



Letter to the Editor: Pituitary tumors and oculomotor cistern

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I read the above-mentioned manuscript with interest as it deals with a subject of our clinical interest [15].

The authors discuss their surgical strategy on “multi-lobulated” pituitary tumors that extend into the oculomotor cistern. The authors mention that this pattern of extension of pituitary tumors has only recently been described and have cited three relevant references. It is unfortunate that the authors did not locate our several PubMed- and Medline-indexed articles and book chapters on the subject [1–13].

We presented a classification system for giant pituitary adenomas as per their anatomical extensions and relationship to the dura of the diaphragma sellae and to the dural walls of the cavernous sinus [9]. We believe that our findings enhanced the understanding of the dural relationships of the pituitary tumors and assisted to avoid the need for transcranial surgery that was commonly undertaken previously [14]. We described that the dura of the diaphragma sellae is elevated superiorly as the tumor grows in size and medial wall of the cavernous sinus resists passage of the tumor into the confines of the cavernous sinus (Goel grade 1).

Cavernous sinus is an extradural entity and the “dural” nature of its medial wall has been a debated issue [2, 3]. We observed that the pituitary adenomas that transgress the medial “dural” wall of cavernous sinus (Goel grade 2) are not only anatomically but also behaviorally more aggressive. The lateral wall of the dura can be bloated laterally but its transgression by the tumor has never been recorded. In selected cases, the pituitary tumor elevates the dural roof of the cavernous sinus (Goel grade 3). Despite the fact that the lobulation of the tumor appears to occupy the oculomotor cistern, a thin dural layer continues to cover the dome of the tumor. We identified that the elevation of the dural roof of the cavernous sinus was a

frequent occurrence in large or giant pituitary tumors. We also alluded to the fact that was based on our surgical experience that although the roof of the cavernous sinus is thin, its transgression by the pituitary tumors is a rare feature. We identify that tumors that elevate the roof of the cavernous sinus (Goel grade 3) are more prone for recurrences than tumors that invade into cavernous sinus (Goel grade 2) but do not elevate its dural roof.

The authors discuss this dural layer with terms such as “capsule,” “pseudocapsule,” and “thickened arachnoid layer.” The radiological images of the patient and the operative images shown by the authors clearly depict the presence of a thinned out dural layer covering the dome of the tumor. The presence of the dural layer over the dome of the tumor provides a reliable dissection plain. Understanding the fact that there is a layer of dura that covers the tumor in the region of the oculomotor cistern and separates it from adjoining the third nerve and arteries of the region permits resection of these tumors even by a transnasal route and a transcranial surgery can be avoided [7].

Transgression of the dural layer of the diaphragma sellae and of the roof of the cavernous sinus and extension of the pituitary tumor into subarachnoid spaces (Goel grade 4) are relatively rare events. Such tumors can encase the arteries of the circle of Willis and the perforators and pose a formidable surgical challenge.

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This article is part of the Topical Collection on *Pituitaries*

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