

## Medial wall of the cavernous sinus: dural or fibrous layer?

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To the Editor:

I read with great interest the article by Gonçalves et al. “Cavernous sinus medial wall: dural or fibrous layer? Systematic review of the literature” [4], recently published in your journal. As the authors of this article found a variation among several studies without conclusive answer to their research question, I would like to provide some comments on their study and highlight a possible explanation for their results.

Gonçalves et al. conducted a systematic literature review to find out the microanatomy of the medial wall of the cavernous sinus (CS) and its clinical importance on sellar pathologies. Based on 14 experimental studies, four studies found that the medial wall of the CS is composed of a loose, fibrous structure, and according to ten studies, medial wall is composed of a dural layer that constitutes the lateral wall of the sella. They explain the variation in the results section by lacking in definition standards and methodological criteria.

First, I am grateful for the Gonçalves et al. methodology in their article as they support and establish a step toward the concept of evidence-based morphology [1, 3]. The articles based on this concept are still rare in neurosurgical literature, yet available data about the anatomy, especially in the terms of variation, can be obtained from this kind of study. It can also highlight a hidden anatomical problem that can be utilized to refine the neurosurgical approaches seen in Gonçalves et al. work and in the comments on their paper.

With regard to medial wall of the CS, to make it understandable, I believe it should always be divided into two parts; sphenoidal and sellar. Even though, at the sphenoidal part there is one layer of dura (osteoperiosteal dura) that adheres to the bone and forms the inferomedial wall of the cavernous space.

At the sellar part or the superior medial wall, I do not believe that there is any dural layer that belongs to the CS itself or to the CS as an anatomical entity. To clarify this point, and to give an explanation to that type of anatomical variation which Gonçalves et al. found in several studies, there are two facts we need to keep in mind; first, the CS is an extradural anatomical entity [5, 6]. The hypophysis compartment is isolated from all surrounding structures by what is called the pituitary bag. A detailed description of the pituitary bag was reported by François et al. using electron microscopic-based methodology [2]. Having said that, we can make a more useful conclusion with regard to the medial wall of the CS; there is no dural layer for superior medial wall of the CS itself. The dural layer that have been reported belong to the pituitary bag and was misinterpreted as it belongs to the CS itself according to some studies. Furthermore, this explains the presence of easy surgical cleavage plane between the medial wall and the suprasellar dura (diaphragma sellae) that was reported by Professor Kawase in his comment at the end Gonçalves et al. paper.

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