

Pediatric neurosurgery

Pediatric neurosurgery is rapidly evolving as new advances in technology are being developed and applied to this specialty. Many of these developments are intended to enhance clinical care and improve surgical outcomes. Through less invasive approaches often employing image guidance, it is possible to reduce neurological morbidity which can result in shorter lengths of stay, reduced medical costs, and increased patient satisfaction.

In this special edition of *Translational Pediatrics (TP)* entitled “Pediatric Neurosurgery” we have selected a broad range of topics that introduce recent advances in the specialty that have been translated to routine patient care for the pediatric population. Briefly we describe below the focus of each contribution to this special issue.

Hydrocephalus is a perpetual part of any pediatric neurosurgeon’s practice. Neurosurgeons have treated hydrocephalus for generations, yet a complete understanding of its pathogenesis remains elusive. Drs. Satish Krishnamurthy and Jie Li address the common pediatric problem of hydrocephalus and describe a new theory of the disorder.

A unique set of challenges occurs when non-accidental trauma is suspected, and neurosurgeons often play a key role in the diagnosis of these injuries. Because of the medical legal issues as well as the high stakes involved in timely identification of these injuries, a thorough command of the nuances of inflicted trauma is necessary for any pediatric neurosurgeon. Thus we feel the in depth review by Drs. Alexandra Paul and Matthew Adamo will be useful to anyone who deals with pediatric trauma.

Seizures represent a debilitating condition that can lead to long standing neurological sequelae in children. Surgery is a powerful and likely under-utilized tool in the treatment of intractable epilepsy. The role of hemispherectomy in the management of this problem is presented by Dr. Sean Lew, as he reviews his extensive personal experience with this technique.

The new diagnosis of a brain tumor in a pediatric patient is terrifying for a patient’s family. Early conversations with these families often rely heavily upon imaging for the information that is so desperately needed. The imaging of pediatric brain tumors is evolving rapidly and Drs. Lam, Lin, and Warnke describe permeability imaging as it applies to diagnosis and treatment of brain tumors in children.

Advanced imaging has also moved into the operating room. Intraoperative magnetic resonance imaging can aid in ensuring maximum tumor removal. Drs. Ian Mutchak and Thomas Moriarty update the present application of this technology to the pediatric patient.

For children with deep seated lesions, or when open surgery poses unacceptable risks, laser interstitial thermal therapy (LITT) has been used. Drs. Margaret Riordan and Zulma Tovar-Spinoza review the use of this modality in the treatment of pediatric brain tumors.

In an effort to limit operative complications of an established surgical approach, endoscopic correction of craniosynostosis has been developed. Dr. Mark Proctor has been a key contributor to the development of this technique and here he reviews its application to various forms of craniosynostosis.

We would like to thank all of the authors for their excellent contributions to this special issue of *TP*. Additional thanks are extended to the reviewers, Molly J. Wang, Nancy Q. Zhong, and the superb editorial staff of the journal for their conscientious and diligent efforts. It is our hope that the information contained in this special edition will be of interest to those involved in the areas that have been covered and the general reader population of *TP*.



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