Poster session 1

A-0140

Surgical approaches for benign craniovertebral tumours in paediatric patients: A local experience analysis

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Introduction : Paediatric patients with lesions at the craniovertebral junction pose unique challenges in neurosurgery. We provide a comprehensive analysis of microsurgical resection either far lateral of midline suboccipital approach in the pediatric population, focusing on indications, methodology, surgical outcomes, and critical discussions.

Material & Methods : We report our surgical experience in the treatment of 6 consecutive patients with benign craniovertebral junction (CVJ) tumour with the mean age of 11 years (range of 5 to 18 years) who underwent microsurgical resection in our neurosurgical department from January 2021 to September 2023. We had treated 3 cervicomedullary ependymoma, 1 cervicomedullary pilocytic astrocytoma and a singular foramen magnum meningiomas. All patients underwent preoperative neuroradiological evaluation with computed tomography (CT) and magnetic resonance image (MRI).

Results : 2 far-lateral and 3 midline suboccipital with cervical laminoplasty approaches were performed. Gross total removal was achieved in 4 cases (80%) and subtotal removal in 2 patient (20%). None of the patients required occipitocervical fusion. Radiological follow-up showed no recurrence in cases totally removed. Postoperative complications included CSF leaks (n=1) and surgical site infections (n=1), which were managed successfully.

Conclusions : The selection of surgical approaches and the extent of bone resection in neurosurgery are pivotal decisions, intricately tied to the precise characteristics of individual tumors. It is important to emphasize that preoperative neuroradiological assessments, coupled with a thorough understanding of the presumptive tumor type, play a pivotal role in guiding the surgeon's strategy. These enable the tailoring of surgical techniques and the provision of optimal exposure for various lesions.

Poster session 1

A-0081

Unusual presentation of Dandy walker syndrome as cervico-thoracic syrinx| Case report and literature review.

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Introduction : Dandy walker syndrome (DWS) is an uncommon congenital malformation characterized by hypoplasia of the Cerebellar vermis and cystic enlargement of the 4th ventricle that results in upward displacement of the tentorium and trocula. It is presumed that the underlying embryological cause is described by imperforation of Blake's pouch during intrauterine brain development of the roof of the fourth ventricle and cerebellar vermis.

Material & Methods : We outline a case of an 11 years old boy with an unusual presentation of neck pain and stiffness associated with multiple episodes of vomiting, occipital headache, along with gait abnormalities all over the course of one month. NeuroImaging was consistent with Dandy walker malformation and hydrocephalus plus a cervico-thoracic syrinx.

Results : The patient was admitted for a surgical intervention to relieve the intracranial pressure (ICP) as his imaging confirmed the association of hydrocephalus. A cysto-peritoneal shunt (CPS) was placed followed by an immediate relieve of the patient's symptoms and resolution of his neck pain and stiffness as well. Consent was obtained from the parents for publishing this case.

Conclusions : Our case highlights a rare association of DWS with syringomyelia. It has a poorly understood pathogenesis representing an impairment of CSF circulation. The outcome of the surgical intervention was satisfying with immediate relief of the ICP.

Poster session 1

A-0181

A case of intractable hydrocephalus due to choroid plexus hyperplasia associated with 9p tetrasomy/hexasomy mosaic

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Introduction : Choroid plexus hyperplasia has been reported as a complication of trisomy and tetrasomy of chromosome 9p and cause hydrocephalus. We report a case of intractable hydrocephalus with 9p tetrasomy/hexasomy mosaic who required ventriculoperitoneal shunting (VPS), choroid plexus cauterization (CPC), and staged bilateral choroid plexectomy (CP).

Material & Methods : A 10-month-old girl.

Results : From the time of her birth, she had a peculiar facial appearance, cardiovascular anomalies, mildly enlarged lateral ventricles, and increased size of choroid plexus. Chromosome examination revealed a marker chromosome of unknown origin. At around 8 months of age, hydrocephalus gradually worsened, so she was admitted to our hospital at 10 months of age. On the fourth day of admission, right VPS and CPC were performed. Two days after surgery, abdominal distention due to ascites accumulation became prominent and required placement of an abdominal drain. Since the cerebrospinal fluid (CSF) production did not decrease, right CP was performed on the 28th day of admission, followed by left CP on day 41. VPS was reinserted on the left side, and she was discharged on day 96 of hospitalization without any subsequent symptoms. FISH and microarray chromosome analysis revealed 9p tetrasomy/hexasomy mosaic (47,XY,+der(9)t(9;9)(p24;q13)[10]/48,XX,+der(9)t(9;9)(p24;q13),+idic(9)(q13)[10]).

Conclusions : In previous reports, hydrocephalus due to choroid plexus hyperplasia with 9p duplication required additional surgical treatment on VPS implantation. This is the first case of 9p tetrasomy/hexasomy mosaic, nevertheless the relationship between the number of 9p duplications and CSF production is unclear. Cases with high number of 9p duplications may require multiple treatment modalities.

Poster session 1

A-0084

Limited dorsal myeloschisis associated with intramedullary infantile hemangioma in the conus medullaris: a case report

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Introduction : Limited dorsal myeloschisis (LDM) and intramedullary infantile hemangioma rarely coexist in the spinal cord.

Material & Methods : We report the case of a 3-month-old girl who, despite lacking neurological symptoms or signs, had a cigarette burn-like mark at the lumbosacral area and skin dimpling in the gluteal area.

Results : Magnetic resonance imaging showed a low-set conus due to a thickened filum and an abnormal subcutaneous stalk connected to the conus medullaris. In combination with the skin lesions, these findings strongly implied nonsaccular-type LDM. Magnetic resonance imaging also showed an intramedullary mass homogenously enhanced with iso intensity on T1- and T2-weighted images in the conus medullaris. We prophylactically untethered the spinal cord and partially removed the intramedullary mass, which had no clear borders, for a safe surgical dissection. Histologically, the intramedullary mass was an infantile hemangioma, and the subcutaneous stalk was a lesion associated with LDM. The patient remained neurologically intact after surgery, and then two years later, there was spontaneous regression of the residual tumor.

Conclusions : Although rare, nonsaccular type LDM may appear concurrently with intramedullary infantile hemangioma at the conus medullaris. We hypothesized that the secondary neurulation might be associated with the occurrence of the intramedullary infantile hemangioma in the conus medullaris and the LDM with the subcutaneous stalk penetrating the interspinous ligament below the S1–2 level.

Poster session 1

A-0068

A case of Alagille syndrome associated with craniosynostosis

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Introduction : Alagille syndrome is well known to pediatricians an autosomal-dominant hereditary disease with hepatic dysfunction causes intrahepatic cholestasis, that is usually diagnosed by some accompanied abnormalities such as cardiovascular, ocular, vertebral, and facial abnormalities, in addition. Incidence of craniosynostosis (CS) is reported in 0.9% of Alagille syndrome.The case of Alagille syndrome with CS is discussed.

Material & Methods : The case involved a 6 years and 5 months old boy. His mother and sister, respectively, had been clinically and genetically diagnosed with Alagille syndrome. He had been clinically diagnosed of the syndrome in infancy, following hepatic damage, mild pulmonary artery stenosis, and characteristic inborn facial features. The boy has not received any treatment, grown uneventfully. Due to severe headache and vomiting one week prior to the visit, Magnetic Resonance Imaging showed cerebellar tonsillar herniation to the C1 level. The patient was then referred to our department. Computed Tomography was performed because of dolichocephalic cranial distortion, and illustrated bilateral lambdoid and sagittal synostosis, and head radiography revealed severe digital impression. Ophthalmologic assessments found bilateral papilledema and vision loss. When blood tests showed no coagulopathies, hepatobiliary enzymes were mildly increased. revealed fatty liver is proved by abdominal ultrasound sonography.

Results : A semi-urgent extended suturectomy was performed without blood transfusion and with no complications. Headache, vomiting, papilledema, and vision loss had shortly disappeared.

Conclusions : Even late-onset intracranial hypertension symptoms in CS associated with Alagille syndrome could be expected to improve with earlier surgical intervention.

Poster session 1

A-0082

Helmet Therapy for brachycephaly

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Introduction : We started helmet therapy for cranial deformity in infants last year using a helmet manufactured by Japan Medical Company. Thirty-one patients have started helmet treatment since then. Brachycephaly is known to be more difficult to improve with helmet therapy than plagiocephaly. In this study, we investigated the therapeutic effect of helmet therapy for brachycephaly.

Material & Methods : We assessed the severity of brachycephaly using the cephalic index (CI). The severity was graded on a scale of 5 (CI: 94-97, 97-100, 100-103, 103+, corresponding to level 2, 3, 4, 5). We evaluated the severity of brachycephaly in 5 patients who had level 2 or higher brachycephalic shape and completed 6 months of helmet therapy.

Results : We observed an improvement of 2 or more levels in all patients. The severity of brachycephaly at the end of treatment was improved to a level that is not actively recommended for helmet therapy. One of the five patients had undergone suturectomy for coronal synostosis.

Conclusions : Helmet therapy is effective in brachycephaly. We also confirmed a good result in the patient with coronal synostosis who underwent postoperative molding helmet therapy.

Poster session 1

A-0155

INTRINSIC BRAINSTEM EPIDERMOID CYST. A rare case report.

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Introduction : Brainstem epidermoid cysts are rare among all brainstem lesions, and they are exceptionally uncommon in pediatric. We present a rare case of a purely cystic brainstem epidermoid cyst in a 4-year-old child. Initially, the brain MRI suggested a low-grade brainstem glioma or a cystic lesion in the brainstem. The patient underwent surgery, and the final diagnosis of an epidermoid cyst was confirmed through histopatholoy.

Material & Methods : A 4 year – old girl presented with clinical symptoms of dysphagia, weakness on the right side, ataxia for five months prior to admission. Her brain's MRI suggested a 28mm cystic mass located in the pons,no evidence of gadolium enhancement, suggested a low-grade glioma or a cystic lesion in the brainstem. The patient was scheduled for surgery, underwent a retrosigmoid approach. Intraoperatively, the tumor was located anterior to the brainstem, enveloped within the arachnoid membrane, revealed a homogeneous, opaque fluid tissue, we completely aspirated the contents within the tumor capsule and made efforts to achieve maximal resection of the tumor capsule

Results : Postoperatively, the patient was completely recovered, and no complication was reported. Histopathological examination revealed the epidermoid cyst. MRI performed three days post-op demonstrated complete tumor removal without any signs of bleeding. Subsequent MRI follow-up at one month, one year after the surgery showed no evidence of tumor recurrence

Conclusions : An epidermoid cyst is an exceptionally rare benign lesion found in the brainstem. Surgery is indicated when the patient presents with clinical symptoms in conjunction with imaging diagnosis, and the gold standard for a definitive diagnosis is histopathology.

Poster session 1

A-0021

Radiologic Follow-up of Ruptured Arachnoid Cysts With or Without Hemorrhage

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Introduction : Arachnoid cysts are usually asymptomatic and discovered incidentally. However, cysts may occasion[1]ally rupture because of minor head trauma. We describe the radiologic follow-up of 5 patients with ruptured arachnoid cysts featuring spontaneous resolution, subdural hygroma formation, and cystic and subdural hemorrhage.

Material & Methods : From January 2004 through July 2020, 5 patients (1.3%) with ruptured arachnoid cysts were encountered out of a total of 388 patients with arachnoid cysts managed at our institution. The 5 patients were all male, and they ranged in age from 6–17 years (median, 12 years). The median duration of radiologic follow-up was 3.5 years (range, 2.3–10.1 years).

Results : All of the ruptured arachnoid cysts were overlying the temporal lobe with Galassi type II. The median cyst diameter was 4.9 cm (range, 4.4–8.9 cm). Four patients had a history of recent minor head trauma. There were no particular neurologic symptoms in their past medical history in all patients. In the follow-up, two patients' cysts resolved spontaneously without hemorrhage. One patient's cyst resolved post-burr-hole drainage for chronic subdural hemorrhage. Another patient, whose cyst led to a hemorrhage and chronic subdural hemorrhage, recovered following a craniotomy, hematoma removal, and cyst fenestration. Another patient, presenting with hygroma, cystic hemorrhage, and chronic subdural hemorrhage, was treated with burr-hole drainage. Three patients recovered postoperatively.

Conclusions : Arachnoid cysts rarely rupture, and surgical intervention is required for some cases associated with hemorrhage. Postoperatively, all patients had good outcomes without complications in this series.

Poster session 1

A-0023

Surgical Management of Pediatric Middle Cranial Fossa Large Arachnoid Cyst Associated with Hemiparesis: Case Report

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Introduction : Intracranial arachnoid cysts (IACs) are space occupying lesion containing fluid similar to cerebrospinal fluid (CSF), they are benign and of congenital origin represent 1% of non-traumatic intracranial masses. They were found mostly in children and commonly in the middle temporal fossa. Most IACs are asymptomatic and may not show any symptoms throughout life, clinical manifestation may vary depending on location and size of the IACs.

Material & Methods : We report a case of a 15-years old male with history of headache and progressive right-side weakness since he was at 8 years old. He has history of seizure when he was one year old and the last seizure occurred 6 months before admission, treated with divalproex acid 250 mg daily. We found spasticity, atrophy and weakness in both right upper and lower extremities with motor strength of 2/5. He was able to understand speech and speak fluently. A brain computerized tomography (CT) scan performed revealed a non-enhanced cystic lesion in the left frontotemporal regio connected to subarachnoid space with 8,3cm x 4,6cm x 9cm in dimension and displaced the left frontal and temporal lobe. We decided to perform a cyst peritoneal shunt to reduce mass effect from the space occupying lesion cyst.

Results : On post operative follow up, the patient showed gradual improvement in motor strength and diminishing spasticity.

Conclusions : Treatment of IACs is controversial to this day, in minds to achieved improvement state of the clinical condition, we purposed the patient would benefit from surgical management to maintain and reduce enlargement of the cyst.

Poster session 2

A-0059

Novel use of Gamma Knife Radiosurgery in the treatment of cerebral Hepatoblastoma metastasis

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Introduction : Hepatoblastoma is the most common pediatric liver malignancy1,2,3. 20% of patients have advanced hepatoblastoma with distal metastasis at diagnosis1,4. Treatment is primarily through surgical resection and chemotherapy4. In this paper, we present a case report on the novel use of Gamma Knife Radiosurgery (GKS) as a mode of treatment for hepatoblastoma brain metastasis where surgical resection and chemoradiotherapy had failed to control the disease.

Material & Methods : A 2 year old boy was diagnosed with hepatoblastoma with lung, vascular and cerebral metastases. The liver, lung and vascular lesions were resected with no obvious recurrence. The solitary brain metastasis was resected twice and treated alongside chemotherapy and linear accelerator (LINAC) radiosurgery. Despite this, the cerebral metastasis still recurred. In view of the presence of a solitary cerebral metastasis with no disease elsewhere and the dismal prognosis with uncontrolled disease, decision was made to trial treatment with GKS.

Results : The tumour was treated with GKS using a 18Gy treatment dose. There was an initial reduction in tumour size sustained for a few months before eventual recurrence again. Treatment was tolerated well with no reported side effects. A review of current literature did not show any results on prior use of GKS on cerebral hepatoblastoma.

Conclusions : The use of Gamma Knife Radiosurgery in hepatoblastoma brain metastasis has shown promising radiological results despite the eventual recurrence. More studies can be done to evaluate and optimize the use of GKS in treatment of hepatoblastoma cerebral metastasis

Poster session 2

A-0075

Staged operation with Ommaya reservoir placement for cystic craniophrayngioma

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Introduction : The surgery of craniopharyngioma (CP) is challenging and demand consideration due to the tumor's location in close proximity to critical neurovascular structures and hypothalamus. This report aim to introduce a new surgical strategy to remove CP with maximal safe resection.

Material & Methods : An 8-year-old girl was admitted to the hospital with diplopia and decreased visual acuity. Preoperative brain magnetic resonance imaging (MRI) revealed 10cm-sized large cystic CP with fine calcification. Intraoperatively, the tumor capsule was too thin and adhered to surrounding normal structures, making it difficult to remove safely. She underwent Ommaya reservoir placement and received periodic cystic aspiration through reservoir for 1 year. On follow-up MRI, the cyst had significantyl shrunk and the tumor-pial plane became more distinct. The capsule of the CP can be sharply dissected and gently removed using scissors and a microbayonet and the tumor was nearly completely removed without damaging surrounding structures.

Results : Our results demonstrated that the surgical goal and maximal safe resection were successfully achieved through the proposed staged surgical strategy. In addition, reducing the cyst size through Ommaya reservoir was associated with more easily dissection of tumor capsule, a shorter operative time, minimal bleeding, and a lower incidence of complications.

Conclusions : The staged surgical strategy with Ommaya reservoir placement represents a safe and effective option for managing cystic CP in pediatrics.

Poster session 2

A-0107

Smooth Muscle Tumor post Ebstein Barr Virus infection in patient with likely Primary Immunodeficiency Disorder

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Introduction : Smooth muscle tumor (SMT) following Ebstein Barr Virus (EBV) infection is a rare oncology entity. It occurs in immunocompromised patient such as patient of human immunodeficiency virus infection or patients on immunosuppressant treatment. In paediatrics age group, this tumor can occur in a patient with Primary Immunodeficiency Disorder (PID).

Material & Methods : NA

Results : A case of 9 years old girl presented with bilateral temporal headache for 4 months. The headache was increasing in frequency associated with nocturnal awakening and restriction of neck movement. She experienced constitutional symptoms of lethargy, reduce appetite and poor weight gain. Her neurological assessment was unremarkable and proceeded with CECT brain and neck where an extradural mass was seen at cervical region. MRI cervical was done and C1/C2 intradural extramedullary mass seen with extradural component causing mass effect. Supplementary abdomen USG revealed liver lesion. Neck USG guided biopsy done and histopathology examination (HPE) came back as round cell tumor. Patient developed progressive worsening in her neurology associated with neuropathic pain. She underwent c1-c3 laminectomy and tumor debulking. HPE result was spindle cell lesion consistent with EBV associated related SMT. She is recovering and regained some motor function. Repeated MRI whole spine showed tumor regrowth, and started on sirolimus, with plan for future re-operation. Based on HPE results and multifoci lesion, PID with immune dysregulation was possible the likely diagnosis. Genetic study ongoing and pending result.

Conclusions : The pathogenesis of EBV+ SMTs remains largely unknown, but it is evident that an immunocompromised host may present with this manifestation of PID.

Poster session 2

A-0111

High grade tumor mimicking vascular anomaly

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Introduction : High grade tumor with abnormal vasculature may present as vascular anomaly in early imaging especially if patient presented with intracranial bleed. Abnormal cerebral vasculature can be a manifestation of a vascular malformation or a neoplastic process.

Material & Methods : NA

Results : a boy of 8 years old initially presented with sudden onset of headache and reduce consciousness and multiple imaging done – CT brain, CTA Brain, MRI, MRA, MRV Brain; giving diagnosis of intraparenchymal bleed (IPB) secondary to ruptured arteriovenous malformation (AVM). He was counselled for DSA however parents were not keen. He has multiple episode of hospital admission for recurrent IPB. Family refuse for any invasive diagnositic imaging and surgical management. He presented 3 years later with worsening headache and vomiting episode. Urgent CT brain done revealed a large intraparenchymal lesion. Proceeded with urgent MRI brain and revealed a lesion suspicious of high grade with multiple serpangenous vessels seen. Parents was counselled for DSA and surgery and they were agreeable. DSA done and reported as right temporal tumor. Operation was done on the same day which was right craniectomy and debulking of tumor. Patient recovered GCS to obeying command but subsequently succumbed to infection, recurrent bleeding tumor and aggressive tumor regrowth. Although rare, there have been a few reports of glioblastoma mimicking vascular lesion in which initial imaging does not clearly distinguish between the two.

Conclusions : In conclusion, glial tumors can present in different forms and should be considered in the differential diagnosis of intracranial hemorrhage, especially in the absence of predisposing factors.

Poster session 2

A-0119

Two case studies describing rapid growth of childhood intracranial teratoma

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Introduction : Teratoma is a type of non germinomatous germ cell tumour. It is an uncommon paediatric brain tumour which frequently see in East Asian countries. It arise from differentiated stages of embryonic development precursor of germ cell. Our case series portrayed the accelerated growth of tumour which has been reported in only one case previously. This emphasizes the need of urgent surgery.

Material & Methods : Our case series depicted an infant of 1.5 months old and 4 years old child which presented with symptoms of raise intracranial pressure secondary to acute hydrocephalus. The infant who had normal detailed ultrasound scan antenatally was born healthy and well until the point of diagnosis 1.5 month later. Meanwhile the boy initially presented with unexplained acute hydrocephalus showed large intra-axial tumour in repeated MRI after 5 months.

Results : Both child underwent surgery with total excision of tumour subsequently. Intraoperative revealed mixture of cartilaginous tissue, bone and skin during surgery. Histopathology reported as immature and mature teratoma respectively. Both child was healthy and well after surgery

Conclusions : Teratoma can be classified into three subtypes of immature, mature and somatic type. MRI have the typical features of mixtures of cystic and solid, multilocularity and fatty tissue within. Mature teratoma consist of fully differentiated tissue with minimal mitotic activity meanwhile immature contained fetal like undifferentiated tissue with higher mitotic rate. Somatic have combination of both with necrosis within.

Poster session 2

A-0139

The invisible culprit: A case of unexplained communicating hydrocephalus in a toddler as the first presentation of an intracranial teratoma

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Introduction : Teratoma is a rare tumour of non germinomatous germ cell tumour. It can be further subtype into immature, mature and somatic type according to histology. It is more common in East Asian countries with peak age of 0-2 and 13-19 years old.

Material & Methods : We report a case of symptomatic acute communicating hydrocephalus with normal brain parenchyma on MRI. He developed progressive left hemiparesis. The repeat MRI brain which was about 5 months after the ventriculoperitoneal shunt showed a large right thalamic lesion measuring 4.5 x 3.5 cm. The tumour markers were negative. Interhemispheric approach and total excision was achieved. There was no adjuvant therapy.The child was neurologically intact with improvement in hemiparesis at 6 months. The MRI brain in 6 months showed no recurrence.

Results : In this case, the first presentation was acute communicating hydrocephalus where no lesion or intracranial oedema can be visualise which is peculiar. However in the repeated MRI 5 months apart, a huge lesion suddenly appeared. This was a rare event with only one reported similar clinical and radiological findings of pineal region mature teratoma. However the lesion was only discovered after a year and was initially diagnosed as functional aqueduct stenosis and treated with ventriculoperitoneal shunt.

Conclusions : Communicating hydrocephalus may be the first presentation of teratoma with delayed radiological findings of the lesion. Hence repeated MRI in unexplained communicating hydrocephalus is justifiable. Diagnosis of teratoma required a correlation between clinical, radiological, CSF protein marker, intraoperative findings and histology subtype to devise an appropriate treatment plan.

Poster session 2

A-0179

The Role of Heat Shock Protein 70 in Stemness and Drug Resistance of Medulloblastoma

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Introduction : Medulloblastoma (MB) is the most common children's malignant brain tumor. Although MB can be treated with conventional chemotherapies, chemoresistance has been frequently developed and thereby hampers their therapeutic effectiveness. HSP70 has been found in cisplatin-resistant colorectal cancer, bladder cancer, ovarian cancer, brain tumor, and certain cancer stem cells (CSCs). Our preliminary data also confirmed high expression of HSP70 in MB CSCs (CD133+). The purpose of this study is to verify the regulatory function of HSP70 in chemoresistance and stemness of MB.

Material & Methods : The levels of HSP70, its client proteins, and stemness makers were detected using immunoblotting and immunoprecipitation after the treatment of HSP70 inhibitor VER155008 or knockdown of HSP70 by siRNA in MB and MB CSCs. The antitumor effects of VER155008 or knockdown of HSP70 on these cells were evaluated by MTT assay, Annexin V/PI analysis and sphere formation assay.

Results : CD133+ MB CSCs possessed high levels of HSP70. Inhibition of HSP70 resulted in reduced expression of stemness markers and sphere formation in CD133+ MB CSCs. Treatment with VER155008 exhibited antitumor activity in CD133+ MB CSCs. Additionally, combination of conventional chemotherapeutic agents and VER155008 yielded a synergistic effect on MB cells.

Conclusions : These results illustrated that inhibition of HSP70 could eliminate CSCs, and thereby overcome resistance to chemotherapeutic agents in MB. Chemotherapies in combination with HSP70 blockade may be an emerging MB therapy in the future.

Poster session 2

A-0180

Giant supratentorial brain tumours: case series from a Singapore children's hospital

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Introduction : Giant supratentorial brain tumours (GSBT) in children are defined as intracranial neoplasms with at least 5 cm diameter in size. Factors such as young patient age, life-threatening symptoms of raised intracranial pressure, histopathological variability, intraoperative blood loss, and the risk of poor long-term outcomes are difficulties faced by paediatric neurosurgeons. This study is undertaken to review our institutional outcomes of patients diagnosed with GBST, in corroboration with published literature.

Material & Methods : This is an ethics-approved, retrospective study based at the KK Women's and Children's Hospital, Singapore. All patients aged less than 19 years and with a confirmed diagnosis of supratentorial brain tumour of at least 5 cm in size are included. Variables of particular interest include patient demographics, presenting symptoms, histological diagnosis, perioperative factors, and functional outcomes. A corresponding literature review on GBST is performed.

Results : A total of 10 patients over a 6-year period were included in our study. Most of them were females (80%) and the median age was 5.98 years old. The average tumour volume was 178 cm2 (range 85 to 245.8 cm2). Three patients (30%) underwent either biopsy or subtotal resection of their tumours followed by neoadjuvant chemotherapy before definitive resection. Histology was heterogenous: 2 ependymoma, 2 astrocytomas, 1 choroid plexus carcinoma, 2 sarcomas, 1 embryonal tumour, 1 malignant melanoma and 1 craniopharyngioma. All patients achieved GOS-E Peds 1 to 2 postoperatively and there was no associated mortality.

Conclusions : GBSTs in children are extremely challenging entities. An individualised approach by an experienced multi-disciplinary, patient-centric team is essential for optimal outcomes.

Poster session 3

A-0145

Surgical management of drug-refractory epilepsy associated with GATOR1 variation related malformation of cortical development

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Introduction : To investigate the clinical features and surgical outcome of GATOR1 variation-related malformation of cortical development (MCD).

Material & Methods : A total of 35 MCD children with GATOR1 mutation admitted to the Pediatric Epilepsy Center of Peking University First Hospital from January 2015 to December 2020 were studied. The genetic characteristics, clinical features, surgical procedure and surgical outcome were retrospectively analyzed.

Results : The proportion of patients with GATOR1 variant were DEPDC5 71.43%, NPRL2 11.43% and NPRL3 17.14%. The incidence of simple focal seizure was 65.71%. Epileptic lesions involving frontal lobe were the most common (n=23, 65.71%), while occipital lobe lesions were the rarest (n=3, 8.57%). The surgical procedure includes focal resection, mono/multiple lobe disconnection surgery, or hemispherotomy. The postoperative pathology was mainly FCDIIa (n=20, 58.82%). Until the last follow-up, the seizure-free rates of patients with DEPDC5, NPRL2 and NPRL3 variants were 88%, 75% and 33.33%, respectively. Kaplan-Meier survival curve was used to evaluate postoperative seizure-free rate, and the surgical outcomes of patients with DEPDC5 mutation was significantly better than that of patients with NPRL2 and NPRL3 mutation (p=0.0055).

Conclusions : Radical surgical treatment of epilepsy is an effective method for the management of drug-resistant epilepsy in children caused by MCD related to GATOR1 mutation. The surgical outcome is best in patients with DEPDC5 mutation and poor in patients with NPRL3 variant.

Poster session 3

A-0105

Child with unexplained visual loss – Rare vascular compression on anterior optic pathway

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Introduction : Visual loss following a vascular compression to the anterior optic pathway is rare occurring incident. Few cases has been reported and most of the cases occurs among the adults and elderly population.

Material & Methods : NA

Results : We are discussing on a case where a 7 year old boy came with a sudden onset loss of vision on the right eye and progressively worsening involving left eye. Multiple investigations done to determine the cause of the visual loss including visual assessment, hormonal study, visual evoke potential and MRI brain and orbit. His visual assessment gradual worsen over 3 months duration, where right eye visual assessment progressed from hand movement to no perception of light and left eye visual assessment progressed from 6/24 to 6/60. Otherwise, other ophthalmology assessment, blood parameters and hormonal panels were unremarkable. MRI brain and orbit revealed supraclinoid portion of right ICA compressing on lateral portion of optic chiasm and right intracranial portion of ICA with no abnormal morphology of the vascular structure. He underwent microvascular decompression and post-operatively, recovered well.

Conclusions : In conclusion, diagnosis of vascular compression should be entertained when patient presented with unexplained sudden onset and rapidly progressing visual loss.

Poster session 3

A-0054

A case of ruptured pediatric cervical perimedullary arteriovenous fistula treated with endovascular embolization.

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Introduction : We report a boy with a ruptured cervical perimedullary arteriovenous fistula (PAVF) treated with endovascular embolization with a literature review.

Material & Methods : A 10-year-old boy with no abnormalities in his upbringing or family history, on the morning of admission, complained of posterior neck pain. In the afternoon, he developed paralysis in his upper limbs, which later progressed to his extremities. After transport to the first hospital, he developed consciousness and respiratory disturbance and was transferred to our PICU. Head MRI showed edema in the medulla and dilated veins in the posterior cranial fossa. Contrast-enhanced spinal CT showed an intramedullary hematoma centered on C4, extensive edema from the medulla to Th3, a buried contrasted mass in the posterior cord of C4, and dilated drainers. Angiography was performed under general anethsecia and a diagnosis of varix rupture of PAVF with right C4 dorsal root artery and right ascending cervical artery as feeders. Endovascular embolization was performed using 33% NBCA from a microcatheter placed just after the fistula and the shunt was gone.

Results : Postoperatively, after tracheotomy, he was weaned off the ventilator with rehabilitation and showed improvement in spinal cord disability, such as eating with his hands and walking with a walker. After a month, the follow-up angiography showed the disappearance of PAVF. He was discharged 8 months after and returned to school 11 months after onset.

Conclusions : In this case, we were able to approach the ruptured varix beyond the fistula through a dilated feeder and to treat the PAVF in a single endovascular surgery.

Poster session 3

A-0157

Massive Intracerebral Hemorrhage Caused by a Cavernous Malformation

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Introduction : Cavernous malformations have an annual bleeding incidence of 0.2-2.3%. Most hemorrhages attributable to cavernous malformations are characterized by microhemorrhages and are seldom catastrophic or fatal. Most notably, supratentorial cavernous malformations leading to massive, life-threatening hemorrhages are rare entities.

Material & Methods : In this report, we describe a case with a supratentorial cavernous malformation resulting in a life-threatening, massive hemorrhage.

Results : A 17-year-old female presented with a 3-week history of declining mental status. Brain computed tomography and magnetic resonance imaging revealed a sizable intracranial hemorrhage, within the right occipital region, associated with a small nodule at the hematoma's posterior margin. An emergency operation removed the entire hematoma and nodule. Histological examination of the nodule was compatible with a diagnosis of cavernous malformation. The patient's post-operative course was uneventful.

Conclusions : We presented the case of a massive intracerebral hematoma caused by a small, superficially-located supratentorial cavernous malformation with clinical features and a review of the literature.

Poster session 4

A-0099

A Case of traumatic orbital roof fracture with a good outcome in young children due to stick of traditional small hand drum(percussion instrument)

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Introduction : Orbital roof fractures are a less common but serious problem of cranium and orbit. Intraorbital injury may warrant surgical treatment to remove impinging bony fragments, repair dura or reconstruct the orbital roof.

Material & Methods : Four year old girl was admitted to hospital due to eyelid laceration on left side by stab injury because of the stick of traditional small hand drum during playing music in kindergarten. There was no abnormality in the eyeball motion and visual acuity performed except eyelid laceration with swelling in the emergency room. Cranial and maxillo-facial CT scans showed unusual features of orbital roof fracture with parenchymal injury. The shape of the orbital roof fracture occurred in the vertical direction and caused dura tear and brain tissue damage. She underwent emergency operation by bicoronal frontal craniotomy and orbital roof reconstruction using autologous bone (fractured bone fragment) with duroplasty.

Results : The patient recovered completely after the operation. Follow-up test results after one year there was no optic problem and no evidence of neurological deficits and no growing fractures of the orbital roof. By depending on the case, in young children play with sticks as toys may cause orbital damage and head injury, so caution is necessary. The fracture of the skull of the child is caused by the thin nature of the depressed fracture. However, after the damage to the brain is often good resilience.

Conclusions : Author report a case of unusual features orbital roof fracture with a good outcome in young children due to stick of traditional small hand drum.

Poster session 4

A-0147

Case report : management of traumatic supra and infra tentorial epidural hematoma in pediatric case

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Introduction : Epidural hematoma (EDH) in pediatrics is a neurosurgical emergency, accounting for 2-3% of head injuries in the pediatric population. Traumatic supra- and infra-tentorial epidural hematoma (TSIEDH) is a rare complication <2% of all EDH cases. Until now only a few articles have reported the incidence of TSIEDH.

Material & Methods : We report a case of traumatic supra- and infra-tentorial EDH at Dr Mintohardjo Navy Hospital Jakarta on September 27 2022. a 6 years old female admitted with headache on the back of her head, drowsyness, and irritable since 24 hours before, her parents claimed she fell with back of her head to the floor 2 days before admission and the Glassglow coma scale (GCS) score is 13, during palpation swelling and pain on occipital region with observable hematom.

Results : Computed tomography (CT) scan shows epidural bleeding fills the right occipitocerebellar concavity accompanied by an occipital region hematoma, with obliteration of the IV ventricle by the right cerebellar hemisphere. We performed emergency craniotomy with two burr hole method to evacuate the hematom.

Conclusions : Diagnosis and management are carried out as early as possible because the clinical manifestations of TSIEDH are non-specific and sudden deterioration might occured. This case using a CT scan is the main choice for making a diagnosis. We found out early diagnosis and intervention to evacuate a hematoma with surgery is an important factor that affects the prognosis and outcome in TSIEDH case.

Poster session 4

A-0057

Huge intracranial abscess causing significant mass effect and neurologic deficit with lumbar spine extension after ENT sinusectomy

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Introduction : Pediatric brain abscess is a serious medical condition which can lead to significant neurological deficits and even life-threatening complications. Significant decline in mortality rate has been noted in recent years but remains a potentially fatal central nervous system infection if not promptly diagnosed and treated.

Material & Methods : A 8-year-old girl was brought to our ER due to intermittent high fever and vomiting. Progressive drowsiness was noted, with the worse GCS being E2V2M4. She underwent a left sinusectomy about 1.5 months ago to treat her chronic sinusitis. Her dad felt that her general condition changed slightly about 2 weeks ago where mild general weakness was observed and she even urinates/defecates without telling, and was punished for that. Emergent brain was CT was ordered and showed a 7cm cystic, enhancing mass at left frontal region with significant mass effect. Abscess was favored and surgical intervention was proposed and performed smoothly with endoscope assist.

Results : She was sent to ICU after taht where she regained her consciousness gradually. However, significant left leg weakness was observed, spine MRI was ordered which showed a lumbosacral epidural abscess. We continued with antibiotics treatment and regular rehab without further deterioration. She was discharged home 2 months later.

Conclusions : Early diagnosis, prompt treatment, and comprehensive medical care are crucial for achieving the best possible outcome for affected children. It's vital to obtain as many information, especially recent treatment history, in any child displaying symptoms suggestive of a brain abscess where immediate medical intervention could be given.

Poster session 4

A-0199

Surgical Nuance of Lumbosacral Lipomyelocystocele with Tethered Cord in 6-Month-Old Patient

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Introduction : Lumbosacral lipomyelocystocele (LLMC) with tethered cord syndrome (TCS) is a complex congenital spinal anomaly characterized by a fatty mass, neural tissue malformation, and an abnormally positioned spinal cord. LLMC with TCS is considered a rare condition, with an estimated incidence of approximately 1 in 100,000 live births.

Material & Methods : Lumbosacral lipomyelocystocele (LLMC) with tethered cord syndrome (TCS) is a complex congenital spinal anomaly characterized by a fatty mass, neural tissue malformation, and an abnormally positioned spinal cord. LLMC with TCS is considered a rare condition, with an estimated incidence of approximately 1 in 100,000 live births.

Results : LLMC with TCS typically presents in infancy or early childhood with a wide spectrum of neurological symptoms and physical deformities. Common clinical manifestations include motor deficits, sensory abnormalities, urinary and postural issues, and even cutaneous stigmata such as dimples, skin tufts, or lipomas over the lower back.

Conclusions : Tethered cord release without additional neurological deficit and Cerebrospinal Fluid leakage are major goal of lipomyelocystocele surgery. Careful layer by layer tissue dissection and identification of every single cele component are paramount in order to avoid iatrogenic myelum and nerve root injury during tethered cord release and to get sufficient amount dura and surrounding tissue to achieve water-tight wound closure

Poster session 4

A-0156

BIOPSY IN DIFFUSE BRAINSTEM GLIOMA: RESULTS OF 15 CASES AT VIET DUC HOSPITAL

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Introduction : Biopsy of diffuse brain stem gliomas has been controversial. We conducted a study to provide indications, procedures, and evaluation of the results of surgical biopsy of diffuse brain stem glioma, conducted at Viet Duc Hospital, Hanoi, Vietnam

Material & Methods : A retrospective and prospective descriptive study, including 15 patients with diffuse brain stem glioma who underwent surgical biopsy of the tumor under microsurgery through craniotomy during the period from January 2020 to August 2022

Results : There were a total of 15 patients: 11 patients were children (73.3%), and 4 patients were adults. All patients were admitted to the hospital due to localized neurological symptoms and deficits cranial nerves. 12 patients were diagnosed with DIPG (80%), while 3 patients had diffuse glioma spreading to the medulla oblongata (20%). Preoperative tumor grade diagnosis based on MRI revealed that 5 patients were diagnosed with low-grade tumors (33.3%), 4 high-grade brainstem gliomas (26.7%), and in 6 patients, the exact grade of the tumor could not be definitively determined (40%). Of the 11 pediatric patients, the postoperative pathological indicated high-grade glioma (Grade IV) in all cases. Early postoperative complications: 1 patient required intensive care unit (ICU) admission and mechanical ventilation due to minimal bleeding at the surgical site, another patient required ventriculoperitoneal shunt placement due to postoperative cerebral edema. There were no immediate postoperative fatalities

Conclusions : The biopsy of diffuse brain stem glioma is a feasible, safe, and meaningful surgical procedure for accurate diagnosis. However, further research on a larger patient population is necessary.

Poster session 4

A-0062

Robot-guided stereotactic biopsy - results of a single centre experience

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Introduction : Needle biopsy of intracranial lesions is a regular procedure in most neurosurgical units. Initially, these procedures relied on stereotactic frames and three-dimensional coordinates to localize the lesion in the brain. The introduction of magnetic resonance imaging (MRI) guided neuro-navigation enabled biopsy trajectories to be based on individual MRIs rather than a general stereotactic atlas; subsequently, the advent of frameless navigation further streamlined procedural efficiency by obviating the need for stereotactic frames. The latest modification to this procedure is the introduction of robotic guidance (Stealth AutoguideTM), which facilitates hassle-free actuation of planned biopsy trajectories via an automated system. Here we present our series of needle biopsies performed using the Stealth AutoguideTM system.

Material & Methods : A total of 10 robot-guided needle biopsy cases were performed at our institution since January 2023. A compilation of the patient characteristics and surgical outcomes of these cases were compiled into a surgical series.

Results : Our series comprised of 2 patients with brain abscesses and 8 patients with brain tumors. There were no immediate perioperative complications in our surgical series. In all patients, biopsies were diagnostic, with none requiring repeat biopsy. Histological diagnosis was inconclusive for 1 patient, but biopsy samples sent for flow cytometry were diagnostic of lymphoma. Median total anesthesia and surgical times for the procedure were 199+39.5 and 91.5+23.5 minutes respectively.

Conclusions : Our study provides pilot data for safety and efficacy of robot-guided needle biopsies. Further trials examining robot-guided versus conventional frameless stereotactic needle biopsies can be performed to compare outcomes between the two.