

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, failure to cooperate in tasks and so forth. Here, we present a case of a 13y/o girl who underwent an awake surgery due to dysembryoplastic neuroepithelial 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-06. AWAKE CRANIOTOMY FOR BRAIN TUMOR IN PEDIATRIC PATIENTS

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BACKGROUND: The challenge of surgery in neurooncology is to achieve the maximum extent of resection while preserving eloquent functions. Intraoperative cortical mapping during resection of a brain tumor allows direct stimulation in eloquent areas with a reduction in postoperative deficits. This procedure has been performed in adults and children down to the age of 11 years. There are only two cases reported on the literature of an 8-year-old and 9-year-old child submitted to an awake craniotomy for brain tumor resection. Pediatric patients are prone to more risks than adults because they become easily agitated after pain sensation. Extensive preparation for the procedure is essential for pediatric patients in order to avoid a lack of cooperation. **CASE PRESENTATION:** Two patients, with 9-year-old presented with seizures due to a tumor in the left temporoparietal region. In order to identify language and motor-controlling areas during resection, we proposed an awake craniotomy. Because of their ages, they were prepared by a multidisciplinary team. The children's cooperation during the mapping procedure and tumor resection were exceptional. Postoperative cranial MRI confirmed partial resection of the lesion, whose remnant was located in the left motor area. No seizures occurred during the postoperative period, and both were discharged without a neurological disability on the fifth day after the surgery. Histology revealed a dysembryoplastic neuroepithelial tumor (WHO grade I). **CONCLUSION:** Brain mapping during resection of a tumor in an awake pediatric patient is feasible and can be safely performed even in patients under 11-year-old.

SURG-07. CEREBELLAR PEDUNCLE TUMORS IN PEDIATRIC NEUROSURGERY: FEW CITATIONS FOR BEING RARE OR FOR LACK OF AWARENESS

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We present a case-series of 6 pediatric patients, with a follow-up for a minimum of 1 year, with a diagnostic, therapeutic and prognostic description. This type of disease was first mentioned by Professor Tomita in 1986, in a case-series with 4 patients, with few citations in literature, no other case series cited at the literatures. and in our oncology center of excellence it is an entity that draws attention for diverging from intrinsic tumors of the cerebellum, fourth ventricle and trunk. In this way, we created an algorithm approaching these patients and would like to present this associated to honoring the esteemed professor in neurosurgery.

SURG-08. SUPRASELLAR DERMOID CYST IN A PEDIATRIC PATIENT

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BACKGROUND: Intracranial dermoid cysts (DC) are rare congenital non-neoplastic lesions that account for 0.04 – 0.6% of all intracranial tu-

mors. 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 infratentorial locations. **CASE REPORT:** A 14-year-old male patient presented 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 2.2cm x 4.4cm in size, located at suprasellar region, and extended superiorly 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 piecemeal removal of the lesion was obtained: it had gelatinous consistency, composed of droplets of fat and hair and keratinized scaly epithelium 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 radical resection of the lesion to avoid recurrence. Whenever radical 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 most frequent infectious complications of bacterial origin. Probable 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 accuracy. Even with adequate treatment, HSVE is associated 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 craniopharyngioma. We inserted an Omaya catheter and drained the cyst. On the third day, he 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 inexpressive 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 for two weeks and was discharged after CSF PCR negative. **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 neurologic surgery 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 glioma 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 the study was to determine the intracellular fluorescence of PPIX 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 surgeon assessed the fluorescence signal 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 astrocytoma, pilomyxoid 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 concen-