# Posterior transpetrosal approach

The posterior transpetrosal approaches include the retrolabyrinthine, translabyrinthine, and transcochlear.

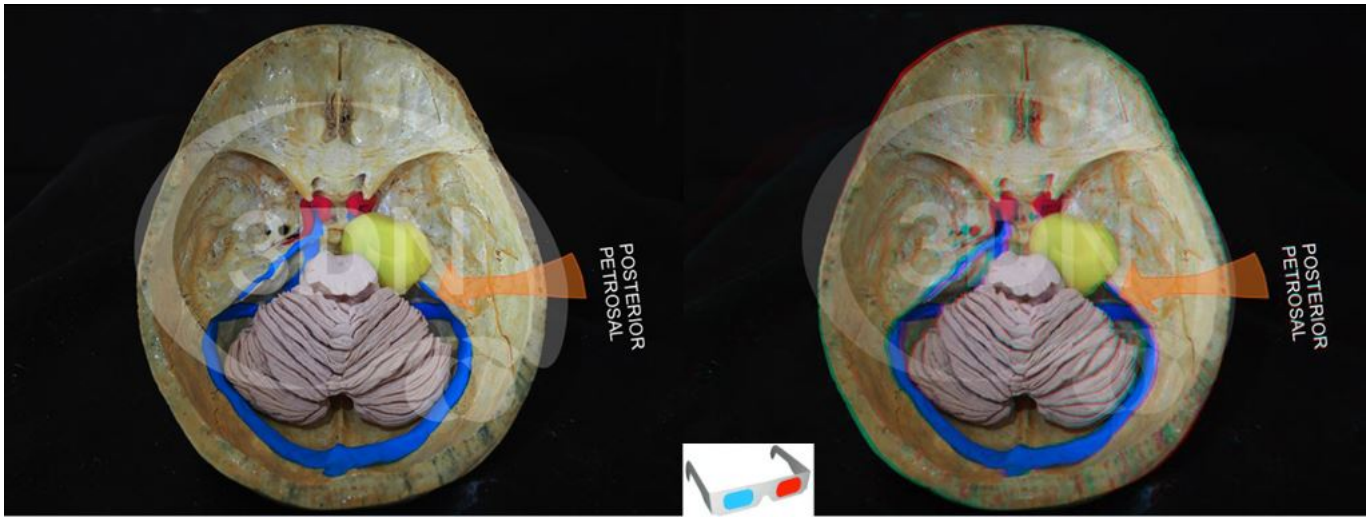
The posterior approaches are based on the standard mastoidectomy and involve resection of the petrous bone to various degrees. This results in progressively increased exposure anteriorly, but comes at the expense of hearing in the translabyrinthine approach and of hearing and facial strength in the transcochlear approach.

see Combined posterior transpetrosal approach.

The posterior petrosal approach is mainly used for lesions with a big posterior fossa component and provides simultaneous access to lesions in the posterior middle fossa and posterior fossa from the top of the clivus to the level of the jugular foramen. It allows visualization of the ventrolateral brainstem and may be combined with various other supra- and infratentorial approaches, thus giving the surgeon a wide array of access routes to the lesion.

A simple posterior transpetrosal approach (without any extension or combination) could be defined as a pure mastoidectomy with sigmoid sinus skeletonization and middle ear and inner ear structures preservation.

Transpetrosal approaches progressively flatten the temporal bone to maximize surgical exposure and to minimize retraction on the cerebellum. The surgical corridor between the cerebellum and the petrous bone is also progressively widened during transpetrosal approaches.




Different combinations and extensions will let us reaching also the supratentorial space in a safe way.

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## Case series

Klimo et al. conducted a retrospective review of all cases involving pediatric patients undergoing a posterior petrosal approach, either alone or in combination with other cranial approaches. Preoperative and postoperative data were collected, including presentation, neurological examination,

imaging findings, pathological condition, operative details, perioperative complications, and postoperative outcomes.

There were 13 patients (6 female, 7 male) with a mean age of 12.6 years (range 14 months-9 years). The posterior petrosal was the sole skull base cranial approach in 4 patients, whereas the posterior petrosal was combined with 1 or more other cranial approaches in 9. A gross-total resection was achieved in 7 patients, subtotal resection in 5, and a biopsy was performed in 1. Complications occurred in 9 patients, including 7 new or worsened cranial neuropathies. There was no perioperative mortality.

Although infrequently used in pediatric neurosurgery, the posterior petrosal approach is a highly versatile approach that can access intra- and extraaxial pathology centered on the petrous bone. The authors believe that patient outcomes are directly related to the degree of experience using this approach. Therefore, if this approach is to be used, they recommend collaboration with a skull base neurosurgeon [1)].

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Klimo P Jr, Browd SR, Pravdenkova S, Couldwell WT, Walker ML, Al-Mefty O. The posterior petrosal approach: technique and applications in pediatric neurosurgery. J Neurosurg Pediatr. 2009 Oct;4(4):353-62. doi: 10.3171/2009.4.PEDS08426. PubMed PMID: 19795967.