

## Procedural checklists – Neurosurgical bedside procedures

Includes:

- **Universal preparation (done for all procedures)**
- Ventriculostomy
- Intracranial pressure monitor
- Lumbar puncture
- Placement of lumbar catheter (epidural / subarachnoid)
- Shunt chamber tap
- Transfontanelle / bur hole tap
- Externalization of ventriculoperitoneal shunt
- Halo / tong application, cervical traction

## Universal preparation

To be utilized for all procedures:

- Position patient
- Review indication, instructions and ensure supervision with Chief Resident / Attending
- Confirm patient parameters – 2 identifiers, lab results, imaging (if applicable)
- Consent patient
- Obtain necessary assistance and equipment
- Start prophylactic antibiotics (if applicable)
- Mask, surgical cap, eye protection
- Prep and drape
- Local anesthetic
- Apply dressing

During procedure:

- Call for help if necessary

Post-procedure:

- Documentation – orders + procedure report
- Update Chief Resident / Attending / Family

## **Ventriculostomy**

- Head shave / mark site – Kocher’s point
- Incision + retractor
- Burr hole
- Perforate dura
- Externalization trocar
- Place ventricular catheter, technique pitfalls
- Confirm good CSF flow and externalize
- Closure
- Connect system

### **Intracranial pressure monitor – bolt-type**

- Check monitor status (present and working)
- Head shave / mark site – Kocher’s point or other location
- Burr through skin to dura
- Perforate dura
- Attach bolt to skull
- Adjust “zero” point for monitor
- Pass monitor into desired position
- Tighten bolt, connect system

## **Lumbar puncture**

- Anatomic landmarks
- Insert needle, bevel up, aim 10 degrees cephalad
- CSF return – manometry if applicable

### **Insertion of lumbar drain (epidural/subarachnoid)**

- Anatomic landmarks
- Measure catheter and needle
- Insert needle, bevel up, aim 10 degrees cephalad
- CSF return –thread catheter through needle; advance to 15cm point
  - Avoid removing catheter from within needle if protrusion point reached; remove as a unit
  - Avoid rotating needle when catheter is inserted
- Remove needle over catheter
- Remove guide wire
- Connect system to chamber while sterile
- Secure catheter

### **Shunt chamber tap**

- Palpate chamber; if programmable, check setting
- Tap and slowly suction CSF
- If programmable valve – confirm setting

### **Transfontanelle / bur hole tap**

- Anatomic landmarks – bregmatic fontanelle / bur hole
- Localize bur hole / fontanelle
- Tap and slowly suction CSF; do not advance farther than planned distance

### **Externalization of ventriculoperitoneal catheter**

- Localize catheter at planned site by palpation over bony prominence
- Incise skin, dissect subcutaneous tissue, localize catheter
- Retrieve distal end, inspect for integrity, obtain specimens if necessary
- Trim and secure catheter; connect collecting system
- Ensure adequate CSF flow while still sterile
  - “Pump” shunt if necessary
- Suture incision

**Halo / tong application, cervical traction**

- Full neurological exam
- Awake and cooperative patient
- Assemble bed frame
- Position patient – flat / reverse Trendelenburg
- Apply pins
- Set up cord + initial weight
- Traction
- Neurologic exam and document
- Order appropriate sequence of radiographs