Lasers In Neurosurgery Foundations Of Neurological Surgery 1st Edition By Robertson Jon H Published By Springer Hardcover

Percutaneous laser disc decompression (PLDD) is an entirely new approach to the treatment of herniated intervertebral disc d- ease. The traditional laminectomy and discectomy procedure was first performed at the Massachusetts General Hospital in 1934. In the intervening 69 years, science has moved forward with m- netic resonance imaging, sequencing of the human genome, ion propulsion, landing men on the moon and robots on Mars, the laptop computer, global positioning system navigation, black hole theory, string theory, and the successful cloning of animals. And yet, the same soft tissue–destroying, scar-inducing, pos- rior wall–weakening, and spinal instability–inducing cutting - eration is still being taught and performed. Advances in ort- pedics and neurosurgery occur slowly. Percutaneous laser disc decompression is minimally invasive; it can be performed as an outpatient procedure, requires no g- eral anesthesia, and has a high success rate, a low recurrence rate, and a low complication rate. By the middle of 2002, some 35,000 PLDD procedures had been performed worldwide. This book covers the history of the development of PLDD, laser physics, anatomy and pathophysiology of the herniated disc, the physics and mechanical principles that form the basis of PLDD, patient selection, radiographic considerations, the neurologic - amination, a step-by-step description of the PLDD procedure, the complications of PLDD and their treatments, special cases amenable to PLDD, postoperative care, and rehabilitation pro- dures. In short, this is a compendium of PLDD from A to Z.
Advances J. Maarrawi, P. Mertens, R. Peyron, L. Garcia-Larrea, M. Sindou: Functional exploration for neuropathic pain. - Z. H. Rappaport: The neuroscientific foundations of free will. - A. Hejcl, P. Jendelova, E. Sykova: Experimental reconstruction of the injured spinal cord. - M. Visocchi: Advances in video-assisted anterior surgical approach to the craniovertebral junction.
Technical Standards N. Akalan: Myelomeningocele (Open spina bifida): Surgical management. - M. Stoffel, C. Stüer, F. Ringel, B. Meyer: Treatment of infections of the spine. - I. Massimi, F. Novegno, C. di Rocco: Chiari Type 1 malformation in children.

Edited by renowned experts, with contributions from leading authorities, this book provides comprehensive and up-to-date coverage of TLM for the treatment of benign lesions and malignant tumors of the oral cavity, pharynx, and larynx. Key Features: Accompanied by more than 300 exceptional illustrations Detailed descriptions of the surgical techniques for the different anatomical locations Tips and tricks for improving exposure Discussions of potential complications, their incidence, and prevention and management Results of oncological outcomes, survival rates, organ preservation rates, and complication rates for each

anatomical subsite, and also comparable results with alternative treatment modalities Advice on postoperative management, rehabilitation, and adjuvant therapy This state-of-the-art book is an invaluable resource for surgeons because it covers not only the equipment and surgical aspects but, very importantly for decision making, it also provides site-specific evidence for the use of TLM in the treatment of benign disorders and malignant disease, even at advanced stages. Volume IVB describes surgical approaches, strategies, and management techniques for specific tumors in their typical locations, surgical outcomes and results, instruments, and laboratory training. It covers also the related disciplines neuroradiology and neuroanesthesia. The last installment in this well-known series.

This book is a review of past and current studies and future plans of the Laser Laboratory in Cincinnati and some of the contributions of laser research groups in other medical centers. Special thanks are due to the Directing Physicist of the Laser Labora tory, R. James Rockwell. Without his advice, constant supervision and corrections, this enthusiastic investigator would continue to upset even many more people than he has done already. The excuse, of course, is to stimulate much needed interest and controlled research and development of the laser for biology and medicine. The Associate Research Physicist, Ralph Schooley, has worked with many phases of laser research but especially in Q spoiling, Raman spectroscopy, and the almost alchemy of holography. Holography, as of now, provides many opportunities for Gumperson's Law, "If anything can go wrong, it will. " Sincere appreciation is expressed to the Surgeons in the Laser Labora tory, who have supplied clinical and investigative surgical supervision often under great difficulties, Dr. V. E. Siler and Dr. Bruce Henderson. We are grateful for help from the Directing Biologist of the Laser Labo ratory, Edmond Ritter, the Director of Laser Neurosurgery, Dr. Thomas Brown and the Professor of Neurosurgery, Dr. Robert McLaurin, for important and basic work in laser neurosurgery. Special thanks are given to Robert Meyer, who has given most of the treatments in careful and skillful fashion, and his associate, Robert Otten.

This issue of Anesthesiology Clinics provides essential updates in neurosurgical anesthesia. Topics include anesthesia for endovascular neurosurgery; interventional neuroradiology; neuroimaging; anesthetic management of patients with acute stroke; perioperative management of pediatric patients; anesthetic neurotoxicity; airway management in neuroanesthesiology; anesthetic considerations for awake craniotomy for epilepsy; perioperative uses of trans cranial perfusion monitoring; monitoring and introaoperative management of elevated ICP and decompressive craniectomy; electrophysiologic monitoring in neurosurgery; traumatic brain injury; perioperative pain management in the neurosurgical patient; controversies in neurosciences critical care; sleep and mechanisms of anesthesia; and impacts on outcome after neuroanesthesia.

Get a solid, global foundation of the therapies and evidence-based clinical applications of CAI. Fundamentals of Complementary, Alternative, and

Integrative Medicine, 6th Edition is filled with the most up-to-date information on scientific theory and research of holistic medicine from experts around the world. The 6th edition of this acclaimed text includes all new content on quantum biology and biofields in health and nursing, integrative mental health care, and homeopathic medicine. Its wide range of topics explores therapies most commonly seen in the U.S., such as energy medicine, mind-body therapies, and reflexology along with traditional medicine and practices from around the world. With detailed coverage of historic and contemporary applications, this text is a solid resource for all practitioners in the medical, health, and science fields! Coverage of CAI therapies and systems includes those most commonly encountered or growing in popularity, so you can carefully evaluate each treatment. An evidence-based approach focuses on treatments best supported by clinical trials and scientific evidence. Observations from mechanisms of action to evidence of clinical efficacy answers questions of how, why, and when CAM therapies work. A unique synthesis of information, including historical usage, cultural and social analysis, current basic science theory and research, and a wide range of clinical investigations and observations, makes this text a focused, authoritative resource. Global coverage includes discussions of traditional healing arts from Europe, Asia, Africa, and the Americas. Clinical guides for selecting therapies, and new advances for matching the appropriate therapy to the individual patient, enables you to offer and/or recommend individualized patient care. Expert contributors include well-known writers such as Kevin Ergil, Patch Adams, Joseph Pizzorno, and Marc Micozzi. A unique history of CAI traces CAM therapies from their beginnings to present day practices. Suggested readings and references on the companion website list the best resources for further research and study. NEW! Added chapters offer fresh perspective on quantum biology and biofields in health and nursing, integrative mental health care, and homeopathic medicine. NEW! Updated chapters feature new content and topics, including: challenges in integrative medicine, legal issues, CAI in the community, psychometric evaluation, placebo effect, stress management, and much more! NEW! Updated guides on common herbal remedies in clinical practice, East and Southeast Asia, and native North and South America deliver the latest information. NEW! Basic science content and new theory and research studies cover a wide range of sciences such as biophysics, biology and ecology, ethnomedicine, psychometrics, neurosciences, and systems theory. NEW! Expanded global ethnomedical systems includes new content on Shamanism and Neo-Shamanism, Central and North Asia, Southeast Asia, Nepal and Tibet, Hawaii and South Pacific, Alaska and Pacific Northwest, and contemporary global healthcare.

Fundamentals of Neuroanesthesia is a comprehensive guide to neuroanesthesia which focuses neurophysiology, neuroanatomy, and neurosurgical procedures, and then offers practical approaches to the practice of neurosurgical anesthesia.

With the exploding progress we are experiencing in the field of lasers in neurosurgery it

was felt that a new volume devoted to lasers in neurosurgery is needed. As opposed to other early laser publications which were limited to North American contributors we have decided to publish Lasers in Neurosurgery which presents the findings of neurosurgeons from throughout the world. The decision to publish all contributions in English, regardless of the native language of the author, makes Lasers in Neurosurgery truly a forum for international neurosurgeons. Our intent is to make available the findings of international neurosurgeons, which are frequently published in less fa miliar languages, to neurosurgeons beyond the boundaries of the authors' countries. We hope that neurosurgeons not only in North America and Europe, but throughout the world, will profit by Lasers in Neurosurgery. November 1988 Edward F. Downing, M. D. , F. A. C. S. Contents FRANK, F. : Basic Physics and Biophysics 1 TEW JR. , J. M. , TOBLER, W. D. , ZUCCARELLO, M. : The Treatment of Arteriovenous Malformations of the Brain with the N- dymium: YAG Laser. . . . . 19 CLARK, W. C. , ROBERTSON, J. H. : Laser Resection of Meningiomas 49 ASCHER, P. W. : Tumours on and in the Pons and Medulla oblongata 69 NEBLETT, C. R. : Reconstructive Vascular Neurosurgery: Micros- gical CO Laser Application. . . . . 95 2 CRONE, K. R. , BERGER, T. S. , TEW JR. , J. M. : Laser Applications in Pediatric Neurosurgery. . . . . .

The advent in the 1960s of the unique and exciting new form of energy called laser brought to medicine a marvelous tool that could accomplish new treatments of previously untreatable disorders as well as improved treat ment of mundane problems. This brilliant form of light energy is many times more powerful than the energy of the sun yet can be focused microscopically to spot sizes as small as 30 microns. Lasers can be directed into seemingly inaccessible areas by mirrors or fiberoptic cables or can be directly applied into sensitive areas such as the retina without damage to intervening structures. There has been a rapid proliferation in the use of lasers in all surgical specialties. Starting with bold ideas and experiments of "thought leaders" in each specialty, the application of lasers has evolved into commonplace usage. Beginning with the era when laser presentations and publications were an oddity, now nearly all specialty areas have whole sections of meetings or journals devoted exclusively to laser usage. Laser specialty societies within a specialty have developed and residency training programs routinely instruct trainees in laser techniques. Basic science and clinical experimentation has supported laser knowledge. Laser usage has also become international. Newer wavelengths and accessories have added to the armamentarium of laser usage. Despite the rapid growth in laser interest, no single source exists to instruct the many new laser users in proper, safe, and effective use of this new modality.

In children, the central nervous system tumors complished through advances in the three main are exceeded in incidence only by leukemia and antineoplastic therapeutic modalities-surgery, are more common than any of the other malig radiation therapy, and chemotherapy. Improve nancies of childhood. Childhood central nervous ments in neurosurgical technique concomitant system tumors encompass a range of histo with improvements in anesthesia and periopera logic varieties from the histologically benign tive supportive care have resulted in decreased appearing pilocytic astrocytoma to the extremely morbidity and mortality from neurosurgical malignant-appearing glioblastoma

multiforme procedures together with an increased likelihood of accomplishing a gross total resection of and the undifferentiated primitive neuroecto dermal tumors. Similarly, the biologic behavior tumor. Radiotherapy has evolved from using orthovoltage (200-250 KV) equipment to of childhood brain tumors varies not only ac cording to histology but also with location of supervoltage equipment with much-improved the tumor and age. Unlike primary central nerv penetration, thus allowing for the administra ous system tumors in adults, many varieties of tion of accurate homogeneous high doses to childhood brain tumors have the propensity to large volumes without significant effects on the disseminate via the cerebrospinal fluid path overlying skin and soft tissues. Preliminary data ways.

Image-Guided Neurosurgery provides readers with an update on the revolutionary improvements in imaging and visualization relating to neurosurgery. From the development of the pneumoencephalogram, to the operating microscope, to cross sectional imaging with CT and later MRI, to stereotaxy and neuronavigation, the ability to visualize the pathology and surrounding neural structures has been the driving factor leading surgical innovation and improved outcomes. The book provides a comprehensive reference on the application of contemporary imaging technologies used in neurosurgery. Specific techniques discussed include brain biopsies, brain tumor resection, deep brain stimulation, and more. The book is ideal for neurosurgeons, interventional radiologists, neurologists, psychiatrists, and radiologists, as well as technical experts in imaging, image analysis, computer science, and biomedical engineering. A comprehensive reference on image-guided neurosurgery Includes coverage of neuronavigation in cranial surgery and advanced imaging, including functional imaging, adoption of intra-operative MRI and emerging technologies Covers all image-guided neurosurgery tools, including robotic surgical devices Ideal reference for topics relating to neurosurgery, imaging, stereotaxis, radiosurgery, radiology, epilepsy, MRI, the use of medical robotics, lasers, and more

Functional neurosurgery resource features state-of-the-art approaches from renowned experts! For patients with inadequately treated epilepsy, tremor, dystonia, spasticity, depression, obsessive-compulsive disorder, Parkinson's and Alzheimer's disease, functional neurosurgery offers hope. Functional Neurosurgery: The Essentials is a reader-friendly introduction to this fascinating and rapidly evolving field. The text is edited by internationally prominent functional neurosurgeons Jeffrey A. Brown, Julie G. Pilitsis, and Michael Schulder. It features contributions from authors with expertise spanning the disciplines of neurosurgery, neurology, rehabilitation and physical medicine, neurophysiology, bioengineering, psychiatry and ophthalmology. Opening with a brief history of stereotaxy/functional neurosurgery and brain stereotactic frames, 41 concise and coherent chapters explore cutting-edge approaches to a broad range of functionally treatable conditions. The chapters yield a solid foundation of understanding of the field, with insightful commentary, pearls, and nuances from the editors. The starting question in the neuroprosthetics chapter, "Can a computer infer human intention or perception?" brings to life the exciting, inquisitive, and pioneering spirit of this subspecialty. The robust reference list provides a guide to deeper study that should continue throughout training and practice. Highlights Imaging: MRI and CT for stereotactic neurosurgery, fMRI and resting state MRI Movement disorders: A comparative analysis of the risks and benefits of deep brain stimulation versus lesioning

Epilepsy: Temporal lobectomy and extra-temporal surgery; invasive monitoring, neuromodulation, laser interstitial thermal therapy, and vagus nerve stimulation Dystonia: Etiology to diagnosis, medical and surgical options Future innovations: Exoskeletons, intention controlled, and visual neuroprosthetics The text is a fundamental resource for neurosurgical residents during their functional neurosurgery rotations and for general neurosurgeons and functional subspecialists on procedures they may not routinely perform in clinical practice. This book includes complimentary access to a digital copy on https://medone.thieme.com.

Functional neurosurgery resource features state-of-the-art approaches from renowned experts! For patients with inadequately treated epilepsy, tremor, dystonia, spasticity, depression, obsessive-compulsive disorder, Parkinson's and Alzheimer's disease, functional neurosurgery offers hope. Functional Neurosurgery: The Essentials is a reader-friendly introduction to this fascinating and rapidly evolving field. The text is edited by internationally prominent functional neurosurgeons Jeffrey A. Brown, Julie G. Pilitsis, and Michael Schulder. It features contributions from authors with expertise spanning the disciplines of neurosurgery, neurology, rehabilitation and physical medicine, neurophysiology, bioengineering, psychiatry and ophthalmology. Opening with a brief history of stereotaxy/functional neurosurgery and brain stereotactic frames, 41 concise and coherent chapters explore cutting-edge approaches to a broad range of functionally treatable conditions. The chapters yield a solid foundation of understanding of the field, with insightful commentary, pearls, and nuances from the editors. The starting question in the neuroprosthetics chapter, "Can a computer infer human intention or perception?" brings to life the exciting, inquisitive, and pioneering spirit of this subspecialty. The robust reference list provides a guide to deeper study that should continue throughout training and practice. Highlights Imaging: MRI and CT for stereotactic neurosurgery, fMRI and resting state MRI Movement disorders: A comparative analysis of the risks and benefits of deep brain stimulation versus lesioning Epilepsy: Temporal lobectomy and extra-temporal surgery; invasive monitoring, neuromodulation, laser interstitial thermal therapy, and vagus nerve stimulation Dystonia: Etiology to diagnosis, medical and surgical options Future innovations: Exoskeletons, intention controlled, and visual neuroprosthetics The text is a fundamental resource for neurosurgical residents during their functional neurosurgery rotations and for general neurosurgeons and functional subspecialists on procedures they may not routinely perform in clinical practice.

Advances in Intervertebral Disc Disease in Dogs and Cats defines our present knowledge of this common clinical problem, compiling information related to the canine and feline intervertebral disc into a single resource. As a comprehensive, focused work, the book is an authoritative reference for understanding and treating disc disease, providing a sound scientific and clinical basis for decision making. Offering an objective synthesis of the current literature, the book supplies guidance on the approach to a potential disc rupture, surgical and medical strategies, and management of the patient. Offering a complete understanding of intervertebral disc disease, the book describes and discusses the controversies and issues surrounding this topic, acknowledging the gaps in our knowledge. Advances in Intervertebral Disc Disease in Dogs and Cats presents up-to-date, reliable information on this common condition for veterinary surgeons and general practitioners. Key features Describes the current knowledge of

disc disease in dogs and cats Provides a state-of-the-art, complete resource focused entirely on this common clinical problem Gives an objective picture of the controversies around intervertebral disc disease in canine and feline patients Presents evidence-based and clinically relevant information for understanding and treating intervertebral disc disease Offers clear clinical recommendations grounded in the current literature Part of the Advances in Veterinary Surgery series copublished with the ACVS Foundation

?This book serves as a foundation for MRI guided laser interstitial thermal therapy (LITT) across neurosurgical diseases. It provides state-of-the-art information on the latest indications and results for LITT in CNS applications, as well as prerequisite historical perspective and technical fundamentals. Written by experts in the field, the text reviews the historical development of LITT, the technical and technological components required to perform LITT, its indications and contraindications, areas that still require investigation, LITT complications, and challenges to starting up LITT within one’s practice. As early adopters of the technology, the authors provide sage advice that reflects the initial learning curves of many of the users. The book then concludes with a practical guide to starting up a LITT practice in the current medical socioeconomic environment. Laser Interstitial Thermal Therapy in Neurosurgery is a guide that will allow all neurosurgeons interested in LITT to successfully adopt the technology and incorporate its use seamlessly, safely and appropriately into their individual practices.

Part of the Neurosurgery by Example series, this volume on surgical neuro-oncology presents exemplary cases in which renowned authors guide readers through the assessment and planning, decision making, surgical procedure, after care, and complication management of common and uncommon disorders. The cases explore a number of different types of nervous systems tumors, including glioblastoma, medulloblastoma, skull tumors, and more. Each chapter also contains 'pivot points' that illuminate changes required to manage patients in alternate or atypical situations, and pearls for accurate diagnosis, successful treatment, and effective complication management. Containing a focused review of medical evidence and expected outcomes, Surgical Neuro-Oncology is appropriate for neurosurgeons who wish to learn more about this subspecialty, and those preparing for the American Board of Neurological Surgery oral examination.

Will full-color photographs throughout, this reference demonstrates and assesses various technologies and methods to effectively perform laser treatments for a variety of cutaneous disorders-emphasizing the selection of the appropriate laser for each clinical situation, practical treatment guidelines, and the avoidance of complications in the practice of laser surgery.

Developments in lasers continue to enable progress in many areas such as eye surgery, the recording industry and dozens of others. This book presents citations from the book literature for the last 25 years and groups them for ease of access which is also provided by subject, author and titles indexes.

Personalized medicine, which simply means selection of treatment best suited for an individual, involves integration and translation of several new technologies in clinical care of patients. The scope is much broader than indicated by the term genomic medicine because many non-genomic factors are taken into consideration in

developing personalized medicine. Basic technologies for personalized medicine, of which molecular diagnostics has the biggest share, are mentioned briefly and appropriate references are given for further information. Commercial aspects are discussed briefly in a chapter and detailed analysis of markets and companies involved in personalized medicine is presented in a special report on this topic. There is increasing interest in personalized medicine. Considerable advances have taken place in molecular biology and biotechnology to make personalized medicine a viable option, but some misconceptions still exist, both in the academic and commercial sectors. There is lack of a suitable source of information that provides both the fundamentals as well as applications of personalized medicine. As the latest version of the first monograph on personalized medicine published in 1998, this volume, Textbook of Personalized Medicine, summarizes the author's efforts during the past decade, as well as reviews selected studies done during this period in a readable format for the physicians and scientists. It is hoped that physicians, pharmacists, scientists and interested lay readers with basic scientific knowledge will find this book useful.

The femtosecond laser has emerged as a groundbreaking game-changer in ophthalmic surgery. It was first introduced for corneal refractive surgery in flap creation during LASIK, and subsequently for cataract surgery in 2008. The femtosecond laser cuts deeply on a single plane without collateral damage. Its high precision and safety result in excellent outcomes in the hands of experienced eye surgeons, benefiting virtually everyone. Femtosecond Laser Surgery in Ophthalmology fills an unmet need for a comprehensive, up-to-date resource on growing applications of this state-of-the-art technology. H Burkhard Dick is a world-renowned pioneer who has performed more than 6,000 laser cataract operations. Readers will benefit from his keen insights along with the collective expertise of co-authors Tim Schultz, Ronald D. Gerste, and a cadre of top-notch contributors. Twenty-nine chapters encompass basic physics, refractive and therapeutic cornea treatment, various aspects of laser cataract surgery, and patient selection. Key Features Clinical pearls, outcomes, and complications management in femtosecond laser-assisted in situkeratomileusis surgery Discussion of crucial steps including capsulotomy, lens fragmentation, and corneal incisions The use of the femtosecond laser for presbyopia, pediatric cataract surgery, and ocular comorbidities Extensive videos posted in the Thieme MediaCenter further elucidate techniques More than 300 high quality illustrations and photos add a rich visual dimension This practical book provides in-depth knowledge on the applications of femtosecond laser surgery, enabling cataract and refractive surgeons to incorporate these techniques into daily practice. Ophthalmologists and ophthalmology fellows and residents will discover an invaluable resource for specialized training.

This volume contains the Proceedings of a two-week NATO Advanced Study Institute on "Laser Systems for Photobiology and Photomedicine", conducted from May 11 to 20, 1990 in Erice, Italy. This is the 15th annual course of the International School of Quantum Electronics (ISQE), organized under the auspices of the "Ettore Majorana" Center for Scientific Culture. The application of lasers to medicine and surgery has made amazing progress since the last ISQE Course on this subject in 1983. The present Proceedings give a tutorial introduction to today's most important areas, as well as a review of current results by leading researchers. Among the possible approaches to a NATO Advanced Study Institute on Laser Systems for Photobiology and

Photomedicine, we chose to emphasize the scientific and technological aspects of advanced laser systems when applied to laboratory and clinical tests. Since it is the policy of the School to stress the advanced scientific and techn·ological achievements in the field of Quantum Electronics, the Course broadly covers performance already achieved and potential applications.

"This survey provides a background and introduction to the laser of today and suggests applications for tomorrow which may benefit everyone."--Page 1.

Lasers in NeurosurgerySpringer Science & Business Media

Expand your skills in the rapidly growing field of laser dentistry! The new second edition of Principles and Practice of Laser Dentistry contains everything you need to know about the latest laser procedures across all areas of dentistry. With vivid clinical photos and easy-to-follow writing, Dr. Robert A. Convissar and his team of dental experts walk you through the most common uses of lasers in areas like: periodontics, periodontal surgery, oral pathology, implantology, fixed and removable prosthetics, cosmetic procedures, endodontics, operative dentistry, pediatrics, orthodontics, and oral and maxillofacial surgery. The book also covers topics such as the history of lasers in dentistry, laser research, the latest laser equipment, and how to go about incorporating lasers into your practice, so that you are fully equipped to use lasers successfully in your treatments. The latest evidence-based, authoritative information is written by experts from all areas of dentistry (periodontics, orthodontics, oral surgery, prosthodontics, implants, endodontics, and pediatric and general dentistry). Case studies reflect treatment planning and the use of lasers for a variety of pathologies. Detailed, full-color art program clearly illustrates preoperative, intraoperative, and postoperative procedures. Summary tables and boxes provide easy-to-read summaries of essential information. Clinical Tips and Caution boxes interspersed throughout the text highlight key clinical points. Glossary at the end of the book provides definitions of laser terminology. Chapter on Introducing Lasers into the Dental Practice provides guidelines for the investment into lasers. NEW! Updated content on regenerative laser periodontal therapy, lasers in implant dentistry, lasers in restorative dentistry, low-level lasers in dentistry, and laser dentistry research reflects the latest technology advancements in the field. NEW! More clinical photos, equipment photos, and conceptual illustrations offer a detailed look at how equipment is used and how procedures are completed.

First multi-year cumulation covers six years: 1965-70.

Medical practitioners, scientists and graduate students alike will find this exhaustive survey a vital learning tool. It provides a thorough description of the fundamentals and applications in the field of laser-tissue interactions. Basic concepts such as the optical and thermal properties of tissue, the various types of tissue ablation, and optical breakdown and its related effects are treated in detail. The author pays special attention to mathematical tools (Monte Carlo simulations, the Kubelka-Munk theory etc.) and approved techniques (photodynamic therapy, laser-induced interstitial thermotherapy etc.). A section on applications reviews clinically relevant methods in modern medicine using the latest references.

The quintessential guide providing a one-stop roadmap to a neurosurgical career! Neurological surgery is a complex, highly selective specialty. For medical students and residents, navigating a huge array of neurosurgical information can be overwhelming.

Neurosurgery Fundamentals by Nitin Agarwal is a portable reference enabling swift assimilation of neurosurgical care essentials. The book starts with a roadmap to a career in neurosurgery. It concludes with Advice from the Masters, featuring invaluable resources and insights from prominent neurosurgeons. Comprehensive technical overviews are provided on the neurological exam, neuroanatomy, neuroradiology, neurocritical care, traumatic brain and spinal cord injury, degenerative and deformity spine, neurovascular surgery, neurosurgical oncology, pediatric neurosurgery, functional neurosurgery, stereotactic radiosurgery, neurological infectious diseases, and interdisciplinary care. Socioeconomic topics include training, licensure, credentialing, and advocacy. Key Features Fundamental diseases, tests, and operative approaches are summarized. Top Hits feature the most salient questions, aiding in retention of knowledge. High-yield resources are highlighted to augment reader identification. Neurosurgical Pearls offer advice from the masters relevant to each chapter. High-quality illustrations, photographs, and radiographs enrich understanding. Aspiring neurosurgical providers will benefit from the easy-to-digest wealth of information in this concise, yet comprehensive guide.

Developments in the field of instrumentation of innovative instrumentation. Although laser applications have permeated nearly every aspect are among the major contributions to human advancement. The history of surgery has seen of surgical therapy, the expectations have fre many revolutionary developments cause quantum quently been unrealistic and the evaluation of leaps in progress. Electrocautery, the anesthesia technological development has always been machine, computed axial tomography, and the painfully slow. The properties of vaporization, surgical microscope are all revolutionary in coagulation, and cutting unified in an invisible struments that have irrevocably changed the shaft of light have enabled the neurosurgeon to direction of neurological surgery. vaporize inaccessible tumors of brain and spinal In the early stages of application, there are cord, harness recalcitrant bleeding sites, and cut always detractors and valid controversy concern through the most formidable calcified tumors. ing the value of a new instrument. Some will The application of this new energy form in remember those who argued that the magnifica tandem with the surgical microscope has, in my tion and illumination provided by the micro opinion, extended the scope of all aspects of scope were not valuable to the skilled surgeon neurosurgery. We have much more work to do. and would prolong the operative time and in lt is necessary to document improved results and crease infection rates. Others may recall that demand technological advances and safe inno Cushing was told to abandon the blood pressure vations.

This volume describes the most relevant and cutting-edge technological news on the complex surgical procedure of acoustic neuroma. The clinical-radiological diagnosis and surgical indications are briefly presented and the surgical technique is illustrated step-by-step: video clips show the latest means of treating these patients. All these indications were prepared by highly experienced experts in the field, based on their personal experience. The new technologies discussed concern e.g. the intraoperative identification and position of the facial nerve, hearing preservation, techniques for dural closure, and the usefulness of laser and ultrasound aspirators. The book also discusses a number of ongoing projects, including those on: diluted papaverine for microvascular protection of cranial nerves, flexible endoscope for IAC control of tumor removal, fluid

cement for bone closure, administering aspirin to control residual tumors larger than 7mm, and DTI for preoperative prediction of the position of the facial nerve. This is a highly informative presented book providing surgeon interested in acoustic neuroma with necessary information on modern technologies available for improving the results of patients.

Neurosurgical interventions have the potential to change a person's concept of self, as well as affect their neurological and cognitive function to an unacceptable level for both patient and family. In an increasingly complex and evolving field, the ethical implications of treatments and their eventual outcomes must be carefully balanced. Ethics in Neurosurgical Practice is a comprehensive and practical guide for managing the treatment of patients with debilitating neurosurgical conditions. Chapters address specific conditions, such as traumatic brain injuries, ischemic stroke and spinal surgery, and the ethical challenges that each of these pose. Detailed case studies present potential scenarios that readers might encounter, and their outcomes. Future developments of this fast-paced field are expanded upon, including televised live surgery and the ethical aspects of innovation in neurosurgery. A broad variety of contributors in different fields, including neurosurgeons, intensivists and bioethicists, ensures comprehensive coverage from a range of views and experiences.