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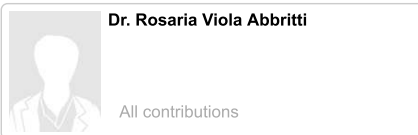
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Anatomical study of the transclival approach with a particular focus on the intracranial segments of the VI cranial nerve and its 'blind angles'

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Anatomical study of the transclival approach with a particular focus on the intracranial segments of the VI cranial nerve and its 'blind angles'

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Background: Clival region could be involved by lesions of sellar and suprasellar areas, foramen magnum, craniocervical junction, middle cranial fossa, tentorium, and cerebellopontine angle. The endoscopic endonasal transclival approaches represent a challenging surgical paradigm. One of the major limit of such approaches is represented by the lateral extension of the lesion to be treated with the difficulty to reach the so called 'blind angles'. The main neuronal structure that can be damaged during the transclival (upper and middle clivus) approach is the abducens nerve.

The aim of this study is to demonstrate the maximal extent and degree of endoscopic exposure of the cisternal, gulfar, and cavernous segment of the sixth cranial nerve, and the quantitative and qualitative relationships with Dorello's canal and sphenopetroclival venous gulf, the most lateral extension of the transclival approach related to the petroclival region, which blind angles can be reached, how they limit the approach, and finally how to technically avoid abducens nerve injury.

Methods: Human cadaveric heads were prepared and injected for endoscopic dissection. Additionally, we used imaging softwares for the anatomical reconstructions, which were compared with the actual anatomy of the endoscopic view.

Results: The lateral extension of the upper clivus approach allowed the exposure and the visualization of these two segments of the abducens nerve, their 'blind angles' and the relationship with Dorello's canal and sphenopetroclival venous gulf. Therefore, during the midclivus endoscopic approach we analyzed the degree of visualization and exposure of the cisternal and interdural segments, the relationship between the nerve and the components of the petroclival area, which 'blind angles' can be achieved and how they influence and limit the approach.

Conclusion: We demonstrate the maximal extent and degree of endoscopic exposure of the sixth cranial nerve, and the quantitative and qualitative relations with Dorello's canal and sphenopetroclival venous gulf

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