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Editorial

Parasellar compartment

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The extradural neural axis compartment in the parasellar compartment has been repeatedly studied during the past 70 years. The anatomy of the cavernous sinus or parasellar compartment—as it was recently named by Parkinson—has now been termed the "perisellar area," by François et al.,[5] which is a misnomer.

To include electron microscopy in the study of these compartments is of course a good idea; however, for practical surgical means it contributes no useful practical data. It has been known for a long time that the orbit and the cavernous sinus (parasellar compartment) represent a single unit as well as a suite in a hotel. It is nothing new that in the parasellar compartment fatty cells are present, and in some cases this compartment can be filled partially or completely with the fatty tissue. The concept of Parkinson that the parasellar compartment is just one segment of the extradural neural axis compartment has been well known for a long time (personal communication, 1986).[6,7]

The authors studied the anatomy of the meningeal structures of the lateral sellar compartment, which is actually the cavernous sinus or parasellar compartment. What it is called is irrelevant; however, what is important is that we understand each other on what we are talking about. The same holds for the petroclival venous confluence as it holds for the orbit and the trigeminal cave, which is usually called the Meckel cave, where the gasserian ganglion is located. Regarding the petroclival venous confluence, the appearance of its architecture has also been made clear. The same holds true for the orbit. In reality, the relationship between the layers of the periosteum and the dura is very different in the spinal canal, clival region, Meckel cave, parasellar compartment or the sella, and the orbit. A number of dural layers are of course different at the apex of the pyramid where such different structures as dural coverings of the apex of the pyramid and the tentorium come together. It is difficult to argue with the fact that the petroclival dural structures are different from the dural composition of the lateral middle cranial fossa. The descriptions of the anatomical relationships of the intracavernous structures as presented in this study are far from surpassing any of those that have already been published.[1–4] The electron microscopy images of the walls of different dural-extradural compartments (clival, petroclival, and others) do show an interesting composition of different layers of coverings.

Despite the long-lasting hot topic in the treatment of pathological entities in the parasellar compartment, unsolved problems remain. For this reason, the microscopy studies of the biological composition and properties of the coverings of this compartment are quite welcome. Proper understanding of the biophysical properties of the membranes will enable us to better understand why and when a tumorous pathology may transgress the normal anatomical frontiers. Personally, I do not see the advancement on this subject in presenting larger and larger tumors treated in the region, but rather in the studies of the important details concerning the anatomical compositions and relationships between the different structures of the compartment.

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Response

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We would like to thank Professor Dolenc for his remarks concerning our article on the anatomy of the layers of the dura mater in the perisellar region. We in-

tentionally chose to use the term "perisellar" since our study does not exclusively involve the parasellar regions (cavernous spaces) but also the regions surrounding (peri) the sellar region (that is, the orbit, the clivus, and the cavernous spaces). Obviously, using electron microscopy does not completely revolutionize our understanding of the anatomy of the region. Nonetheless, to the best of our knowledge, it is the first study to confirm the reality of the interperiosteo-dural concept, a concept that is almost universally accepted by neurosurgeons but which, up until now, has never been demonstrated. This concept considers that there is an anatomical continuum extending from the coccyx to the orbit and that the dura mater is constituted by an encephalic and an osteoperiosteal layer. These 2 layers are joined together at the convexity and are separated from one another at the orbits, the cavernous spaces, or the epidural spinal space. Fat is present between the layers and is particularly abundant near the orbits, the venous lakes, and the spine (where it facilitates movements). Although our study does not significantly change the surgical approaches to the cavernous spaces, as Professor Dolenc says, our knowledge of this space is not necessarily increased by repeated publications on the results of different surgical techniques but rather by fundamental studies combining modern anatomical data with microscopic findings. Our study is innovative because it describes the composition of the layers of the dura mater and may help explain how certain disorders of the CNS, such as tumors (angiolipomas) and trauma (interdural as opposed to subdural hematomas), develop.

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