rare occasions when there is marked stenosis in the artery or its wall is too fragile due to previous irradiation or surgery. A balloon occlusion test is mandatory before removal of the carotid is attempted. At the beginning of our experience carotid resection was carried out more frequently. We have adopted a less aggressive attitude nowadays, for fear of long-term consequences such as strokes, hemiplegia and aneurysm of the contralateral internal carotid artery.

With large glomus tumors (C3, involving the horizontal internal carotid artery, or C4, reaching the anterior foramen lacerum and extending to the cavernous sinus), the approach is combined with a type B or C infratemporal fossa approach for removal of the tumor.

Type B Infratemporal Fossa Approach

This approach is mainly designed for extradural petrous apex and midclival tumors, with preservation of the inner ear function (Fig. 4).

Surgical anatomy

The petrous apex, as seen through the infratemporal fossa approach, is in the form of a pyramid. The base lies posterolaterally and is formed by the cochlea and the anterior wall of the internal auditory canal. The roof is formed by the middle fossa dura, and more anteriorly by the Gasserian ganglion. The anterolateral wall is less defined; it is concave in shape, and is formed by the internal carotid artery and the fibrous tissue filling the petro-occipital fissure, with the inferior petrosal sinus running along it. This fissure separates the superolateral petrous apex from the inferomedial middle clivus.

The intrapetrous internal carotid artery is divided into vertical and horizontal parts. The horizontal intrapetrous portion of the internal carotid artery runs in its bony canal. From lateral to medial, the following structures lie lateral to the artery, in this order: the glenoid fossa, the middle meningeal artery, the third division of the trigeminal nerve (V3), and the Eustachian tube. These structures should be sacrificed in order to expose this segment of the artery from the lateral aspect.

Indications

Petrous apex lesions, such as petrous bone cholesteatoma of the apical or infralabyrinthine types, cholesterol granuloma, and glomus tumors involving the petrous apex (in association with the type A infratemporal fossa approach).

Clival lesions, such as chordoma, chondrosarcoma and extensive glomus tumors extending to the middle clivus.

Rare lesions involving the infratemporal fossa, such as choristoma of the Eustachian tube and giant-cell tumor of the petrous bone.

Surgical steps

The skin incision is C-shaped, starting above and posterior to the lateral orbital corner, extending 3–4 cm behind the postauricolar sulcus and ending inferiorly at the angle of the mandible (Fig. 5). The external auditory canal is closed as cul-de-sac.

The extratemporal facial nerve is exposed. The main trunk of the facial nerve runs along the perpendicular bisection of a line joining the cartilaginous pointer and the mastoid tip. The frontal branch of the nerve is followed until it crosses the zygomatic arch. The skin of the external auditory canal, the tympanic membrane, the incus and the malleus are removed.

A subtotal petrosectomy is then performed with preservation of the labyrinth. The facial nerve is ske-

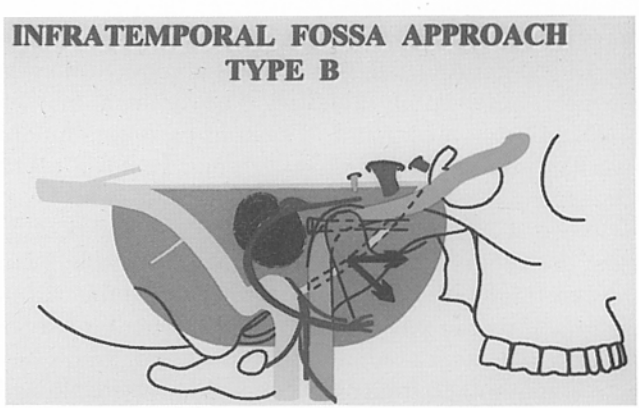

Fig. 4

Fig. 5