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As an addition to the European postgraduate training system for young neurosurgeons we began to publish in 1974 this series of **Advances and Technical Standards in Neurosurgery** which was later sponsored by the European Association of Neurosurgical Societies. This series was first discussed in 1972 at a combined meeting of the Italian and German Neurosurgical Societies in Taormina, the founding fathers of the series being Jean Brihaye, Bernard Pertuiset, Fritz Loew and Hugo Krayenbühl. Thus were established the principles of European co operation which have been born from the European spirit, flourished in the European Association, and have throughout been associated with this series. The fact that the English language is well on the way to becoming the international medium at European scientific conferences is a great asset in terms of mutual understanding. Therefore we have decided to publish all contributions in English, regardless of the native language of the authors. All contributions are submitted to the entire editorial board before publication of any volume. Our series is not intended to compete with the publications of original scientific papers in other neurosurgical journals. Our intention is, rather, to present fields of neurosurgery and related areas in which important recent advances have been made. The contributions are written by specialists in the given fields and constitute the first part of each volume.

This volume of **Advances and Technical Standards in Neurosurgery** is devoted entirely to the spine. Like other volumes in the series, it presents important recent progress in the field and offers detailed descriptions of standard procedures to assist young neurosurgeons. Among the advances considered are approaches to spinal navigation, including intraoperative imaging based navigation, and concepts of spinal robotics. The value of sagittal balance as a parameter for the neurosurgeon is examined, and a novel surgical approach to longitudinal pathologies within the spinal canal is presented. Developments in surgery for kyphosis are also discussed, with a focus on pedicle subtraction osteotomy. The technical standards section critically reviews the latest evidence regarding cervical disc arthroplasty and pedicle-based non-fusion stabilization devices. The book concludes by discussing the treatment of craniovertebral junction instability as a result of juvenile chronic arthritis.

No special field of surgery dealing with the cranial nerves exists today. This is not surprising in view of the characteristics of this group of morphologically and topographically heterogeneous nerves. Morphologically we must differentiate between central nerves (I, II and VIII) and the so-called peripheral nerves (III to VII and IX to XII), in which post-lesion regeneration is quite different. Anatomotopographically we must consider an intracranial and an extracranial part of each cranial nerve. For practical reasons at operation, further subdivisions of the intracranial course of cranial nerves are to be distinguished in the anterior, middle and posterior cranial fossae as well as within the petrous bone. This underscores the extensive tasks awaiting surgeons operating in the ventral part of the brain and facial skull as well as in the more dorsal part of the skull and neck. This very wide field cannot be covered by a single surgical discipline alone. In our opinion, considerable progress has been made in surgery of the cranial nerves only in recent years. This may be explained by the increased mastery of microsurgical techniques by all surgeons interested in the surgery of the base of the skull as well as with the initiation of more interdisciplinary consultation and jointly performed operations. Possibilities of future development can be discerned in the text. The base of the skull separating the extra- and intracranial part of cranial nerves should not be a barrier but a connecting link.

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This series, sponsored by the European Association of Neurosurgical Societies, has already become a classic. In general, one volume is published per year. The **Advances** section presents fields of neurosurgery and related areas in which important recent progress has been made. The **Technical Standards** section features detailed descriptions of standard procedures to assist young neurosurgeons in their post-graduate training. The contributions are written by experienced clinicians and are reviewed by all members of the Editorial Board.

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The book provides an update of several pathological conditions of the CNS that require neurosurgical treatment. The different chapters, written by the most eminent international scientists and clinicians in the field of neuroscience, offer a critical assessment of the relevant nosographic entities that are the subject of current scientific debate. The first chapter critically analyses the new WHO classification of brain tumours, while the second chapter is specifically devoted to intracranial tumours in the first years of life. The technical aspects of neuro-oncological surgery are addressed by two chapters dealing with the suprasellar approach to infratentorial tumours and how to decrease the risk of a specific complication of the surgical management of these tumours in the paediatric population, namely post-operative speech impairment. Hypothalamic tumours with their associated epilepsy and intracranial schwannomas complete the technical surgical section on intracranial tumours. An interesting chapter presents the latest advances in clinical prediction in neurosurgery. Spinal problems are discussed in two chapters, the first considering evolving concepts on craniocervical and spinal instability and the second Chiari malformations. The management of intracranial arachnoid cysts is still a matter of controversy, as demonstrated in a specific chapter of the book. Another chapter deals with subdural haematomas in both adults and children. Hydrocephalus is treated in two chapters devoted to two post-inflammatory or post-infectious complications leading to specific and difficult-to-treat abnormalities in the CSF circulation. The final chapter of the book illustrates the rationale behind midface advancement in craniosynostosis. As with the previous volume in the series, the present volume represents an important contribution to the advancement of neurosurgical specialties.

This book offers an update on several basic and clinical problems in neurosurgery compiled by internationally recognized experts. This multi-thematic volume will touch on a variety of topics: from the role of women neurosurgeons in the last hundred year of the specialty history, to the pathogenesis of spinal dysraphism, to the convection-enhanced delivery of intracerebral antineoplastic drugs in children, through a review of methods and applications. The intraoperative cerebral blood flow monitoring in neurosurgery will be also discussed, offering again a comprehensive review of contemporary technologies and emerging perspectives. As for the technical standards, the book will describe the multimodality approach to cerebral gliomas, the management of thalamic tumors, the intracavitary treatment of craniopharyngiomas, the long term results of spasticity treatments, the surgical treatment of spinal vascular malformations, the management of idiopathic and refractory syringomyelia, offering at the same time an update of peripheral nerve surgery. All the chapters have to be considered an advance in the relative fields, in cerebral pathophysiology and in clinical management. Approaching the issue of technical standards in the everyday clinical practice of neurosurgery, this book is of great interest for neurosurgeons, neurologists and orthopaedists.

Detecting residual cognitive function in disorders of consciousness (M. R. COLEMAN, J. D. PICKARD).- Rationale for hypothalamus-deep brain stimulation in food intake disorders and obesity (N. TORRES, S. CHABARDEES, A. L. BENABID).- Gustatory and reward brain circuits in the control of food intake (A. J. OLIVEIRA-MAIA, C. D. ROBERTS, S. A. SIMON, M. A. L. NICOLELIS).- SEEG-guided RF-thermocoagulation of epileptic foci: A therapeutic alternative to drug-resistant non-operable partial epilepsies (M. GUÉNOT, J. ISNARD, H. CATENOIX, F. MAUGUIERE, M. SINDOU).- Child abuse - some aspects for neurosurgeons (B. MADEA, M. NOEKER, I. FRANKE).- Prophylactic antibiotics and anticonvulsants

in neurosurgery (B. RATILAL, C. SAMPAIO).- The dural sheath of the optic nerve: descriptive anatomy and surgical applications (P. FRANCOIS, E. LESCANNE, S. VELUT) -Surgical indications and techniques for failed coiled aneurysms (C. RAFTOPOULOS; with the collaboration of G. VAZ).

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There are two important reasons for commencing this new series of publications entitled "Advances and Technical Standards in Neurosurgery": 1. the lack of any organized common European postgraduate training system for young neurosurgeons and 2. the language barriers, which impede the exchange of neurosurgical findings in Europe more than in other parts of the world. The fact that the English language is well on the way to becoming the international medium at European scientific conferences is a great asset in terms of mutual understanding. Therefore the Editors have decided to publish all contributions in English, regardless of the native language of the authors. All contributions are submitted to the entire editorial board before publication of any volume. Our series is not intended to compete with the publications of original scientific papers in other neurosurgical journals. Our intention is, rather, to present fields of neurosurgery and related areas in which important recent advances have been made. The contributions will be written by specialists in the given fields and will constitute the first part of each volume.

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Brain edema is found in a wide variety of clinical disorders including stroke, intracerebral haemorrhage, subarachnoid haemorrhage, head injury, brain tumors and hydrocephalus. This volume brings together clinical and basic scientists from all over the world. Their expertise in the understanding of brain edema and shifts in brain water compartments has led to a further significant step in our understanding of those diseases characterized by brain edema. This book has also drawn on the expertise of the International Advisory Board of the Brain Edema Society, who have carefully summarized each section, thus providing an easy-to-read summary of the latest advances in each subject. The book is therefore much more than a collection of papers: it represents a critical appraisal and puts each paper into modern scientific context. The greatest advances have come from the rapid development of modern imaging techniques, especially with magnetic resonance imaging (MRI). Imaging can now produce "water maps" and "metabolic profiles" that bring brain metabolism and water content right into every clinic with access to MRI. This book provides the background knowledge to understand these pathophysiological changes.

Epilepsy surgery is defined as any neurosurgical intervention whose primary objective is to relieve medically intractable epilepsy (European Federation of Neurological Societies Task Force 2000). The aim of epilepsy surgery is to reduce the number and intensity of seizures, minimize neurological morbidity and antiepileptic drug (AED) toxicity, and improve quality of life. By definition, epilepsy surgery does not include normal surgical treatment of intracranial lesions where the primary goal is to diagnose and possibly remove the pathological target, often an advancing tumour. In these patients, epileptic seizures are only one symptom of the lesion and will be treated concomitantly as part of the procedure. Temporal lobe epilepsy (TLE) is recognised as the most common type of refractory, focal epilepsy. In one third of all cases the neuronal systems responsible for the seizures that characterise this form of epilepsy fail to respond to currently available AEDs (Andermann F 2002). New imaging methods, especially magnetic resonance imaging (MRI), identify localising abnormalities in an increasing proportion of patients with intractable focal epilepsy. Consequently, the accuracy of the preoperative diagnostic procedures has been significantly improved during the last decade; and suitable candidates for surgery can be selected more reliably. Currently the main resources in most epilepsy surgery centres have been used to evaluate candidates for TLE surgery.

This book will discuss and cover standard treatments and advances in some of the most controversial topics in cerebrovascular surgery traversing the whole arena, including open and interventional surgeries. They will be discussed with case scenarios, bail out strategies and complication handling, followed by advances in the subject. Some of the best academic cerebrovascular physician will author these chapters with their vast experience. The book will be of particular benefit to neurosurgeons, neurologists, and radiologists. It will be particularly targeting residents, young and experienced faculty in the subject, and will provide first hand up to the mark information and experiences in cerebrovascular surgery.

The contributions in this volume cover recent advances and changing concepts on diagnosis and treatment of resistant epilepsy in children. Topics treated are new insights on mechanisms of epileptogenesis in developing brain, multimodality imaging in pediatric intractable epilepsy, pediatric intractable epilepsy syndromes, pediatric temporal lobe epilepsy surgery, critical review of palliative surgical techniques for intractable epilepsy, treatment modalities for intractable epilepsy in hypothalamic hamartomas, contemporary management of epilepsy in tuberous sclerosis.

The latest in this already classic series presents recent progress and detailed descriptions of standard procedures, to assist young neurosurgeons in their post-graduate training. With contributions from experienced European and American clinicians.

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This volume of Advances and Technical Standards in Neurosurgery covers some important new developments in functional neurosurgery and endovascular therapy. In the Technical Standards section a variety of topics are considered, including optic pathway gliomas, pineal lesions, cavernous sinus meningiomas and the eternal problem of minor and repetitive head injury. Endovascular treatment of a variety of lesions is now common practice and the state of the art in endovascular treatment for acute ischemic stroke is reviewed. An appraisal of the evidence on whether there is a place for microsurgical vascular decompression for essential hypertension raises interesting questions. The volume is completed by contributions on neurosurgical treatment of cluster headaches and occipital nerve stimulation.

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This dedicated volume in the series Advances and Technical Standards in Neurosurgery (ATSN) provides a comprehensive approach to diseases of the craniocervical junction (CVJ) and their management based on the multidisciplinary cooperation of neurosurgeons, anatomists, neuroradiologists, and neuroanesthesiologists. The contributing authors represent the most renowned clinical and surgical experts from Europe and beyond. The main topics highlighted are embryology, normal and abnormal development of the CVJ, including the related vessels, modern radiological contributions to diagnosis, genetic and metabolic factors which may impact on the surgical strategies, the opportunities offered by traditional operative techniques, and the recently introduced minimally invasive and endoscopic surgical modalities. Special emphasis is also placed on the evolution of the principles of surgical treatment as matured during the past decade by experiences in the still open field of pediatric neurosurgery.

This volume reviews standard treatments for spinal dural arteriovenous fistulas, examining the anatomy of arteries and veins of

the sylvian fissure, as well as microsurgical advances and the development of modern therapeutic strategies in intracranial meningiomas. The advances section presents a strategy for minimizing hearing loss after stereotactic radiosurgery for vestibular schwannomas, as well as a description of the mode of action and biology of ALA, including its interaction with tumor cells and the limits of this method. A dedicated chapter addresses the essential question of the limits (and merits) of various tractography techniques and of their importance for non-specialists, who may be tempted to use them uncritically. A further chapter examines molecular markers, which have become standard in neuropathological reports on intracranial tumors, reviewing the prognostic and predictive value of these modern molecular markers in gliomas. Additio-

nal chapters round out the coverage, offering a comprehensive overview of standard and advanced techniques.

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