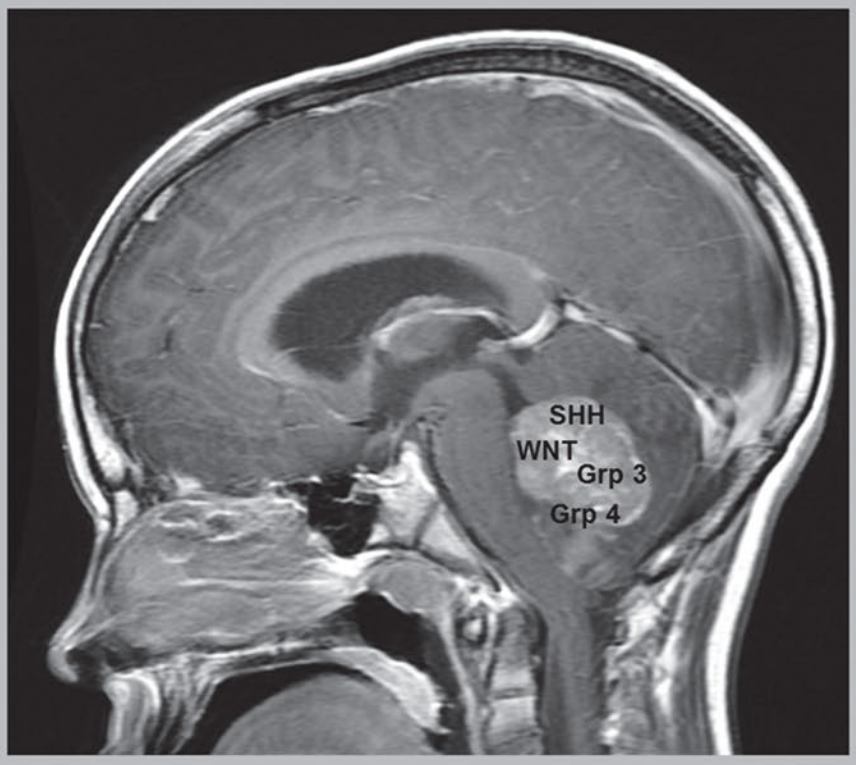
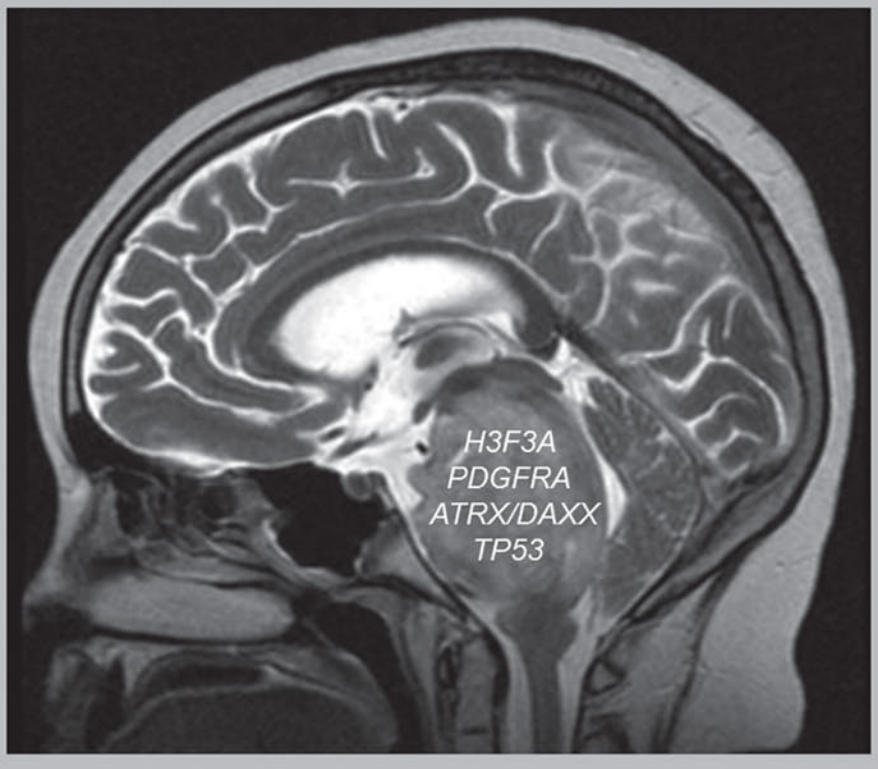
Principles and Practice of Pediatric Neurosurgery

A. Leland Albright
Ian F. Pollack
P. David Adelson

3rd Edition





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This book is dedicated to

Susan Ferson, Julie and Todd Albright

Connie, Benjamin, and Andrew Pollack

Barbara, Samuel, and Richard Adelson; Casey, Brittany, and David Biederman

Contents

Neoplasms

Trauma

Preface

It was our hope that the first edition of this book would help improve the care of children with pediatric neurosurgical disorders and would contribute to the education of their caregivers. We have been gratified by the widespread acceptance and use of both the first edition in 1999 and the second edition in 2007, and particularly gratified by its increased use throughout the world.

In 2011, we began work on the third edition, with the same objectives as for the first edition. Organization of the book remains the same: general topics, congenital and developmental cerebral disorders, congenital and developmental spinal disorders, neoplasms, trauma, cerebrovascular disease, functional disorders, infectious disorders, and neuroanesthesia. The third edition, however, differs from the second edition in several ways. This edition includes seven chapters not included in the second edition: caring for the pediatric neurosurgical patient, cellular therapy for pediatric neurosurgical disease, conjoined twins, lipomeningoceles, skeletal syndromes, radiotherapy of brain tumors, and Moyamoya disease. The chapter on caring for the pediatric neurosurgical patient is likely to be of value daily.

We continued to invite acknowledged authorities to contribute chapters and attempted to identify individuals with balanced judgment and experience. Most of the chapters achieved that goal. Readers will note that 42 of the 82 chapters in this edition were written by different authors than the second edition—a fact that represents primarily the maturation of younger pediatric neurosurgeons into established authorities. Only 29 authors in this edition contributed to the first edition. Readers will also note that chapters in this edition were written by authors in Europe (Richard Hayward and Dominic Thompson), the Middle East (Schlomi Constantini), and Africa (Anthony Figaji and Graham Fieggen)—a fact that acknowledges the international readership of the book, but more importantly, the international expertise about those topics.

The cover illustration—a magnetic resonance scans of a pediatric medulloblastoma and a diffuse intrinsic brainstem glioma (DIPG)—is similar to illustrations on the covers of the first two editions of the text, but includes genetic markers of those tumors that were unknown in 2007 and that have the potential to further improve the prognosis of children with medulloblastomas, and to perhaps finally improve—to at least a measurable extent—the terrible prognosis of children with DIPG.

When comparing the content of this third edition with that of the first, it is clear that pediatric neurosurgeons are able to give better care to children with many neurosurgical disorders, and far better care to those with a few disorders. It is also clear that for several classical pediatric neurosurgical disorders, such as myelomeningoceles and encephaloceles, little has improved since the first edition (other than the benefits of *in utero* closures) and to note that their incidence has steadily declined in developed countries, so that evaluation of prevention and treatment is less feasible.

Pediatric neurosurgeons, in general, are grateful for the blessing of caring for children with the disorders described on the following pages. We three editors remain hopeful that this third edition will help to further improve their care.[*]

[*] Note about the cover images: Sagittal magnetic resonance images of pediatric medulloblastoma (lower left) and diffuse intrinsic pontine glioma (DIPG, upper right). For the former tumors, recent studies have demonstrated the existence of at least four molecularly defined tumor subgroups, currently referred to as Shh, Wnt, Group C, and Group D, which have provided new insights regarding risk stratification and treatment planning. For DIPGs, which have proven resistant to conventional chemotherapy and radiotherapy approaches, recent molecular data has demonstrated frequent alterations in histone modification genes and *PDGFRα*. Time will tell whether these insights will translate into improvements in response and survival for children with these challenging tumors.

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