Introduction

- The transtentorial extension of the retrosigmoid approach allows for a significant improvement in exposure of the brainstem and petroclival region.
- There are no published studies that quantify the additional exposure obtained from this modification.

Aim

- Using cadaver dissections, the goal of this study was to quantify the benefits of tentorial transection in the retrosigmoid approach. Most importantly, this study aimed to clarify the direction and magnitude of additional exposure that is provided by this maneuver.

Methods

- Five preserved cadaveric heads were dissected with the operating microscope as well as with endoscopic assistance. Frameless stereotaxy was used to record the three-dimensional limits of the surgical approach before and after tentorial transection.

Results

- Tentorial transection significantly increased the anterior extent of exposure by 20.1mm (p<0.01).
- Medial exposure was significantly increased by 13mm (p<0.01).
- There was no significant difference in the extent of superior or lateral exposure following tentorial transection.
- The surgical working distance significantly increased from 68.8mm to 90.3mm (p<0.01).

Conclusions

- Tentorial transection significantly improves anteromedial exposure without significant improvement in superolateral exposure.

Acknowledgements

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References

[1] Thomas A Ostergard, MD, MS.; Chad A. Glenn, MD.; Simone E Dekker, MD PhD; Jonathan R. Pace, MD; Nicholas C. Bambakis, MD

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Figure 1: Three dimensional reconstructions with overlays of data from frameless navigation. The boundaries of exposure from a traditional retrosigmoid are seen in blue. Following tentorial transection, the new boundaries of the exposure can be seen in red.

Figure 2a: Operating microscope view of a retrosigmoid dissection seen before tentorial transection. The trochlear (IV) nerve and trigeminal (V) nerve are seen adjacent to the superior cerebellar artery (SCA).

Figure 2b: A tentorial flap has been created. Care must be taken to preserve the trochlear nerve. There is a natural tendency to follow the angle of the petrous face as the cut is made medially, which limits the extent of anterior exposure.

Figure 2c: Operative view immediately after tentorial transection with preservation of the trochlear nerve.

Figure 2d: Simulated view to illustrate the relevant anatomical structures during this approach.