Dural Dissection

'Dural dissection' refers to the surgical technique of incising and separating the layers of the dura mater to expose underlying neural or vascular structures.

Definition

Dural dissection is the controlled separation or incision of the dura mater, the outermost meningeal layer, often required in neurosurgical procedures for access to the brain, spinal cord, or dural-based lesions.

Anatomical Context

- The **dura mater** consists of two layers:
  1. **Periosteal layer** (outer): adheres to the skull.
  2. **Meningeal layer** (inner): continues into the spinal canal.
- In the spine, the dura is a single layer.

Surgical Applications

- **Craniotomy**: Opening of the dura to access the cortex or deeper structures.
- **Spine surgery**: Dural opening to access the spinal cord or intradural lesions.
- **Dural-based tumors**: e.g., meningiomas, where dural dissection helps define margins or perform resection.
- **Bypass and aneurysm surgery**: Dissection around dural folds (e.g., tentorium, falx).

Techniques

- Performed under magnification (microscope or loupe).
- Linear, curvilinear, or stellate incisions using micro scissors or scalpel.
- Edge of dura often reflected and secured with tack-up sutures to reduce epidural bleeding.
- Dural closure with watertight sutures or dural substitutes to prevent CSF leak.

Risks

- **Cerebrospinal fluid (CSF) leak**
- **Dural venous sinus injury**
- **Postoperative pseudomeningocele or meningitis** if not properly closed

Notes

- In some cases (e.g., Chiari malformation surgery), duraplasty is performed after dural dissection to enlarge the dural space.

- Dural dissection can be technically challenging near adhesions, scar tissue, or vascular structures.