

## Placement of ICP Monitor (Bolt):

1. Obtain Consent
2. Confirm Coagulation Status of Patient
3. Gather Supplies
  - a. Cranial Access Kit
  - b. Bolt/ICP Monitor Kit
  - c. Camino Monitor
  - d. Electric Razor
  - e. Silk Tape, 2 inch & 1 inch
  - f. Betadine Prep Solution & Tubs of Gauze
  - g.  $\frac{3}{4}$  Drape for Patient
  - h. Hand Towel & 2 inch Tape (to make head roll for positioning)
  - i. Gown/Gloves/Eye Protection
  - j. Nurse to have any sedation/pain medications immediately available
  - k. Antibiotics
4. Position Patient
  - a. Supine, top of head at edge of bed
  - b. Place head on donut made from rolled up towel for stabilization
  - c. 2 inch tape across forehead, securing patient's head to bed
  - d. Adjust bed position so head is at an angle/level allowing ease of drilling (elevated ~20-30 degrees)
  - e. Adjust foot of bed so that legs elevated slightly so patient does not slide down in bed
5. View Imaging/Confirm Side of Placement
6. Shave either R or L Frontal Region
7. Mark Location for Bolt Placement
  - a. Make sure head is facing straight ahead, mark midline
  - b. Feel for the coronal suture & mark this
  - c. Measure 11 cm back from the nasion & 3 cm laterally, mark this (Kocher's Point)
  - d. Confirm that you are in line with the mid-pupillary line & are anterior to the coronal suture
8. Prep Patient: Betadine Soaked Gauze x 3
9. Open Cranial Access Kit at all supplies onto tray/table in sterile fashion
10. Put on sterile gown/gloves
11. Perform Timeout
12. Drape Patient: drapes in cranial access kit &  $\frac{3}{4}$  drape
13. Confirm entry point that was marked, lay out all supplies/assemble drill
14. If using local anesthetic, inject now (included in cranial access kit)
15. Incision: centered over marked entry point, approximately 0.5cm in length
16. Drill: position drill orthogonal to skull and make burr hole without changing angle
  - a. Use smaller of two drill bits included in kit
17. Durotomy: Make small hole through dura using one of the needles in the kit

18. Bolt attachment to skull
  - a. Remove small white spacer from bolt piece
  - b. Screw Camino bolt piece into skull (piece with turning wings and compression cap)
  - c. Remove inner stylet from the bolt after loosening white compression cap
19. Zero the Transducer
  - a. While remaining sterile, attach the black end of the transducer tipped catheter to the Camino monitor with the assistance of a nurse
  - b. Use the adjustment tool to zero the transducer prior to its insertion into the patient
20. Insert Transducer
  - a. Insert catheter with transducer tip until it extends approximately 0.5 cm beyond end of bolt, placing the tip in the subarachnoid space
  - b. Tighten the compression cap to secure the catheter in place
  - c. Slide sheath down over catheter & attach to compression cap
  - d. Verify Waveform
21. Dressing: Wrap Sterile gauze around base of bolt & secure with silk tape
22. Document Procedure