Bracket Sign

Definition

The Bracket Sign is a radiological marker described by Naidich and Brightbill (1996) to aid in the identification of the central sulcus on axial CT or MRI scans $^{1)}$.

Anatomy

The sign is formed by the **pars marginalis** of the **cingulate sulcus**, which curves dorsally in a U-shape around the posterior part of the paracentral lobule.

Appearance

• Seen on axial imaging (CT/MRI)



- Forms a structure resembling curly brackets { } or a horseshoe
- Helps locate the **central sulcus**

Clinical Importance:

- Identifies the central sulcus, critical for:
- Mapping motor and sensory cortex
- Pre-surgical planning (e.g., epilepsy, tumors)
- Evaluating cortical anatomy in abnormal brains

Summary

Type of Study: Anatomical imaging study **First Author:** Naidich TP et al. **Institutional Affiliations:** Montefiore Medical Center, Bronx **Journal:** International Journal of Neuroradiology (1996) **Purpose of the Study:** To introduce and validate the "bracket" sign of the pars marginalis as a reliable axial imaging landmark for identifying the central sulcus on CT and MRI. **Conclusions:** The pars marginalis creates a recognizable "bracket" configuration in axial imaging that can be used to locate the central sulcus with greater accuracy in both CT and MRI studies.

Critical Review

Content and Accuracy: The article provides a well-defined anatomical description of the pars marginalis as a key gyral landmark aiding central sulcus identification. This is especially pertinent in axial plane imaging, where sulcal ambiguity remains a frequent diagnostic challenge. The authors reinforce their observations with imaging figures and correlate findings across modalities. However, there is a lack of quantitative validation—no sensitivity, specificity, or interobserver variability metrics are presented. This substantially weakens the article's claims of clinical utility. Furthermore, the sample size, patient demographics, and imaging protocols are either vaguely mentioned or omitted entirely.

Structure and Clarity: The article is densely descriptive but not well-structured. The narrative drifts between anatomical exposition and imaging interpretation without clear separation. Figure legends are inadequate and some images are poorly labeled or lack consistent orientation cues, undermining interpretability for readers without a strong anatomical background.

Tone and Style: The tone is didactic and uncritical. There is an evident absence of engagement with potential pitfalls—such as age-related variability in sulcal morphology, pathological distortion, or postoperative anatomy—which limits the applicability of the findings in real-world neurosurgical or radiological practice.

Utility to Practicing Neurosurgeons: Marginal. While neurosurgeons benefit from precise sulcal localization for procedures involving motor cortex or parasagittal lesions, the paper fails to bridge the gap between radiological anatomy and operative relevance. It does not explore how the "bracket" sign holds up intraoperatively, in distorted anatomy, or in neuro-navigation systems.

Verdict

Overall Verdict: A promising anatomical observation inadequately developed into a clinically usable tool. **Takeaway for Neurosurgeons:** Know the "bracket" sign but don't rely on it in isolation—cross-check with multiple landmarks and functional mapping whenever possible. **Bottom Line:** An interesting anatomical note, not yet a robust neurosurgical aid. **Rating:** 4/10

Article Title: The pars marginalis, II: A "bracket" sign for the central sulcus in axial plane CT and MRI **Citation:** Naidich TP, Brightbill TC. *The pars marginalis, II: A "bracket" sign for the central sulcus in axial plane CT and MRI*. Int J Neuroradiol. 1996;2:3-19. **Corresponding Author Email:** *Email not provided; placeholder: tnaidich@montefiore.org* ```

References

1)

Naidich TP, Brightbill TC. The pars marginalis, I: A "bracket" sign for the central sulcus in axial plane CT and MRI. Int J Neuroradiol. 1996;2(1):3–19.

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