A047 Perioperative Management and Functional Outcome Post Cranioplasty: A Retrospective Observational, Single Institutional Study

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Introduction: Patients with an acute increase in intracranial pressure (ICP) due to cerebrovascular accident (CVA) or traumatic brain injury (TBI) undergo decompressive craniectomy. The surviving patients then undergo cranioplasty procedure in future for rehabilitation by having a positive effect on the cerebrospinal fluid (CSF) dynamics. A high rate of perioperative complications is associated with this procedure. We conducted a retrospective analysis of the cranioplasty surgeries which took place in our center.

Methodology/Description: After taking permission from the Institute Review Board, data was collected from the Anesthesia and Neurosurgery registers from June 2016 to June 2017. A retrospective analysis was performed.

Results: The overall complication rate found was 6.6%. Cranioplasties were done post craniectomies for TBI in 60% of cases and post-CVA in 40% of cases. Sixty-six percent of cranioplasties were with acrylic, 20% with autologous bone, and 13.3% with titanium plates. The only complication encountered intraoperatively was seizure in one patient. No deaths were noted. One patient developed deterioration in the Glasgow Coma Scale on the third postoperative day and had to undergo removal of the acrylic bone. The functional outcomes post cranioplasty were similar to presurgical status.

Conclusion: Cranioplasty appears as an easy surgical procedure but may have a complication rate as high as 41% which is in direct contrast to the complication rate for the routine neurosurgical procedures. Our results show 6.6% complication rate because preventable complications were avoided by optimal preparation perioperatively. The results also indicate that synthetic implants may be utilized in patients with irretrievable bone flaps or delayed time to cranioplasty.

Keywords: Cranioplasty, CVA, TBI

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A048 Anesthetic Management of Pediatric Awake Craniotomy with Intraoperative Neurophysiological Monitoring

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Introduction: Awake craniotomy in pediatric group is challenging. Its success depends on maintaining a good rapport with the child, careful titration of anesthetic agents, and managing intraoperative challenges.

Methodology/Description: An awake craniotomy with neurophysiological monitoring was planned for this 10-year-old girl with lesion at the right motor cortex. After adequate counseling, she was acquainted to the environment with repeated visits to the perioperative suite. She was also familiarized with the motor function testing during surgery. Under standard monitoring, propofol infusion at 100 to 150 µg/kg/min and fentanyl infusion at 0.5 µg/kg/h were initiated after a bolus dose of 15 µg of fentanyl. A 22-gauge cannula was inserted in the right radial artery for blood pressure monitoring. Scalp block was performed with mixture of 2% lignocaine with adrenaline and 0.5% ropivacaine (7 mL each). Sedation was continued during painful procedures like pin fixation, insertion of needle electrodes, and all steps of craniotomy. Throughout the procedure oxygen was given through nasal prongs and her respiration was monitored with the chest leads used for ECG. Propofol infusion was stopped after exposure of duramater. She was comfortable throughout the procedure and co-operated for motor assessment of limbs. Careful titration of sedatives helped in electrophysiological assessment like cortical and subcortical mapping and ECoG. Propofol infusion was restarted after dural closure. No significant complications occurred and the patient recovered without any motor deficits.

Conclusion: Our case report illustrates that with proper planning and careful titration of anesthetics, awake craniotomy along with intraoperative neurophysiological monitoring is safe and feasible in pediatric age group.

Keywords: pediatric, awake craniotomy, intraoperative

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A049 An 18-Year-Old Man with Delayed Progressive Epidural Hematoma in 4 Days after Injury

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Introduction: Epidural hematoma, usually caused by tearing of middle meningeal artery, is associated with hematoma expansion and rapid deterioration within first 24 hours. Nevertheless, hematoma size enlargement later than 3 days after injury rarely occurs. This case will outline a delayed progressive epidural hematoma patient who eventually deteriorated at fourth day after injury because of hematoma expansion.

Methodology/Description: An 18-year-old male patient with a history of motorcycle accident was referred to our hospital. Initial computed tomography (CT) scan showed right temporal bone linear fracture, small epidural hematoma at right temporal lobe, and subarachnoid hemorrhage. On admission, the Glasgow Coma Scale (GCS) was 10, pupils were equal and reactive bilaterally, and no signs of lateralization. Initial laboratory results show elevated level of D-Dimer (13.1 mg/L), leukocyte (27,800/μL), and blood glucose (222.6 mg/dL). Mannitol was administered, and patient was treated conservatively in neurology ward, then GCS level increases to 12. At day4, right pupil became dilated and had sluggish reaction to light. Subsequent CT scan shows enlargement of epidural hematoma size, and craniotomy was done. Concurrently, there were slight elevated fibrinogen levels (578.7 mg/dL), but decreased level of D-Dimer (0.4 mg/L) and leucocyte (12.510/μL), as compared with initial. At day8, patient improved and discharged from hospital with good recovery.

Conclusion: Epidural hematoma typically tends to progress acutely soon after injury. However, rare cases indicate a delayed progressive hematoma expansion. Therefore, identification of delayed hematoma expansion in the presence of risk factors (linear fracture, coagulopathy, decreased ICP) and close monitoring in epidural hematoma patients is essential, even after 3 days post injury.

Keywords: delayed epidural hematoma, linear fracture, coagulopathy

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A050 Pediatric Hemispherotomy: Unique Perioperative Challenges

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Introduction: About 30 to40% of pediatric patients with epilepsy remain refractory to medical management and require surgery. Disconnective procedures, such as hemispherotomy, can be challenging for the neurosurgeon as well as the anesthesiologist considering the longer duration of surgery, possibility of sudden massive blood loss, and some unique postoperative complications.

Methodology/Description: A 7-year-old female patient had a history of continuous left partial seizures since 1 year of age. She remained refractory to antiepileptics and was diagnosed as epilepsia partialis continua. She was posted for a functional right hemispherotomy. Her developmental age was of 3 years and 4 months with an IQ of 52 (moderate mental retardation). On the day of surgery, her antiepileptics were continued. Intravenous induction was done with propofol, followed by vecuronium as relaxant. Patient was intubated using flexometallic tube. Invasive BP monitoring was done and two large-bore IV lines were secured. Anesthesia was maintained with isoflurane and fentanyl. Injection mannitol and dexamethasone were given to decrease ICP. Temperature was maintained with air warming blankets. Blood loss around 250 mL was replaced with packed RBCs. Patient was extubated on table. Intravenous levetiracetam was given before extubation. Postoperatively patient remained seizure-free, alert, and oriented for 24 hours after which she became sleepy but arousable for next 5 days. She had fever on postoperative day 5 which subsided the next day with steroids and was discharged on the seventh day.

Conclusion: Pediatric patients present challenges to neurosurgeons as well as anesthesiologists. The intraoperative concerns include possibility of sudden massive blood loss, longer duration of surgery, and interaction of muscle relaxants with antiepileptic drugs, hypothermia, and delayed recovery. Increased sleepiness after 48 hours due to contralateral edema of the cerebrum or obstructive hydrocephalus increases postoperative ICU stay. A noninfectious fever mostly on day 4 or 5 is caused by chemical ventriculitis, and usually responds to steroids. Thus, a team approach including neurosurgeon, neurophysician, anesthesiologist and intensivist helps in making pediatric hemispherotomy a successful and safe surgery for intractable epilepsy

Keywords: pediatric epilepsy, hemispherotomy, neuroanesthesia

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A051 Comparison of Efficacy of Oral Escitalopram and Alprazolam as Premedication in Craniotomy Surgeries for Primary Brain Tumors

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Introduction: Reduction in anxiety and fear at preoperative period in patients of elective surgery is essential for surgical preparation. To allay the anxiety is among one of the most important components in neuroanesthesia practice.