

Sphenoid Wing Drilling

'Sphenoid wing drilling' is a critical step in skull base and vascular neurosurgery, particularly during pterional or orbitozygomatic craniotomies. It involves the removal of the sphenoid ridge to flatten the skull base and improve surgical access to deep intracranial structures.

Definition

Sphenoid wing drilling refers to the removal of the bony ridge formed by the greater and lesser wings of the sphenoid bone, using a high-speed drill under microscopic visualization.

Purpose

- Enhance exposure of:
 1. Sylvian fissure
 2. Optic nerve and chiasm
 3. Internal carotid artery (ICA)
 4. Anterior clinoid process
 5. Cavernous sinus region
- Reduce the need for brain retraction by lowering the surgical corridor floor.
- Create a wider and more direct surgical approach.

Surgical Steps

1. After performing the craniotomy (e.g., pterional), identify the **sphenoid ridge** anterior to the temporal lobe.
2. Use a cutting burr to remove the outer cortical bone.
3. Proceed with a diamond burr to thin and smooth the bone over the superior orbital fissure and anterior clinoid.
4. Careful attention is required to avoid:
 1. Injury to the **orbit** medially
 2. Dural tears and CSF leaks
 3. Damage to **frontal sinus** or **optic canal**

Anatomical Considerations

- The **greater sphenoid wing** forms part of the floor of the middle cranial fossa.
- The **lesser wing** contributes to the roof of the orbit and ends at the **anterior clinoid process**.
- The **superior orbital fissure** and **optic canal** are medial to the drilling field.

Risks

- **Thermal injury** to nearby nerves or vessels
- **Dural tears**, CSF leak

- **Orbital injury** if drilling is too medial or deep
- **Bleeding** from diploic or cavernous sinus vessels

Notes

- Often combined with **anterior clinoidectomy** in extended approaches.
- Proper irrigation is essential to avoid thermal damage.
- Image guidance and experience are key to safe and effective sphenoid wing drilling.

From:

<https://neurosurgerywiki.com/wiki/> - **Neurosurgery Wiki**

Permanent link:

https://neurosurgerywiki.com/wiki/doku.php?id=sphenoid_wing_drilling

Last update: **2025/07/11 08:00**

