

Fig. 11

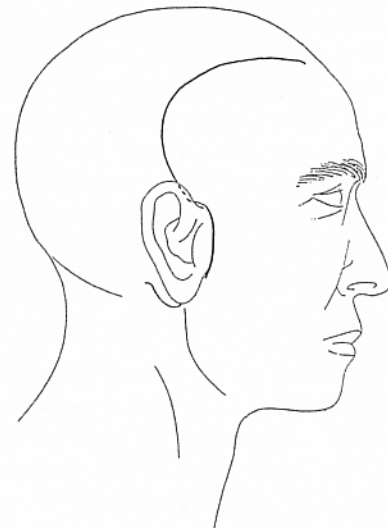


Fig. 12

chordomas, chondrosarcomas and meningiomas.

### *Surgical steps*

The skin incision is curvilinear, starting at the frontal scalp and extending anterior to the external auditory canal (Fig. 12). The skin and the soft tissue are elevated. The level of dissection is that between the superficial and deep layer of the temporalis fascia. The frontal branch of the facial nerve is thus included in the flap. The periosteum of the zygomatic arch and lateral orbital rim is elevated. More inferiorly, the dissection lies superficial to the masseter fascia, avoiding injury to the facial nerve branches at this level. The main stem of the extratemporal facial nerve is identified, along with its main branches in the parotid. The temporalis muscle is detached and reflected inferiorly.

Next, a frontotemporal craniotomy is performed. The craniotomy extends anteriorly to just posterior to the lateral orbital rim; superiorly immediately superior to the pterion; and posteriorly behind the mandibular condyle. If necessary, the lateral orbital rim can also be resected.

The zygomatic arch is divided next and reflected inferiorly after two holes have been drilled for re-fixation, and the condyle of the mandible is retracted inferiorly after its attachments have been cut. The temporal glenoid is drilled. Bone removal extends anteriorly to include the floor of the middle fossa, uncovering the foramen spinosum, through which the middle meningeal artery passes, and the foramen ovale, through which the mandibular nerve passes.

The genu of the internal carotid artery is identified by drilling with a diamond burr at the floor of the Eustachian tube.

The artery is followed down to identify its vertical part. The middle meningeal artery is cut after bipolar coagulation. The mandibular nerve is cut after bipolar

coagulation. The greater wing of the sphenoid and base of the pterygoid are drilled. This allows exposure of the maxillary nerve at its entrance into the foramen rotundum.

The temporal lobe is slightly retracted and the middle fossa dura is dissected from the remaining bony floor using a septal raspator. This fully exposes the maxillary nerve. The Gasserian ganglion is also controlled.

The horizontal segment of the internal carotid artery is exposed by drilling anteromedial to the genu of the artery using a diamond burr. The whole intrapetrous internal carotid artery up to the level of the anterior foramen lacerum can be seen.

The internal carotid artery is elevated from its canal and is retracted laterally, exposing the medially lying petrous apex. Care is taken to elevate the thick periosteal sheath along with the artery to protect it, while avoiding bleeding from the venous plexus lying in between the two. The petrous apex bone medial to the internal carotid artery is drilled.

With intradural lesions, the dura of the posterior fossa is opened. With lesions extending to the upper clivus, middle fossa, or cavernous sinus, the middle fossa dura is incised. With slight retraction of the temporal lobe, the terminal part of the internal carotid artery is seen before it branches into the anterior cerebral artery and middle cerebral artery. The posterior cerebral artery is seen coursing superior to the oculomotor nerve and the anterolateral surface of the midbrain is under control.

Closure is achieved by suturing the Eustachian tube, duroplasty using fascia lata, and using a rotation flap of the temporalis muscle to obliterate the surgical defect. A microvascular latissimus dorsi flap is sometimes needed. The bone flap is returned into place and the zygomatic arch is wired into place.