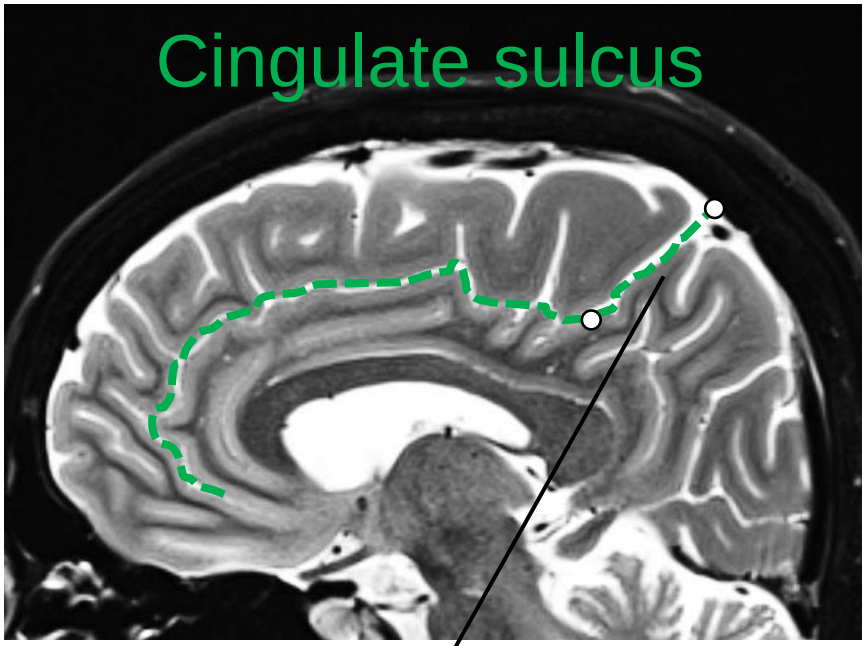


Central region

- bracket sign
- “L“ or “T“ sign
- omega or handknob sign
- thin postcentral gyrus sign

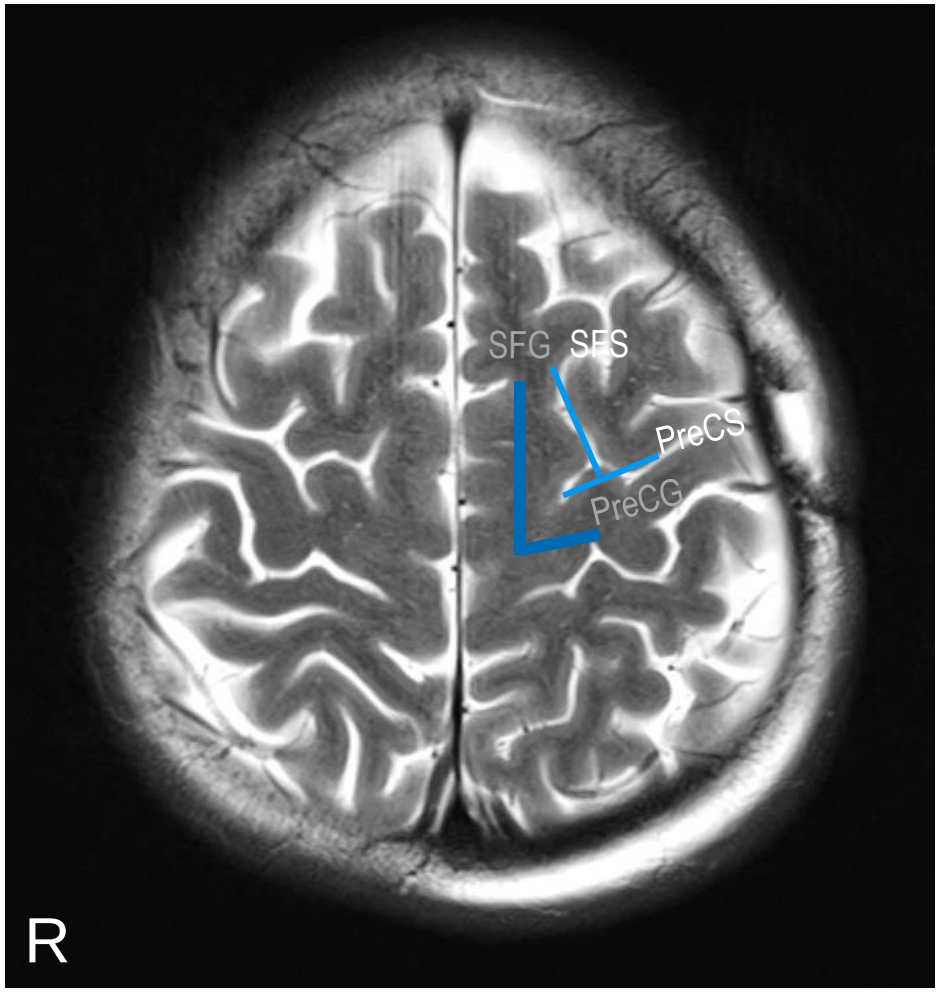
(Pars) Bracket sign





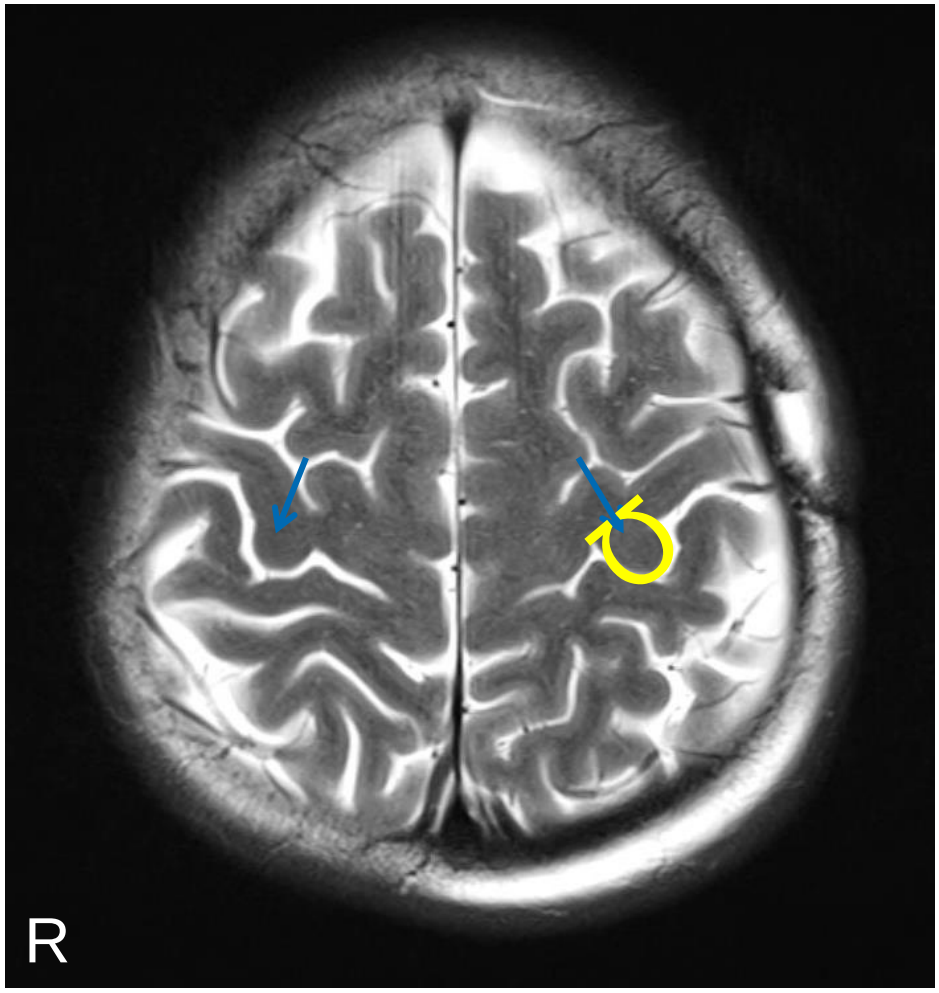
pars marginalis

“L“ or “T“ sign

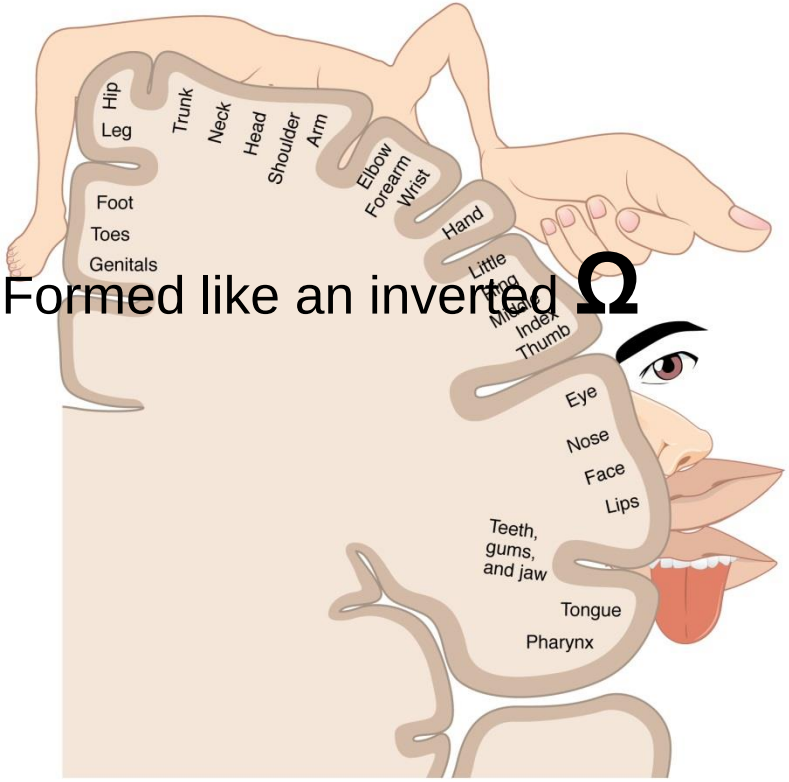


- “L“-sign: SFG merges with PreCG in form of an **L**
- “T“-sign: SFS intersects PreCS in a **T**-junction

Omega sign

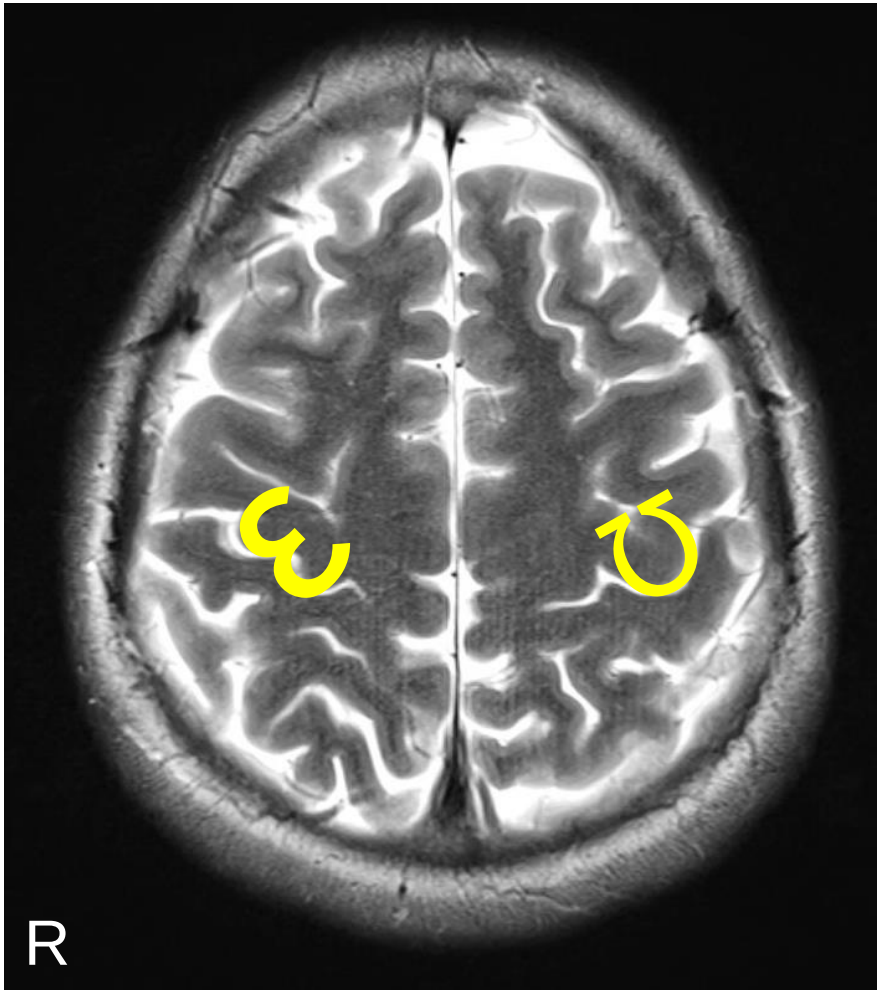


„Knob of the hand“
→ hand motor area



Formed like an inverted Ω

Omega sign… or epsilon sign

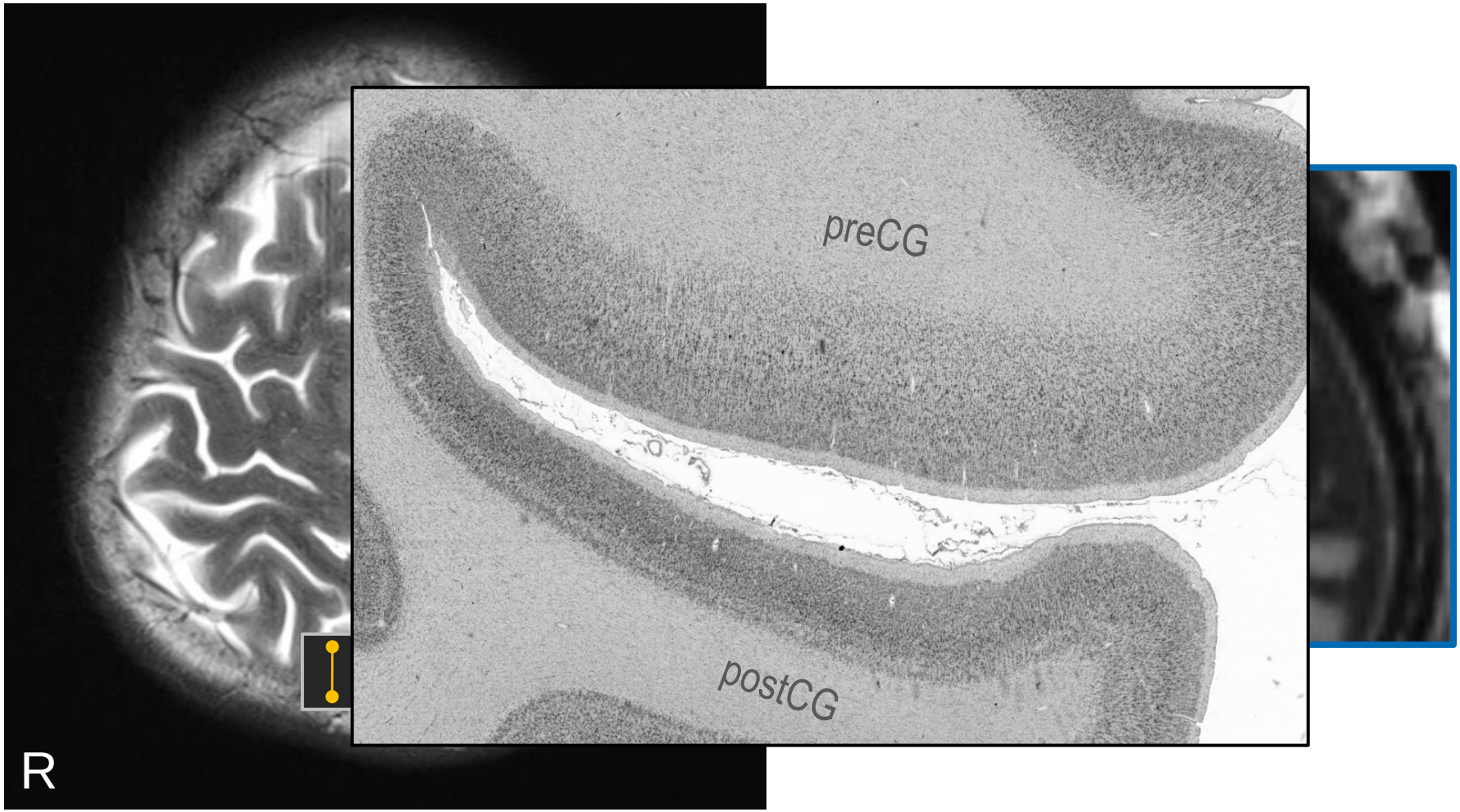


„Knob of the hand“
→ hand motor area

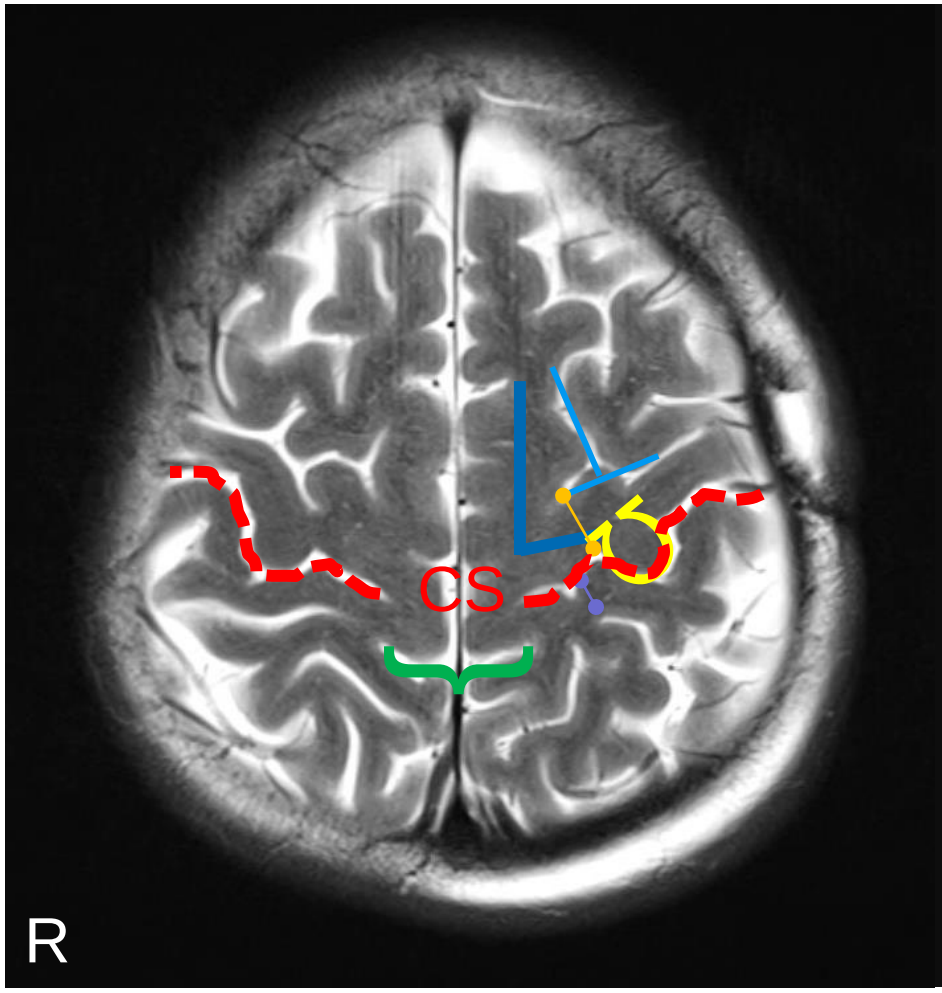
Formed like an inverted **Ω**
ca. 80%
or
Formed like a horizontal **ε**
ca. 10%

10% variants

Thin postcentral gyrus

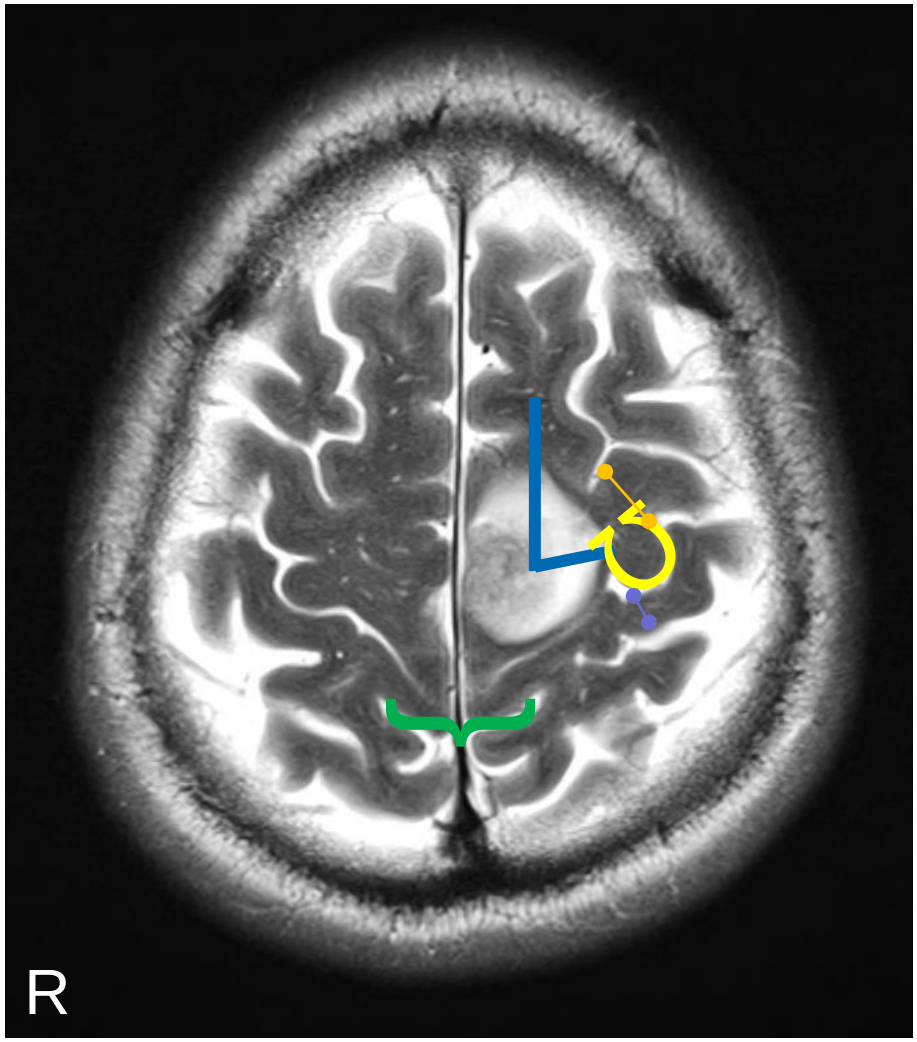


Central region

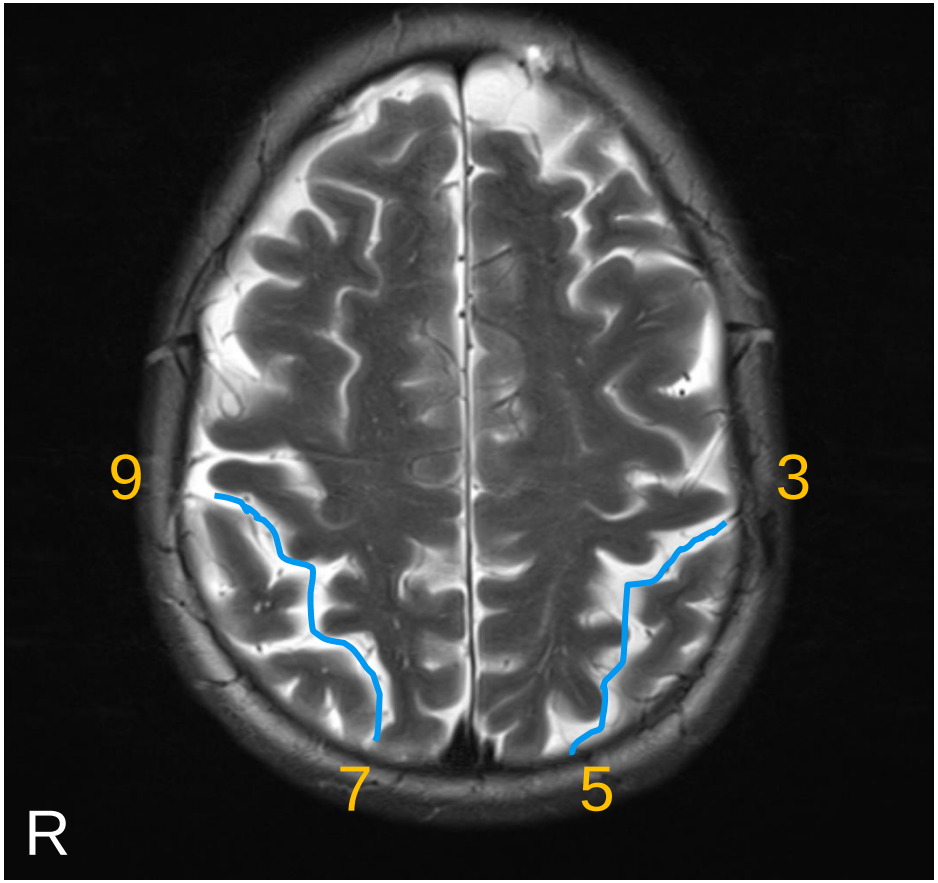


- bracket sign
- „L“ or „T“ sign
- omega or handknob sign
- thin postcentral gyrus sign

Central region: Cerebral mass

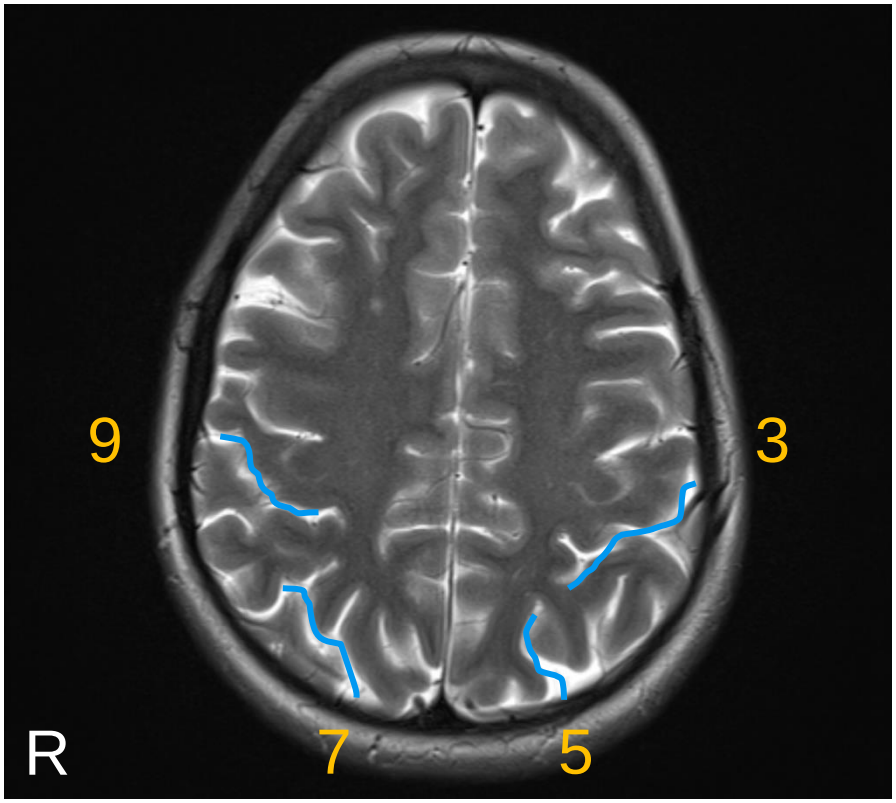


Intraparietal sulcus



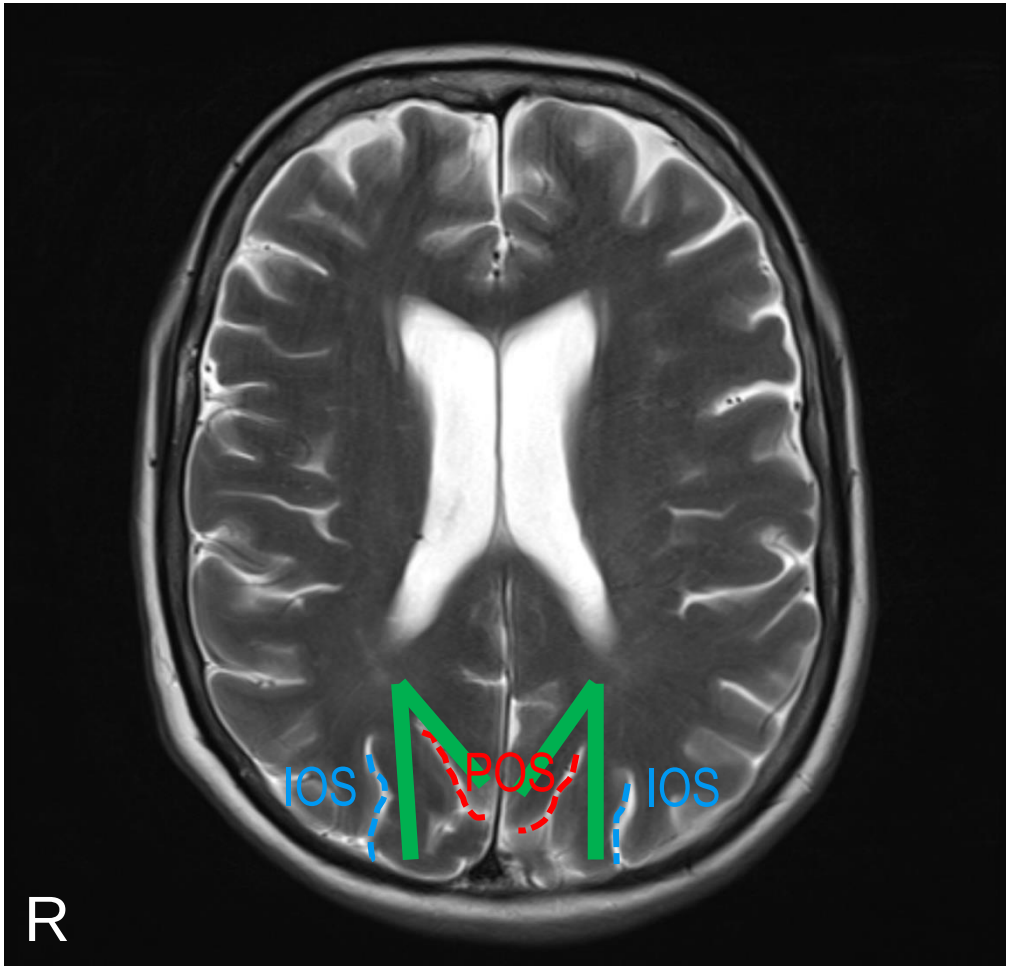
- from 3 to 5 and 7 to 9 clock-positions
- merges with postCS

Intraparietal sulcus

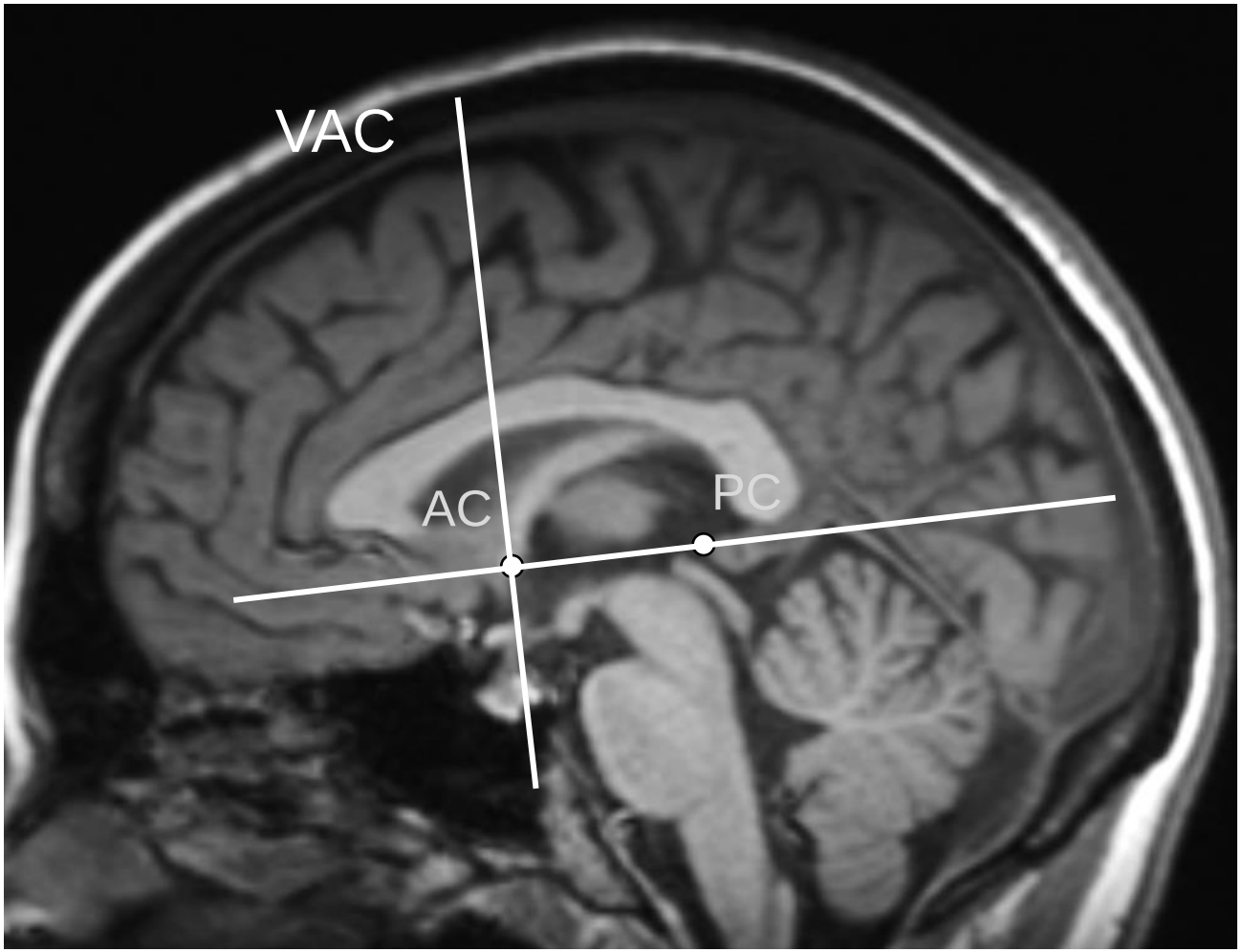


- can be separated

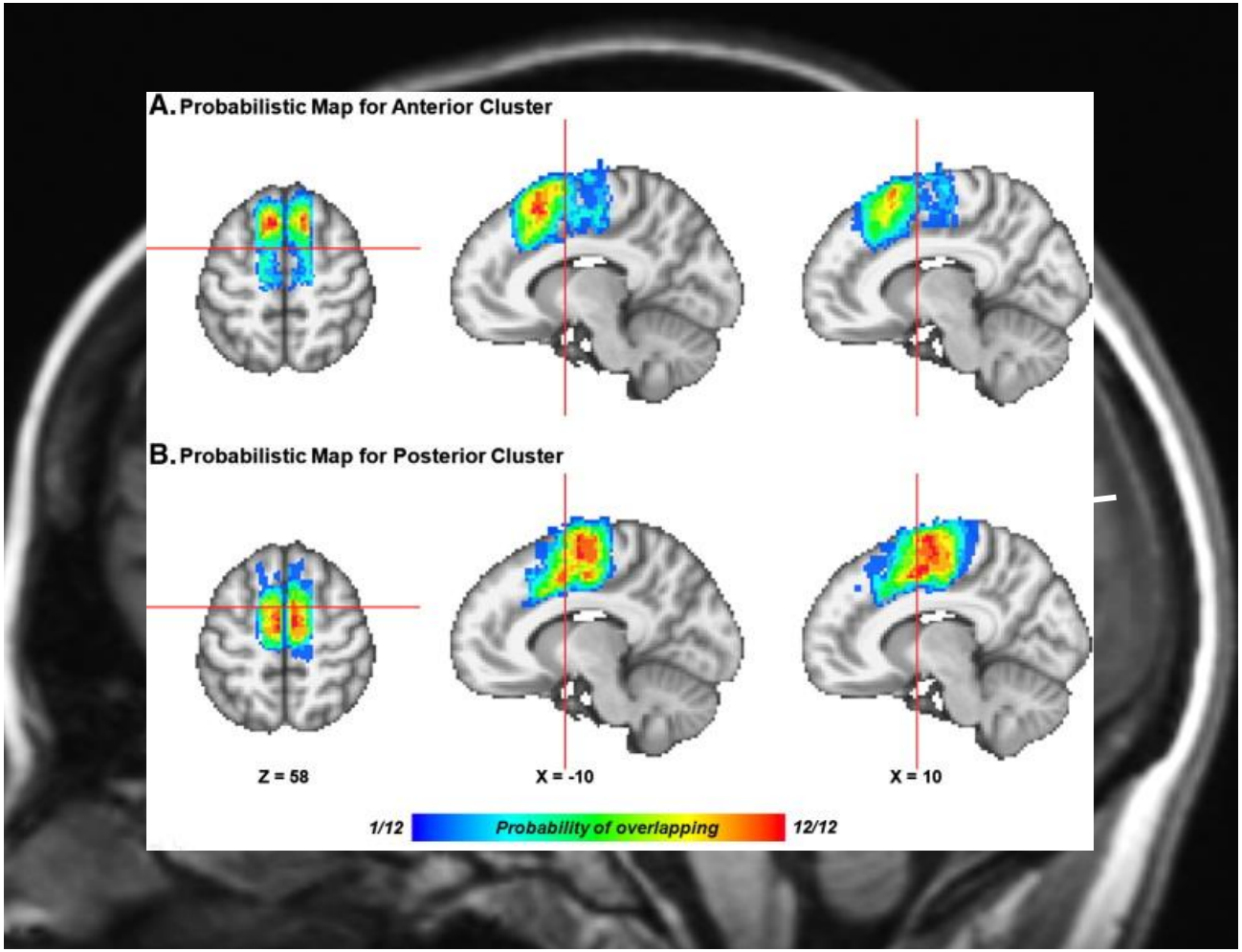
Broken letter M sign



AC-PC line

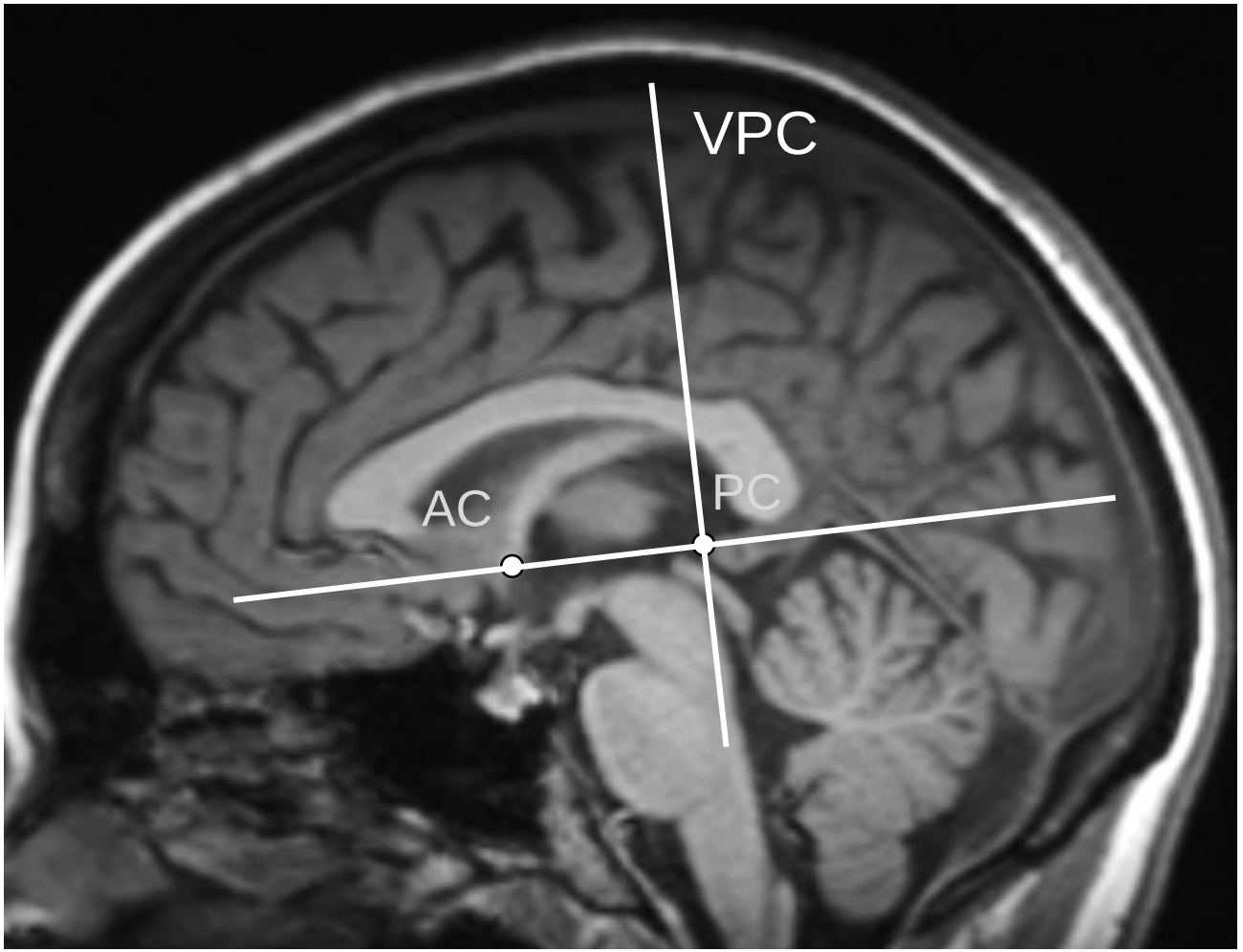


VAC line …

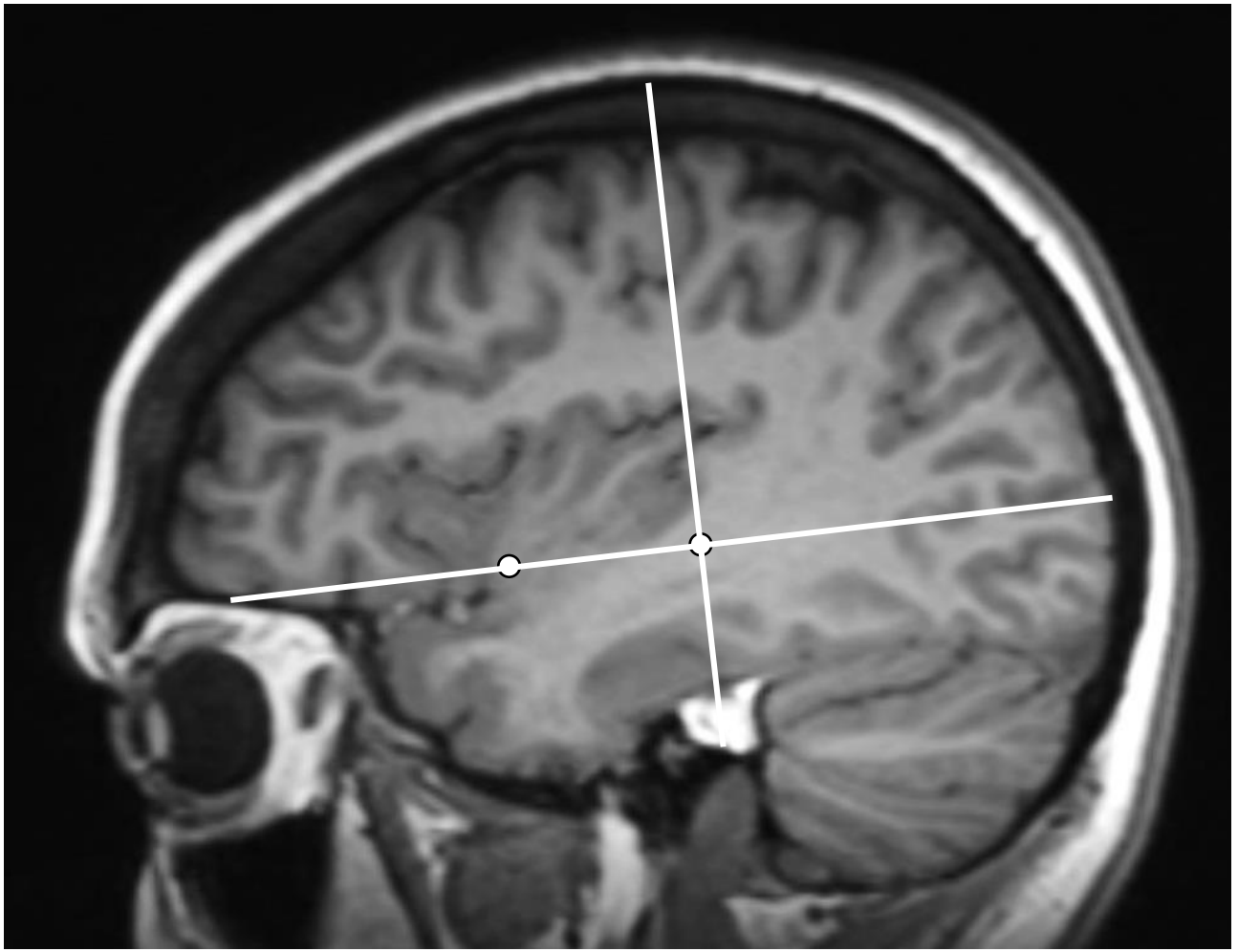


… separates SMA from pre-SMA

AC-PC line



VPC line …



… indicates posterior insular border (in 95 %)

Teaching points

- always indicate image orientation in sectional brain images
- consider slice inclination when analysing sectional images
- identify SF, CS and POS for lobar segregation
- M-sign, U-sign and hook-sign identify IFG, pre-CS and CS in sagittal sections
- bracket-sign, L- / T-sign, knob-of-the-hand and thin-postCG-sign identify CS in transverse sections
- VAC separates SMA and pre-SMA; VPC indicates posterior insular border

Thank you for your attention!