



Meningo-Orbital Band Microanatomy and Explanation of Cutting Method

Introduction: The meningo-orbital band (MOB) is an anatomically guiding structure frequently encountered during traditional frontotemporal craniotomy. The MOB is attached to the lateral border of the superior orbital fissure (SOF). Therefore, MOB is considered the surgical margin for the treatment of most parasellar lesions and bone removal beyond MOB is not necessary.

Material and Methods: 2 (4 sides) formalin-fixed and silicone-injected adult head cadaver specimens were dissected under the microscope at 6x40 high magnification and photographed in three dimensions at Istanbul University-Cerrahpaşa, Microendoneurosurgery and Neuroanatomy

Results: The MOB is the most superficial dural band that connects the fronto-temporal dura to the periorbita. The lateral wall of the cavernous sinus consists of two dural layers: a thin inner layer (periosteal dura) surrounds the III, IV, and V cranial nerves in the SOF pathway and extends towards the apex. The outer layer (meningeal dura); It is formed by the temporal dura. And it continues forward to the periorbita. MOB can be defined as the dural fold that acts as a bridge between the periorbita and the temporal dura. MOB limits access to surgical sites in anterolateral skull base approaches and may therefore need to be removed. Regardless of the type of approach chosen, full exposure of the MOB is achieved by drilling the sphenoid wing. The MOB is thicker and stiffer at the point where it joins the periorbita. The meningo-orbital artery passes through it. To prevent bleeding from the meningo-orbital artery, it must first be coagulated. There is no cranial nerve at the lateral border of the SOF, so the MOB must be cut from the lateral margin. The dissection of the temporal lobe is then continued and the remaining MOB is fully exposed, and as a final step, the MOB is completely cut and separated from the periorbita.

Conclusion: The MOB is connected to the lateral boundary of the SOF; therefore, it is necessary to have comprehensive anatomical knowledge about the anatomy of this region to prevent vascular or cranial nerve damage during cutting. Separation of MOB was performed using a four-step dissection based on the detailed microanatomy of the structure. These steps; (1) partial removal of the lateral wall of the superior orbital fissure, (2) dissection of the lateral periosteal dura of the superior orbital fissure, (3) peeling the dura propria of the temporal lobe from the inner cavernous membrane, and (4) completely separating the exposed MOB from the periorbita.

Keywords: Meningo-orbital band, superior orbital fissure, microsurgical anatomy, anterior clinoidectomy