

have been caused by aseptic meningitis, and microhemorrhage and fibrinogenic components might have been causes of CSF circulation disorder and absorption disorder in the subarachnoid space. This situation may have then led to delayed hydrocephalus. This is a rare case of delayed hydrocephalus after CSF leakage following spine tumor surgery.

#### **A020 Asleep–Awake–Asleep Technique with Endotracheal General Anesthesia in a Patient of Hemiballismus for Pallidotomy: A Unique Challenge**

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**Background:** Hemiballismus is a relatively rare movement disorder. It is usually caused by a lesion that involves the contralateral subthalamic nucleus (STN). Stereotactic pallidotomy is the procedure of choice in the treatment of medically intractable hemiballismus.

**Case Description:** A 24-year-old female with history of left thalamic and midbrain cavernoma having right sided hemiballistic movements with right sided weakness, underwent craniotomy and excision of cavernoma under general anesthesia in February 2019. Patient got symptomatic relief from hemiballismus for 2 months, again developed hemiballismus of increased severity in spite of pharmacological treatment. Hence, it was decided to go for surgical treatment in form of left pallidotomy. After all preoperative workup, patient was given general anesthesia with standard doses of inducing agent propofol and muscle relaxant atracurium and maintained on sevoflurane. Patient was then taken to MRI and CT scan for mapping of globus pallidus. Patient was shifted to operating room and left sided burr hole was completed under anesthesia. Stereotactically, left-sided pallidus was identified. Wakeup test was done and patient was asked to follow the commands for checking effects of left pallidotomy. After confirming benefits with help of neurologist, permanent pallidotomy was done. Effects of pallidotomy rechecked and patient was taken under general anesthesia again, shifted to MRI for confirmation of lesion of pallidotomy. Patient was then reversed and extubated in operating room.

**Conclusion:** Pallidotomy presents unique challenge to attending anesthesiologist. Anesthesia was given by asleep–awake–asleep technique. Dexmedetomidine and narcotic based anesthesia was the technique of choice.

#### **A021 Airway Management in Children with Noma Sequelae Undergoing Craniomaxillofacial Reconstructive Surgery**

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**Background:** Noma (cancrum oris) is an exclusive disease of childhood characterized by ulcerative necrosis of

the maxillofacial structures, affecting up to 1,40,000 children annually. It is fatal in 80 to 90% of cases in the acute setting. Survivors are left with disfiguring maxillofacial deformations that make airway manipulation for reconstructive surgery very challenging.

**Materials and Methods:** Sixteen patients with chronic sequelae of noma, underwent maxillofacial reconstructive surgery at the Noma Hospital for Children, Sokoto, Nigeria. The procedures were done by Medicines Sans Frontiers (OCA) mission. The Each patient posed significant airway challenges due to anatomic malformations, trismus, and restricted neck movements. Lack of preoperative imaging and limited resources added to the challenge. We were able to surmount these with the use of a three-tier hierarchical plan: plan A (intended airway management strategy), plan B (secondary management strategy), and plan C (surgical access to the trachea).

**Results:** Preoperative workup included measuring thyromental, sternomental, and inters incisor distances, neck movements, and mouth opening. Of the 16 patients in this series, 14 were intubated using plan A. Two required deployment of plan B and none required plan C. We predominantly used fiber optic and nasal intubation for these patients.

**Conclusions:** Maxillofacial reconstructive surgery for Noma poses a huge challenge to the anesthesiologists, especially in children. Adequate planning, screening, and assessment of the airway with primary, secondary, and back-up plans are crucial. With this strategy in place “cannot intubate, cannot ventilate” situations can be handled during an emergency. Psychological and nutritional rehabilitation is essential prior to surgery.

#### **A022 Hematuria during Lumbar Spine Surgery in Prone Position: A Perioperative Challenge**

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**Background:** Hematuria in patients undergoing surgery in prone position is a perioperative diagnostic challenge, making it difficult to find the source of bleeding in this position. Gross hematuria during this period adds to the surgical blood loss, contributing to morbidity, and mortality. We present a case of intraoperative hematuria during lumbar spine surgery in prone position which was investigated postoperatively.

**Case Description:** A 35-year-old female patient of ASA class 1 suffered a fall from fourth floor of construction building with impact on her feet. Radiological assessment at the time of admission revealed L1 burst fracture. Transforaminal lumbar fixation was planned on fourth day following injury. Patient was induced and positioned prone. Thirty minutes after commencement of surgery, sudden onset of frank hematuria was noted which continued over 10 minutes, amounting to approximately 400 mL. Surgery was stopped. Following urosurgical consultation, catheter was

flushed with 250 mL of saline. After flushing, frank hematuria subsided; however, blood tinged urine continued to drain in the postoperative period. Urosurgical workup was done postoperatively. USG KUB was inconclusive. CT urogram was done, revealing retroperitoneal hematoma extending up to right psoas muscle; right perirenal hematoma with renal contusion and clots in urinary bladder. Patient was managed conservatively.

**Conclusion:** Spine injury, renal injury and retroperitoneal hematoma are common occurrence following vertical deceleration injury due to fall from height. High index of suspicion must be maintained even if initial imaging misses these injuries. Intraoperative hematuria in this case was due to dislodgement of clots in kidney, following prone positioning.

#### A023 Airway Management in Frontonasal Encephalocele

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**Background:** Frontonasal encephalocele is a congenital malformation, involving the herniation of intracranial contents from foramen cecum at the junction of nasal and frontal bones. Apart from inherent anesthetic implications of pediatric patients and associated systemic abnormalities; airway management presents an anesthetic challenge.

**Case Description:** A 17-month-old male, weighing 6.2 kg admitted with a large frontonasal (7 cm × 5 cm), encephalocele at glabella, extending down from right nostril to upper lip, planned for bifrontal craniotomy and excision. During preanesthetic evaluation, difficult mask ventilation was anticipated. Since there were no signs of raised ICP, he was premedicated with trichloryl which enabled us for smooth induction. The child was asleep on arrival to OR, steal induction was performed with sevoflurane, and an i.v. cannula was secured. Ability to mask ventilate was confirmed by placing an adult no. 5 mask over the face rotated 180 degrees to fit the contour of the face which gave a good seal along the frontal, zygomatic bones, and mandible. Measures were taken to avoid direct pressure over the eyes by applying soft gauze pads. Direct laryngoscopy with McIntosh blade size no. 2 revealed Cormack–Lehane grade 1. Intraoperative period was uneventful. He was extubated and shifted to the NICU.

**Conclusion:** Patients with frontonasal encephalocele may present with difficulty in mask ventilation. Conventional mask holding can cause potential rise in ICP due to compression of the sac during mask holding and can cause rupture of the sac. Hence the anesthetist must have a rescue plan in the event of not being able to gas induce or mask ventilate.

#### A024 Symptomatic Pneumocephalus following Spine Surgery: A Case Report and Literature Review

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**Background:** Pneumocephalus, though frequently seen after cranial trauma and surgery, is an uncommon complication following spine surgery.

**Case Description:** We present the case of a 20-year-old male patient on whom a D10–L1 laminectomy was performed for the excision of an intradural tumor. The patient experienced a delayed emergence from anesthesia followed by tonic–clonic seizures after extubation. He was stabilized and the seizures were controlled while altered sensorium persisted into the early postoperative period. Imaging studies showed the presence of a pneumocephalus which was managed conservatively in the neurosurgical intensive care unit.

**Conclusion:** Through this presentation, we attempt to throw light on the mechanisms of development of pneumocephalus after surgical interventions on the spine, discuss the clinical presentation and diagnosis, and suggest possible measures to prevent development of this rare yet clinically significant condition.

#### A025 Role of Transesophageal ECHO in Ventriculoperitoneal Shunt Surgery for a Child with Dandy–Walker Malformation: A Case Report

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**Background:** Dandy–Walker malformation (DWM) is a congenital malformation, characterized by enlargement of the posterior fossa, cystic dilatation of the fourth ventricle, and agenesis/hypoplasia of the vermis. We would like to report the role of transesophageal echo (TEE) for confirming the position of distal tip during ventriculoatrial (VA) shunt insertion.

**Case Description:** A 2-year-old boy weighing 7.5 kg was admitted with diagnosis of DWM with shunt dysfunction following a cystoperitoneal shunt and was planned for insertion of VA shunt. Since, the child had features of raised ICP, an intravenous access was secured after applying the EMLA cream. Standard monitors were applied, the child was intubated after fentanyl, propofol, and atracurium using 5-size uncuffed tube. Anesthesia was maintained with propofol infusion till the insertion of VA shunt to avoid further increase in ICP. TEE probe (pediatric) was inserted for confirming the optimal position of the distal tip and to detect air embolism. Child was hydrated well with 20 mL/kg of RL to make the internal jugular vein prominent and to avoid air entrainment while inserting the distal tip into the atrium. All catheters were flushed with saline and 10-degree head down was given while inserting the distal tip. The distal tip was placed at the mid atrial level and its correct placement was confirmed by transesophageal echo.

**Conclusion:** Accurate placement of distal tip of the VA shunt is crucial to ensure long-term shunt function, prevention of cardiac arrhythmias, and myocardial damage. TEE is useful as it provides a real time image, enables continuous monitoring of tip, and occurrence of air embolism.