

ABSTRACT

THE TROCHLEAR NERVE: MICROANATOMIC AND ENDOSCOPIC STUDY.

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OBJECTIVE: The aim of the present study was to assess the anatomy of the trochlear nerve and to describe its entire course from the brainstem to the orbit. The purpose was to study the connective and neurovascular relationships of the nerve through both endoscopic and microscopic perspectives. A comprehensive anatomically and clinically oriented classification of its different segments has been proposed.

METHODS: 10 human cadaveric fixed heads (20 specimens) were used for the dissection process. The vascular system was injected with colored latex and a CT-scan was carried out on every head. Median supracerebellar infratentorial, subtemporal, fronto-temporo-orbito-zygomatic and endoscopic endonasal approaches were performed to expose the entire pathway of nerve. A navigation system was used during the dissection process to perform all the measurements.

RESULTS: The trochlear nerve was divided into five segments: cisternal, tentorial, cavernous, fissural and orbital. The combination of endoscopic endonasal, transcranial and endoscope assisted microneurosurgical techniques provide a complete, exhaustive and detailed approach to the surgical anatomy of the trochlear nerve.

CONCLUSIONS: An anatomical, clinically and surgically oriented five-segment classification of the trochlear nerve is proposed. Microscopic, endoscopic endonasal and endoscope assisted microneurosurgical techniques allow both exhaustive anatomical analysis of each segment of the nerve and comprehensive understanding of its intra- and extracranial course. The clinical and surgical considerations of each nerve's segment and their relation with the anatomical observations are the basis for a valid classification. We suggest the neurosurgeon accessing the supracerebellar region, middle fossa and orbit to know this information to avoid trochlear nerve lesions.

NOTE:

Dear tribunal:

I present my candidature for 2010 edition of "Premi de Recerca per a Estudiants GEMMA ROSELL I ROMERO". I have contributed actively in the design of the project, the Pubmed research, dissection process and the writing and editing of the scientific article that our group will send shortly to a peer review international journal. This work has been done as an academic optional activity within a research project directed by Prof. Prats-Galino.