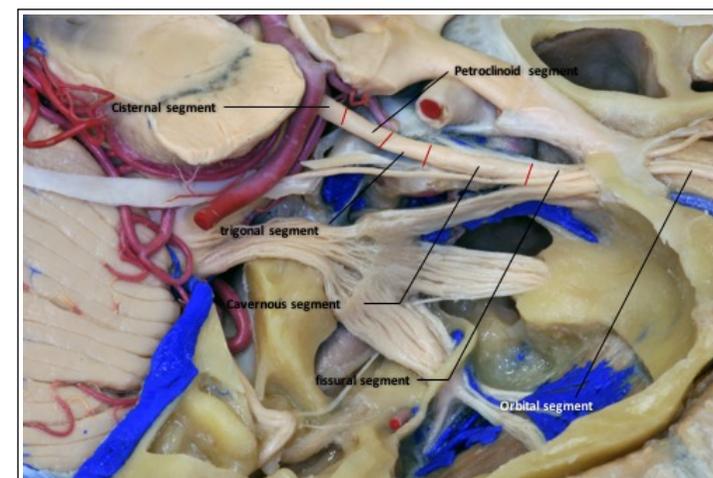


Introduction

The oculomotor nerve exits the brainstem from the interpeduncular fossa of the midbrain, passes through the lateral wall of the cavernous sinus, and enters the orbit via the superior orbital fissure.

Methods

Ten cadaveric heads were examined using $\times 3$ to $\times 40$ magnification after the arteries and veins were injected with colored silicone. Both sides of each cadaveric head were dissected using different skull base approaches



The segments of the oculomotor nerve

Intramesencephalic segment -- from nucleus to the point of exit of the nerve

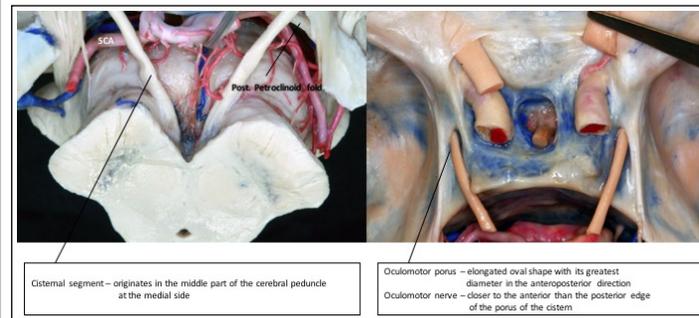
interpeduncular cisternal segment -- from the exit point of the nerve in the medial side of cerebral peduncle

to the

posterior petroclinoid fold

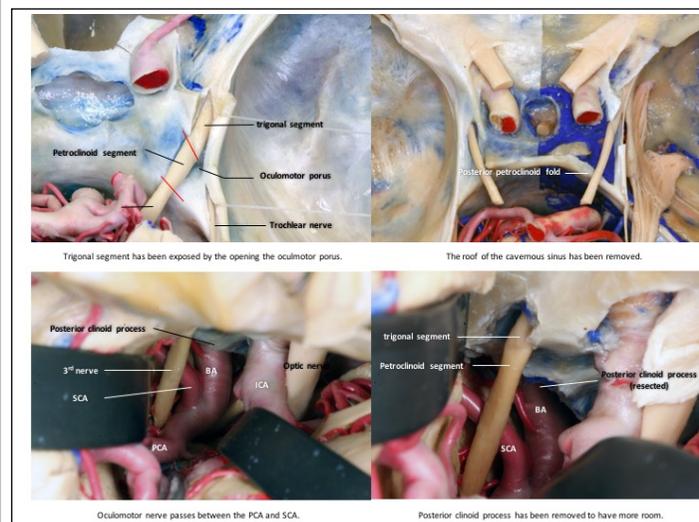
Petroclinoid segment -- from the posterior petroclinoid fold to oculomotor porus of the roof of cavernous sinus

Trigonal segment -- from the oculomotor porus to the point which nerve incorporates into the lateral wall of CS



Petroclinoid segment -- located in between the cisternal segment and the cavernous segment proximal to the oculomotor cistern, passes over the oculomotor triangle and is exposed to damage during the posterior clinoid drilling procedure.

Trigonal segment -- accompanied by a CSF-filled arachnoid-lined dural cuff, the oculomotor cistern, and includes entry dural point : main fixation point of the nerve.



Results

The petroclinoid segment is located between the cisternal and trigonal segment. This segment is proximal to the oculomotor porus, located in the roof of the cavernous sinus near the center of the oculomotor triangle. This segment of the oculomotor nerve is limited posteriorly by the posterior petroclinoid fold and anteriorly by the oculomotor porus of the roof of the cavernous sinus. The length and diameter of this segment average 4.9 mm (range, 3.6 – 6.2 mm) and 2.3 mm (range, 1.7 – 2.9 mm), respectively. The petroclinoid segment may be especially susceptible to damage when the brainstem shifts downward at the moment of head injury. The mechanisms of damage could be ascribed to the partial tearing of the parasympathetic fibers contused against the posterior clinoid or the interclinoid ligament

Conclusions

Care should be taken to preserve this segment during the posterior clinoid drilling procedure to have more room for entering the posterior fossa and clival areas.

References

Learning Objectives

To know the detailed microsurgical anatomy of the petroclinoid segment of the oculomotor nerve.