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Surgical Significance and Management of the Anterior Tentorial Folds

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Introduction

As the tentorium curves anteromedially, it gives rise to several ligaments or folds of dura that collectively form a complex architecture around critical neurovascular structures in the sellar region. We describe the surgical significance of this dural architecture and strategies for managing these folds in a number of different surgical windows.

Methods

Anterior and anterolateral approaches were performed on cadaveric heads to explore the anterior, posterior, and inter- clinoid folds and their correlating anatomy; proximal and distal dural rings; carotid collar; and the falciform, petrosphinoidal, and petrolingual ligaments. The management of each of these structures is evaluated in each approach and described accordingly.

Results

The anterior, posterior, and inter- petroclinoid folds span between the anterior and posterior clinoid processes and the petrous apex. The anterior petroclinoid fold is encountered when approaching the perisellar area from anterior or anterolateral, whereas the posterior petroclinoid fold is seen when approaching from laterally through a subtemporal approach or posterior through a combined transtentorial approach. The surgical management of these folds depends entirely on the direction from which they are approached.

Conclusions

Understanding the tentorial folds is essential for safely navigating the complex and tightly packed neurovasculature of the anterior and middle skull base and maximizing surgical exposure. Surgical manipulation of these structures can allow for mobilization of the internal carotid artery, exposure of the carotid cave, opening the carotid-oculomotor or opticocarotid window, and exposure of the perisellar area from multiple surgical perspectives.

Learning Objectives

By the conclusion of this session, participants should be able to better understand the anterior tentorial folds.