

Review

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The evolution of pediatric neurosurgery: reflection of personal experience of the last half-century

Tadanori Tomita ¹

Affiliations

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Abstract

Objectives: In the past 50 years, pediatric neurosurgery has made tremendous strides, and gained its own identity as a distinct subspecialty. I have personally observed this progress and evolution in pediatric neurosurgery in multiple dimensions, which are described based upon my own experience and reflection.

Methods: The development and evolutions of multiple domains of pediatric neurosurgery, including neuroimaging, hydrocephalus, pediatric brain tumor, spinal dysraphism, craniosynostosis, vascular malformation, functional neurosurgery and spinal disorders were reviewed and commented on based upon my own experience and reflection.

Results: The field of pediatric neurosurgery has grown in all aspects of diagnosis and therapy owing to the introduction of computers, innovative techniques and technologies and new discoveries of scientific data including molecular investigations.

Conclusion: A minimally invasive approach and molecular target therapy are a current trend. The past half century's clinical experience and advances in biomedical knowledge and techniques provide foundation for further improvement in the care of children of the next generation. Prospective artificial intelligence will likely promote further advances in pediatric neurosurgery.

Keywords: Brain tumor; Craniosynostosis; Epilepsy; History; Hydrocephalus; Neuroendoscopy; Neuroimaging; Pediatric neurosurgery; Spinal dysraphism; Vascular malformation.

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