SURG. 19. COMPLETE RESOLUTION OF ADHD AFTER TOTAL RESECTION OF DYSSEMYOPLASTIC NEUROEPITHELIAL TUMOR
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A 3-year-old boy with a history of attention-deficit/hyperactivity disorder (ADHD) presented a single focal tonic seizure. A thorough physical examination revealed no neurological deficit. A contrast enhanced MRI showed an isointense lesion in the anterior part of the cingulate gyrus extending through the left frontal lobe. After initial evaluation, the parents refused surgical treatment and a close follow up was then considered. At the age of five, the ADHD become more evident and the patient was started on methylphenidate. Poor clinical response was seen with the initiation of stimulant. The boy presented a second generalized seizure and the parents agreed surgical management. An interhemispheric approach was then performed and a gross total resection was achieved. The histopathological diagnosis corresponded to a dysplastic neuropsychial tumor (DNET). Four years after the resection, the patient is seizure free and the ADHD has also resolved without the need of medication. The disappearance of seizures is common after surgical resection of DNET tumors, but this case establishes an association with ADHD.

SURG. 20. DIENCEPHALIC SYNDROME IN PEDIATRIC NEUROSURGERY
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This report details the histories of twelve patients with clinical diencephalic syndrome who collectively demonstrate the variability found in the syndrome with respect to: (1) clinical course, (2) site of the tumor, and (3) ease of obtaining radiologic confirmation of the presence of a tumor. Timely diagnosis of diencephalic syndrome is not often the case for patients presenting with failure to thrive (FTT) because of its rarity and lack of specific symptoms. These cases illustrate the importance of cranial imaging and consideration of diencephalic syndrome for children presenting with FTT despite normal or increased caloric intake.

SURG. 21. ENDO- AND EXOSCOPIC SURGERY FOR PEDIATRIC NEUROSURGICAL OPERATIONS
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INTRODUCTION: Recently endo- and exoscopic surgeries have been gradually performed in neurosurgery. To improve the accuracy and safety of our endoscopic procedures, we are currently testing 4K or 8K systems. Here we report experiences of endo- and exoscopic procedures for pediatric neurosurgery.

METHODS: We retrospectively identified 22 patients (15 males, 7 females; mean age, 9.2 years) who underwent surgery for sellar lesions and intraventricular or intraparenchymal lesions with an endo- or exoscopic procedure at our institute between 2010 and 2020. We used a full HD endoscope system (Storz) and an organic electroluminescence (EL) monitor (Sony), and a 4K system (Sony and Olympus). VITOM 3D (Storz) was used as the exoscope. Videoscope (Olympus) was used as a flexible scope for intraventricular tumors.

RESULTS: We performed surgical procedures as 11 biopsies, 6 third ventriculostomies, 5 resections, and 3 fenestrations. The full HD system with organic EL monitor presented high color contrast. We could easily distinguish between tumor microstructure and the normal structure with the 4K system comparing to full HD. Moreover, electronic zoom function enabled us to discriminate tumor boundaries without having to move the endoscope closer. As a result, we could delineate the surgical working space. VITOM 3D was simple to sharpen the focus on the wider surgical field, whereas the 4K system comparing to full HD. Moreover, electronic zoom function enabled us to discriminate tumor boundaries without having to move the endoscope closer. As a result, we could delineate the surgical working space.

CONCLUSION: An endoscopic brain cyst is a rare cervical spine lesion that demands a multidisciplinary approach due to its locally aggressive behavior and the excessive blood loss related to surgery.

SURG 24. NOVEL MALLEABLE FORCIPES FOR ENDOSCOPIC ASSISTED TECHNIQUE IN PEDIATRIC BRAIN TUMORS
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Recent advances in optical devices and surgical instruments have been applied to neurosurgery. Even with modifications, one of the most serious issues is injury of neuronal and vascular structure caused by operation of surgical instruments in a narrow surgical field. Therefore, currently endoscopic instruments are not practical for pediatric brain tumor surgeries because the length of the curved or angled tip portion is limited because of the narrow entrance. We developed a novel malleable forcipes to resolve the difficulties related to microsurgical procedures. The malleable forcipes has two shafts with a sharp cup at the tip. The entire forcipes was made of stainless steel, with a silver and nickel alloy inserted between 10 and 40 mm from the tip. In the alloy part, the surgeon can flex the forcipes freely using a special cylinder. The sharp tip prevent from slipping at the tip.

The maximum angle that can be bent is 70 degrees vertically. We also developed a monoshaft malleable forcipes. We used these flexibale forcipes in the case of various pediatric brain tumors including craniopharyngioma. We performed tumor resection by anterior interhemispheric trans-lamina terminalis approach. After procedure of tumor resection using microscope, endoscope inserted around the pituitary stalk. The piece of calcified tumor could be easily removed without any complications. These forcipes can be deformed to an appropriate angle and can be applied to various cases, especially pediatric brain tumors.

SURG 29. A SINGLE CENTRE EXPERIENCE OF USING INTRAOPERATIVE MRI IN MANAGING PEDIATRIC CRANIAL NEURO-ONCOLOGY CASES
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The University of Malaya Medical Centre, Kuala Lumpur had acquired an intraoperative MRI (iMRI) brain suite via a public private initiative in September 2015. The MRI brain suite has a SIEMENS 1.5T system with NORAS coil system and NORAS head clamps in a two room solution. We would like to retrospectively review the cranial paediatric neuro-oncology cases that had surgery in this facility from September 2015 till December 2019. We would like to discuss our experience with regard to the clear benefits and the challenges in using such technology to aid in the surgery. The challenges include the physical size and the paediatric age. Preoperatively, the preparation and performing the intraoperative scan, the interpretation of intraoperative images and making a decision and the utilisation of the new MRI data set to assist in the navigation to locate the residue safely. Also discuss the utility of the intraoperative images in the decision of subsequent adjuvant management. The use of iMRI also has other technical challenges such as ensuring the perimeter around the patient is free of ferromagnetic material, the process of transfer of the patient to the suite and, as a consequence, increased duration of surgery.

CONCLUSION: Many elements in the use of iMRI has a learning curve and it improves with exposure and experience. In some areas only a high level of vigilance and SOP (standard operating procedure) is required to minimize mishaps. Currently, the iMRI gives the best means of determining extent of resection before concluding the surgery.