letonized. The temporalis muscle is detached from its bed to be further reflected anteriorly and inferiorly. The periosteum of the zygomatic arch is elevated and the arch is transected after two burr holes have been made for refixation at the end of the procedure. The transected arch is reflected inferiorly together with the temporalis muscle (Fig. 6). The vertical segment of the internal carotid artery is identified using a large diamond burr. Care is taken during this step not to injure the cochlea.

The anterior wall of the external auditory canal is then drilled. The capsule of the temporo-mandibular joint is separated using strong scissors and bipolar coagulation. The articular disk is then removed, exposing the mandibular condyle. The Fisch infratemporal fossa retractor is applied, with inferior displacement of the head of the mandible. The glenoid fossa is drilled. The middle meningeal artery is exposed and cut after bipolar coagulation. The mandibular nerve is identified and sacrificed. The bony Eustachian tube is drilled. The horizontal internal carotid artery is further exposed. The internal carotid artery is retracted anterolaterally, providing enough room to drill the petrous apex lying medial to the artery. Drilling of bone inferomedial to the internal carotid artery allows lesions to be removed from the middle clivus.

At the end of the procedure, the Eustachian tube is sutured and the temporalis muscle is used to obliterate the cavity.

Hints and pitfalls

During the identification of the main trunk of the facial nerve in the parotid, branches of the posteroauricolar artery and vein are encountered. Identifying the nerve is important to prevent it from overstretched during the application of the Fisch retractor.

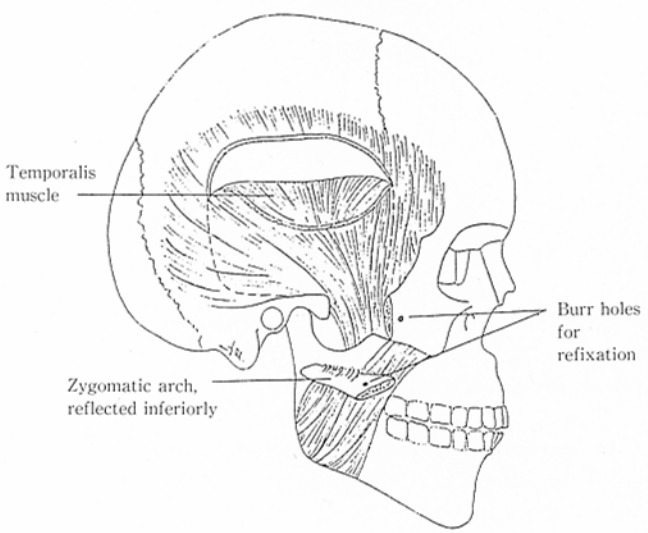

Fig. 6

A useful landmark for the middle meningeal artery is the sphenoid spine: the artery lies anterior to it. Before transecting the mandibular nerve, bipolar coagulation is applied first to avoiding bleeding from the venous plexus accompanying the nerve in the foramen ovale.

The internal carotid artery has a thick sheath protecting it. This sheath is thicker proximally and becomes progressively thinner towards the horizontal segment. Beneath the sheath, the artery is surrounded by a plexus of veins, more prominent at its horizontal segment. Bleeding occurring from this veins can be controlled easily by Surgicel packing. Drilling should always be parallel to the course of the internal carotid artery. The horizontal segment of the artery runs in an anteromedial direction along a line from the spine of the sphenoid, foramen spinosum, foramen ovale, and ending at the pterygoid process.

The inferior petrosal sinus marks the junction between the petrous apex and the clivus. Bleeding from this sinus may be encountered and it can be controlled by intraluminal packing with Surgicel.

The infralabyrinthine approach is an alternative route to the petrous apex. In addition to the very narrow access and the difficult angulation needed to reach the apex, a high jugular bulb may make this approach impractical. By contrast, the rationale of the type B infratemporal fossa approach is to free the carotid laterally, allowing it to be mobilized and thereby achieving much better exposure of the petrous apex.

Type C Infratemporal Fossa Approach

This is the anterior extension of the type B infratemporal fossa approach. The difference between the two is that in type C the pterygoid process is drilled, providing control of the nasopharynx, the pterygopalatine fossa, and the parasellar area and the sphenoid sinus (Fig. 7).

Surgical anatomy

The pterygoid process, with its lateral and medial laminae, constitutes a key structure in the anatomy of this area. The following are the most important related structures.

The choana and vomer lie medial to the base of the pterygoid. The medial pterygoid plate forms the lateral border of the choanal opening. To achieve good access to the nasopharynx, drilling this structures is fundamental.

Figure 8 illustrates the base of the skull. The hatched lines indicate the attachment of the pharyngobasilar fascia. The base and the medial plate of the pterygoid process form the posterior wall of the pterygopalatine fossa. Removing this wall allows posterolateral control of the fossa.