

Hints and pitfalls

The frontal branch of the facial nerve lies in the subcutaneous tissue superficial to the zygomatic arch. The vertical part and genu of the internal carotid artery are closely related to the cochlea and geniculate ganglion. Drilling should therefore never continue posterior to the genu of the artery.

The basic concept in this approach is to gain access to the area medial to the internal carotid artery by elevating the artery from its canal and displacing it laterally. Failure to do this would greatly hamper the access to the petrous apex and clivus. With this approach, only the anterior part of the cerebello-pontine cistern is controlled.

Control of the posterior part of the angle is very limited, due to the presence of the middle ear and otic capsule. Staging is usually needed if transdural lesions are managed by this approach, to avoid the high risk of postoperative cerebrospinal fluid leakage. This approach theoretically preserves the middle ear function. However, inevitable sacrifice of the eustachian tube would preclude its function due to the development of secretory otitis.

Illustrative Cases

Case 1 (Figs. 13 and 14)

This young woman complained of pulsatile tinnitus in her right ear of 2 years duration and mild right conductive hearing loss. Otoscopy showed a red pulsatile mass behind the tympanic membrane.

Figure 13. MRI, axial view. A class C3, Di 1 glomus tumor (according to the Fisch classification) is present. The tumor involves the jugular foramen, the vertical and horizontal tract of the internal carotid artery and extends intradurally. Some flow-voids inside the tumor correspond to large vascular spaces.

Figure 14. MRI, sagittal view. The tumor extends superiorly towards the cavernous sinus and inferiorly towards the condyle. Tumor removal was staged.

In the first stage an infratemporal fossa approach type A was performed leaving the intradural portion of the tumor. Staging was necessary to avoid the risk of postoperative cerebrospinal fluid leak due to the communication between the subarachnoid spaces and the neck spaces. The lower cranial nerves were preserved.

After 1 year the intradural portion of the tumor was removed. During surgery an involvement of the condyle and the hypoglossal canal was observed, as well as involvement of the clival bone superiorly, of the VI cranial nerve (that was sectioned), of the Meckel's cave and the cavernous sinus. A piece of tumor involving the cavernous sinus was left in place and a gamma-knife is planned for that residual portion (Fig. 14a).



Fig. 13

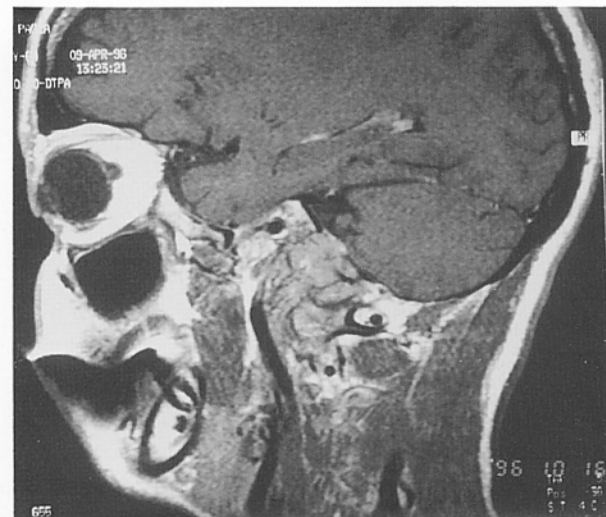


Fig. 14

Case 2

Figure 15. Petrous bone cholesteatoma with extension to the sphenoid sinus. A tympanoplasty was performed 13 years before. The patient complained of fetid otorrhea and conductive hearing loss from his right ear. The CT scan, axial view, shows a giant cholesteatoma invading the infralabyrinthine-apical compartment and extending to the sphenoid sinus.

Figure 16. Postoperative CT scan, axial view. Total tumor removal was achieved by means of a combination of type A and type B infratemporal fossa approach.

Case 3

Figure 17. Preoperative axial CT scan of a juvenile nasopharyngeal angiofibroma. The 14 years old male patient complained of nasal obstruction of 2 years duration and recurrent epistaxis 3 months before diagno-