Transplanum Polare Approach to the Anterior Mesiotemporal Region

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Abstract

Background: The **transplanum polare approach** is a surgical technique targeting **mesiotemporal structures**, such as the **amygdala** and **hippocampus**. It presents a safer alternative to **transcortical** and **transsylvian** approaches by reducing the risk of damage to **white matter tracts**, **optic radiations**, and **vascular structures**.

Method: This approach includes a **pterional craniotomy** and selective **Sylvian fissure dissection** to access the **planum polare**. The procedure is supported by **dynamic retraction**, **neuronavigation**, and **subpial dissection**, allowing for precise lesion removal while preserving key neural and vascular elements.

Conclusion: The **transplanum polare route** minimizes surgical disruption and technical complexity, thereby improving **safety**, **efficacy**, and **patient outcomes** for **mesiotemporal lesions**.

Keywords

- Amygdalo-hippocampectomy
- Mesiotemporal lesions
- Planum polare
- Sylvian fissure

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Critical Review: Transplanum Polare Approach to the Anterior Mesiotemporal Region

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Summary

This technical note by Starnoni et al. introduces the transplanum polare approach as an alternative surgical corridor to access anterior mesiotemporal structures, particularly the amygdala and hippocampus. The authors advocate for this route as a means to reduce complications associated with traditional transcortical or transsylvian approaches, highlighting anatomical preservation and operative precision.

Strengths

Minimally disruptive corridor: The approach is carefully designed to avoid major white matter tracts, including the optic radiations, and vascular structures such as the M1 and A1 segments, which is a significant advantage over more invasive methods.

Technical elegance: The use of dynamic retraction, neuronavigation, and subpial dissection reflects an advanced microsurgical philosophy, emphasizing gentle tissue handling and precise targeting.

Conceptual clarity: The authors clearly define the surgical steps and anatomical rationale, which could be particularly valuable for educational purposes or technique adoption by other skull base neurosurgeons.

Limitations

Lack of clinical data: The article appears to be descriptive and technique-focused, with no robust patient series or outcome metrics provided. There is no discussion of operative time, extent of resection, neurological outcomes, or complication rates.

Comparative effectiveness not addressed: While the authors claim reduced risk compared to other routes, this is not supported by direct comparison or statistical analysis. The superiority of this approach remains theoretical or anecdotal.

Generalizability concerns: The procedure may require substantial expertise in anterior skull base surgery and Sylvian fissure dissection. Its reproducibility among general neurosurgeons or in lower-resource settings is questionable.

No mention of indications or limitations: The manuscript lacks clear guidelines on when this approach should be preferred over others (e.g., tumor size, medial-lateral extent, prior surgery, or vascular proximity), limiting its immediate practical application.

Conclusion

The transplanum polare approach represents a conceptually appealing and technically refined method for addressing anterior mesiotemporal lesions. However, its clinical value remains speculative in the absence of outcome data or comparative trials. The technique is promising, but further prospective studies, ideally with quantitative endpoints, are needed to validate its safety and efficacy over conventional approaches.

Recommendations for Future Research

A prospective cohort study comparing transplanum polare vs. transsylvian and transcortical routes in terms of operative metrics, seizure control (if applied in epilepsy surgery), neuropsychological outcomes, and complication rates.

Anatomical cadaveric studies with tractography overlays to further support the claim of white matter preservation.

A multi-center feasibility and reproducibility assessment to evaluate training needs and learning curves.