



The Interpeduncular Fossa as Seen Through Different Surgical Windows: An Extensive Anatomical Study

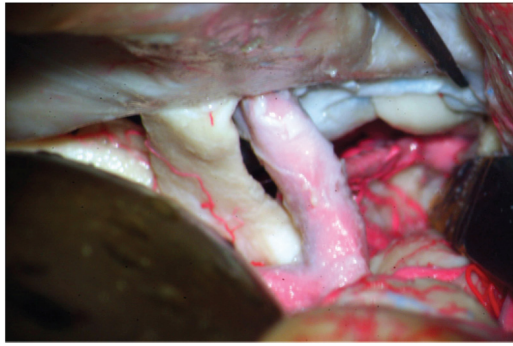
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Introduction

Surgical access to the interpeduncular fossa and retrosellar area remains a challenge for neurosurgeons due to the narrow surgical corridors that inhibit anatomical exposure and the complex vasculature. We describe the surgical anatomy of the interpeduncular fossa and retrosellar area as observed through a series of neurosurgical approaches and evaluate exposure and maneuverability achieved by each approach.

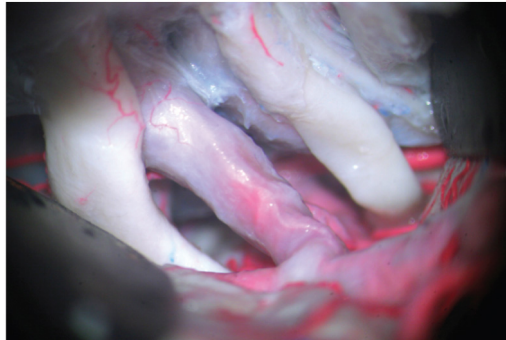
Pterional Approach



Pterional Approach with Posterior Clinoidectomy



Orbito-Zygomatic Approach with Pericavernous Modification

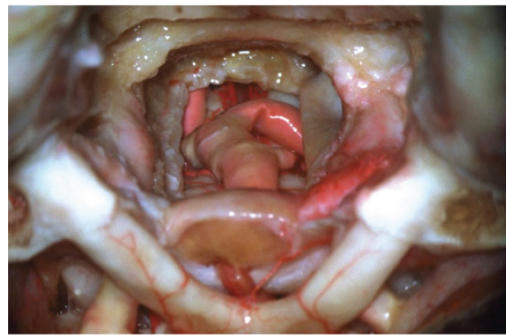


Pericavernous modification involves anterior and posterior clinoidectomies, incision of the distal dural ring, and opening of the porus oculomotoris.

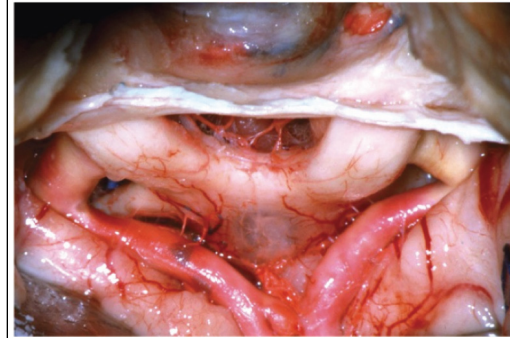
Methods

Anterior (bifrontal and unifrontal transbasal), anterolateral (pterional and orbitozygomatic with and without anterior and/or posterior clinoidectomies), lateral (extradural subtemporal, and extended middle fossa), and posterolateral approaches (retrosigmoid approach and combined transtentorial) were performed on 10 cadaveric heads (20 sides). Exposure and surgical maneuverability was qualitatively graded for each approach by 3 surgeons.

Bifrontal Transbasal Approach



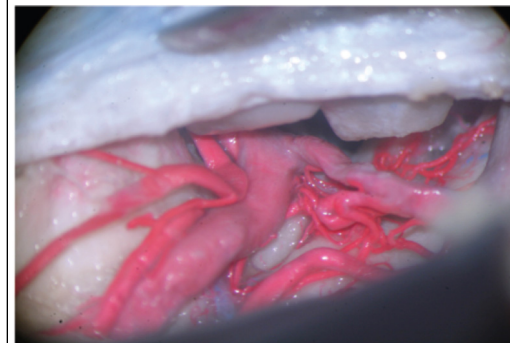
Bifrontal Transbasal Approach



Results

The anterior approaches provided wide exposure of the region but the deep trajectory and the number of neurovascular structures encountered limited maneuverability whereas the anterolateral approaches offered adequate visualization and maneuverability of the surgical targets. Though, the narrow surgical corridors provided by the pterional and orbito-zygomatic approaches without the pericavernous modification did not offer the same surgical maneuverability. The lateral approaches required significant cerebral retraction, but the

Subtemporal Approach



subtemporal approach provided the most direct corridor to the basilar apex. The retrosigmoid approach provided limited visualization of the interpeduncular fossa but good visualization of the region lateral to CN III, although it provided deep corridors and limited surgical access.

The surgical route used relies upon:

Size of the lesion

Nature of the lesion

General location of the lesion

The capability of the approach to expose the area of interest

Conclusions

We objectively evaluated the exposure of the interpeduncular fossa and dorsum sellae region afforded by each of the most suitable surgical avenues to access this region. The surgical route used must rely on the size, nature, and general location of the lesion, as well as on the capability of the particular approach to better expose the area of interest.