

Craniotomy Classification

Craniotomies can be classified based on anatomical location, surgical approach, indication, and technical considerations.

1. By Anatomical Location

Region	Common Indications
Frontal craniotomy	Tumors, trauma, abscess, epilepsy, frontal sinus
Temporal	Epilepsy surgery, mesial temporal sclerosis, tumors
Parietal	Tumors, AVMs, metastases, cortical mapping
Occipital	Tumors, AVMs, visual cortex lesions
Pterional	Aneurysms, skull base tumors, MCA/ICA lesions
Subtemporal	Petroclival tumors, mesial temporal lobe access
Orbitozygomatic	Skull base lesions, aneurysms, craniopharyngiomas
Retrosigmoid	Acoustic neuromas, posterior fossa tumors
Suboccipital	Chiari malformation, posterior fossa tumors
Transpetrosal	Clival and petroclival pathology

2. By Surgical Approach

Approach Type	Description
Standard craniotomy	Bone flap removed and replaced after surgery
Keyhole craniotomy	Minimally invasive, small access (e.g., eyebrow)
Extended approaches	Combined or large exposures (e.g., OZ + pterional)
Endoscopic-assisted	With or without bone flap, skull base procedures
Awake craniotomy	Functional mapping in conscious patients

3. By Indication

Indication	Example Craniotomies
Tumor	Frontal, parietal, pterional, suboccipital
Vascular	Pterional, orbitozygomatic, occipital, parasagittal
Epilepsy	Temporal lobectomy, frontal lobe resection
Trauma	Decompressive hemicraniectomy, bifrontal
Infection/Abscess	Frontal, parietal
Chiari Malformation	Suboccipital midline decompression

4. By Technical Features

Type	Characteristics
Decompressive craniectomy	Bone not replaced; used in severe trauma/stroke
Craniotomy with duraplasty	Dural expansion using graft
Burr hole craniotomy	For hematomas or catheter insertion (e.g., EVD)

- Standard [craniotomy](#)
- Keyhole craniotomy
- Awake craniotomy
- Extended bifrontal craniotomy
- Pterional (frontotemporal) craniotomy
- Retrosigmoid craniotomy
- Suboccipital craniotomy
- Orbitozygomatic craniotomy

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