Abstracts

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BACKGROUND: An awake surgery is a useful measure to remove tumors located close to eloquent areas of the brain to reduce surgical complications and maximize the resection. However, it has some disadvantages compared to surgeries under general anesthesia. Generally speaking, applying it to a child under 15 years-old (y/o) is hesitating because of anxiety, poor tolerance, fear of cooperation in tasks and so forth. Here, we present a case of a 13y/o girl who underwent an awake surgery due to dysmyeloblastic neurepithelial tumor (DNT) located in the left parietal lobe. CASE PRESENTATION: She consulted our hospital for epileptic seizures. MRI showed a multilocular mass lesion in the left parietal lobe. The tumor was located in or close to eloquent areas. The epilepsy was refractory even with multiple antiepileptic drugs (AEDs). A Wada examination revealed that her speech area is on the left hemisphere. The operations were performed in two stages. Prior to the operations, we had several thought-out simulations in the operating room and ICU with her, her parents, and our staff including nurses and lab technicians. The first operation was to perform tumor biopsy and place intracranial electrodes. The histological diagnosis was DNT. Video electroencephalogram showed that the epileptogenic lesion was around the tumor. The second operation resulted in total tumor resection and reduction of paroxysmal epileptic spikes without major complications. She is seizure-free for more than three years with two AEDs. CONCLUSION: Careful preparations may enable an awake surgery even for a child under 15y/o.

SURG-08. SUPRASELLAR DERMOID CYST IN A PEDIATRIC PATIENT
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BACKGROUND: Suprasellar dermoid cysts (DC) are rare congenital non-epileptic lesions that account for 0.04 - 0.6% of all intracranial tumors. They are formed by a fibrous capsule composed of epidermal and dermal derivatives (hair follicles, sebaceous and sweat glands), enclosing a viscous fluid. Intradural DC often arise in the midline and are more common in the infratentorial regions. The resection of the tumor and/or its capsule may be associated with headache, partial motor seizures and behavioral changes. Neurological examination and endocrine workup revealed no abnormalities. Brain magnetic resonance imaging showed a lesion that was 4.4cm x 3.5cm x 3cm, with a diameter of 4cm in size, located at suprasellar region, and extended superiority to the left lateral ventricle and anterolaterally to the left orbitofrontal lobe, associated with hyperintense fat droplets in the right lateral ventricle. We performed a left transventricular microsurgical approach. The tumor capsule was coagulated and opened and a subtotal resection with peacemall removal of the lesion was obtained: it had gelatinous content, associated with droplets of fat and hair and keratinized scamosum epithemum content. A total removal of the DC capsule was not possible due to its firm adherence to optic chiasm and to hypothalamus. Histological examination revealed dermoid cyst. CONCLUSION: Surgery is the only effective treatment, and its goal should be the total resection of the lesion to avoid recurrence. Whenever total resection is not possible, because of the adhesions of the cyst capsule to surrounding tissues, a subtotal resection with piecemeal removal may be a satisfactory option in such cases to avoid high morbidity.

SURG-09. REACTIVATION OF HERPES SIMPLEX VIRUS AFTER NEUROLOGIC SURGERY
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BACKGROUND: Herpes simplex virus encephalitis (HSVE) is a rare complication after neurosurgery, and its clinical picture mimics features of other more frequent infectious complications of bacterial origin. Probably, triggering factors are manipulation and surgical stress, since most cases occur due to reactivation rather than primary infection. The main symptoms include fever and altered consciousness. DNA identification of HSV by PCR has a high accuracy even with adequate treatment, HSV recurrence with a mortality of 30%, and potential neurologic sequelae such as cognitive and motor. CASE REPORT: An 18-year-old male patient presented with loss of vision due to cystic cranioopharyngioma. We inserted an Omaya catheter and drained the cyst. On the third day, presented with fever, seizures, and decreased consciousness. Magnetic resonance imaging (MRI) showed high signal intensity on T2-weighted and FLAIR images in the left frontal and temporal lobe, cingulate gyrus, and corpus callosum, with mass effect. He was submitted to decompressive craniectomy and empirical antibiotic therapy. CSF and blood cultures were negative. Due to ineffectual clinical improvement after 48 hours, CSF was collected for polymerase chain reaction (PCR), and we performed a brain biopsy and started intravenous acyclovir. Histology and PCR confirmed HSVE type 1 and 2. He received antiviral therapy for two weeks and was discharged after a favorable postoperative course. CONCLUSION: Clinical suspicion, CSF PCR, and imaging are of paramount importance for early diagnosis of HSVE, which should be considered in the differential diagnosis of recent postoperative neurosurgical cases in cases of unexplained postoperative fever with altered consciousness.

SURG-10. SPECTROSCOPIC MEASUREMENT OF 5-ALA-INDUCED INTRACELLULAR PROTOPORPHYRIN IX IN PEDIATRIC BRAIN TUMORS
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OBJECTIVE: 5-ALA guided resection of gliomas in adults enables better delineation between tumor and normal brain, allowing improved resection and improved patients’ outcome. Recently, several reports were published regarding 5-ALA for resection of pediatric brain tumors. The aim of this study was to determine the usefulness of 5-ALA for intracranial fluorescence imaging in pediatric brain tumors by hyperspectral imaging and to compare it with visually observed intraoperative fluorescence. METHODS: 5-ALA was administered orally four hours prior to surgery. During tumor resection the fluorescence was assessed in the surgical field to be strong, weak or absent. Subsequently, fluorescence intensity of samples was measured via spectroscopy. In addition, clinical data, imaging and laboratory data were analyzed. RESULTS: Eleven children (1–16 years) were operated. Tumor entities included: three medulloblastomas, two pilocytic astrocytomas (PA), two anaplastic ependymomas and one diffuse astrocytoma, anaplastic ependymoma, pilomixoid astrocytoma and anaplastic pleomorphic xanthoastrocytoma. Strong fluorescence was visible in all anaplastic tumors and one PA; one PA demonstrated weak fluorescence. Visible fluorescence was strongly associated with intracellular fluorescence intensity and PPIX content.