Pterional craniotomy complications

- Simultaneous surgical management of a giant tuberculum sellae meningioma and pregnancy-related complications: a case report and literature review
- Childhood penetrating intracranial injury by non-metallic objects: a case report of three pediatric cases
- Transplanum polare approach to the anterior mesiotemporal region
- Complex Anatomy, Advanced Techniques: Microsurgical Clipping of a Ruptured Hypophyseal Artery Aneurysm
- Anterior rotation of the temporalis muscle for prevention of temporal hollowing in cranial surgeries: Esthetic and patient-reported outcomes
- Surgical Approaches to Resection of Olfactory Groove Meningiomas: Comparative Meta-analysis of the Endoscopic Endonasal versus Transcranial and Unilateral versus Bilateral Approaches
- Initial experience with surgical humidification to prevent tissue dehydration during pterional craniotomy for aneurysm clipping: illustrative case
- Clipping of anterior circulation aneurysms using fully endoscopic-assisted minimally invasive keyhole craniotomy: a clinical study and analysis

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Like any surgical procedure, pterional craniotomy carries potential complications, which can include:

Infection: Any surgical procedure carries a risk of infection. Infections can occur in the surgical site, in the bone flap that was removed and later replaced, or within the brain itself. Antibiotics are typically administered before and after surgery to reduce this risk.

Bleeding: Bleeding can occur during the surgery or in the postoperative period. Surgeons take steps to control bleeding during the procedure, but excessive bleeding can lead to complications.

Cerebrospinal Fluid (CSF) Leak: A CSF leak can occur if the protective layer surrounding the brain (the dura) is not properly sealed after surgery. A CSF leak can lead to headaches, infections, or a risk of meningitis.

Neurological Deficits: Depending on the specific condition being treated and the location of the surgical site, there is a risk of causing neurological deficits. These deficits may include weakness, sensory changes, speech problems, or vision changes.

Swelling or Edema: After surgery, there can be swelling or edema in the brain. This can lead to increased intracranial pressure, which may require monitoring and, in some cases, additional treatments.

Seizures: Some patients may experience seizures after a pterional craniotomy. Medications can be prescribed to manage and prevent seizures in these cases.

Scalp or Wound Issues: Complications at the surgical incision site may include wound infections, poor wound healing, or cosmetic concerns.

Stroke or Vascular Complications: In cases involving vascular conditions, there is a risk of damaging blood vessels during surgery, potentially leading to strokes or other vascular complications.

Anesthesia Complications: As with any surgery, there is a risk of complications related to anesthesia, such as adverse reactions or respiratory problems.

Cognitive or Memory Changes: Some patients may experience cognitive or memory changes following brain surgery, particularly if the surgery involves areas of the brain associated with these functions.

It's important to note that the likelihood and severity of complications can vary depending on the specific patient, the underlying condition being treated, the surgeon's skill and experience, and the quality of postoperative care. Surgeons and medical teams take numerous precautions to minimize the risks associated with pterional craniotomy procedures, and they closely monitor patients during the recovery period to address any potential complications promptly

Cosmetic problems

Pterional craniotomy may lead to cosmetic and functional problems, such as eyebrow drop due to facial nerve frontal branch damage, temporal muscle atrophy, and temporomandibular joint pain.

Temporal hollowing

Temporal hollowing.

There are several variants of the classic PC. The esthetic outcomes are poorly evaluated. The majority of the studies were low evidence articles [1].

A surgeon experienced in pterional approach can comfortably and safely shift to the keyhole for early clipping of selected ruptured aneurysms less than 25 mm, with a comparable surgical outcome but better cosmesis and mastication [2]

1)
Gonçalves DB, Dos Santos MIA, de Cristo Rojas Cabral L, Oliveira LM, da Silva Coutinho GC, Dutra BG, Martins RV, Reis F, Paiva WS, de Amorim RLO. Esthetics outcomes in patients submitted to pterional craniotomy and its variants: A scoping review. Surg Neurol Int. 2021 Sep 13;12:461. doi: 10.25259/SNI_485_2021. PMID: 34621576; PMCID: PMC8492413.
2)
Dhandapani S, Narayanan R, Dhandapani M, Bhagat H. How Safe and Effective Is Shifting from Pterional to Supraorbital Keyhole Approach for Clipping Ruptured Anterior Circulation Aneurysms? A Surgeon's Transition Phase Comparative Study. J Neurosci Rural Pract. 2021 Jul;12(3):512-517. doi: 10.1055/s-0041-1727301. Epub 2021 Jun 10. PMID: 34295105; PMCID: PMC8289527.