Petroclival junction

The petroclival junction (PCJ) is a challenging skull base location from neurosurgical point of view, especially if the retrocarotid space has to be reached.

A combined petrosal approach is a suitable technique for the resection of medium-to-large petroclival meningiomas (PCMs), and suited for patients with serviceable hearing on the side of the lesion.

This approach enhances petroclival exposure and the degree of tumor resection, especially in the area of the petroclival junction, middle clivus, apical petrous bone, posterior cavernous sinus, and Meckel's cave. The combined petrosal approach also allows better visualization of the contralateral side and the ventral brainstem, which facilitates safe dissection of the tumor from the brainstem, the basilar artery, and the perforators. If a patient has an early draining bridging vein to the tentorial sinus (before it reaches the transverse-sigmoid junction) or a prominent sigmoid sinus and jugular bulb, the combined petrosal approach provides significant working space.

Simal-Julián et al. present the technique step by step, introducing a critical concept about the optimization of the petroclival drilling, generating the carotid clival window (CCW). The CCW is delimited by the paraclival segment of the internal carotid artery ICA anterolaterally, the petrous bone posterolaterally, the clival dura medially, the synchondrosis inferiorly, and the cavernous sinus superiorly; therefore, this approach exposes an important nuance to augment the previous approaches for PCJ and retrocarotid space.

This technique provides a good surgical window and carries minimal risk.
