## 5.2. PTERIONAL APPROACH

The pterional approach we have adopted is a slight modification of the classical pterional approach as described by Yaşargil. The biggest differences are: (a) the skin incision is slightly different, it starts closer to the midline; (b) we use a one-layer skin-muscle flap instead of several layers; (c) only one burr hole is used at the superior insertion of the temporal muscle; and (d) we do not remove bone all the way down to the anterior clinoid process or perform extradural anterior clinoidectomy routinely.

## 5.2.1. Indications

Most of the lesions for which pterional approach has been classically used, are treated in our hands using the LSO approach. The pterional approach is reserved only for those situations where wider exposure of both the frontal and temporal lobes as well as the insula is necessary and where we anticipate lack of space during the surgery. Such situations are giant anterior circulation aneurysms, especially MCA aneurysms, AVMs close to the Sylvian fissure or insular tumors.



Figure 5-2 (a). Pterional approach. See text for details.

## 5.2.2. Positioning

The positioning for the pterional approach is almost identical to that for the LSO approach (see section 5.1.2.) (Figure 5-2a,b). The angle of approach is the same, the only difference is that pterional approach provides a wider bony window.

## 5.2.3. Incision and craniotomy

The head is shaved about 2 cm along the hairline. The skin incision is planned to start just behind the hairline at the midline. It then extends in a slightly oblique fashion and terminates in front of the ear, close to the level of zygoma (Figure 5-2a,b). Compared to the LSO approach the skin incision is: (a) longer; (b) curves little more posterior; and (c) extends several centimeters closer to the zygoma. The opening is carried out in a single layer like in the LSO approach. The temporal muscle is split along the muscle fibers and spring hooks are placed to retract the skin-muscle flap in the fronto-basal direction (Figure 5-2c). Raney clips are used along the posterior wound edge. The temporal muscle is detached from the bone with diathermia. The retraction of the hooks is increased so that, finally, the superior orbital rim and the anterior zygomatic arch are exposed (arrow; Figure 5-2c). A groove in the bone marks the expected location of the Sylvian fissure and the borderline in between the frontal and the temporal lobes (blue dotted line; Figure 5-2c).

A single burr hole is placed just beneath the temporal line (Figure 5-2d). The dura is care-fully detached first with a curved dissector and



Figure 5-2 (b). Pterional approach. See text for details.



Figure 5-2 (c - d). Pterional approach. See text for details.



Figure 5-2 (e - f). Pterional approach. See text for details.

then with a flexible (Yaşarqil-type) dissector (Figure 4-11b - page 92). Since the bone flap is going to be larger than in the LSO approach, the dura needs to be detached more extensively especially in the temporal direction. Two cuts are made with a craniotome. The first one curves medially and frontobasally and terminates at the sphenoid ridge just after passing the origin of the anterior zygomatic arch. The other cut is directed in the temporal direction almost in a straight line and then curves slightly in the temporobasal direction, towards the zygoma (Figure 5-2e). Finally, the bone is thinned basally over the sphenoid ridge, connecting the two cuts. This is done with the craniotome without the footplate. The bone is cracked and lifted. Before cracking the bone, few drill holes are made for tack-up sutures. Once the bone flap has been removed, the dura is detached further in the basal direction on both sides of the sphenoid ridge. The sphenoid ridge is then drilled away with a high-speed drill (arrows;

Figure 5-2f). Hot drilling with a diamond drill bit is used to seal the small bleedings from the bone. We do not remove the anterior clinoid process.

The dura is opened in a curvilinear fashion with the base in the fronto-basal direction (Figure 5-2f). The dural edges are elevated over the craniotomy dressings with tight lift-up sutures to prevent oozing from the epidural space (Figure 5-2g). Compared to the LSO approach, we see now more of the temporal lobe and the craniotomy extends also little further posterior.

Under the microscope, the first aim is to relax the brain by removing CSF from the basal cisterns and if necessary, from the third ventricle through the lamina terminalis as with the LSO approach. The dissection then proceeds according to the pathology in question, often involving opening of the Sylvian fissure (see section 6.1.6.).



Figure 5-2 (g). Pterional approach. See text for details.

The closure is performed in the standard layerlike fashion in the similar way as for the LSO approach.

T&T:

- Head positioning according to the pathology
- Skin incision behind the hairline
- Skin and muscle detached in one layer
- Only one burr hole necessary
- Dura carefully detached before using the craniotome
- Sphenoid ridge removed with high speed drill, and hot drilling
- No need for routine anterior clinoidectomy