

## Gamma Knife Neurosurgery

*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*

Washington D. C. , and at the Columbia University New York. In 1967 and 1968 he worked as a gen eral surgeon at the 1st Surgical Department of the Vienna Medical School with Professor Fuchsig. At the Max-Planck Institute in Munich he worked in the years 1968 to 1969 as a neuropathologist. In the year 1969 till 1972 back at the Department of Neurosurgery in Vienna he served as a general neurosurgeon and one of his main goals was pediatric neurosurgery. In Au gust 1972 he moved to Kiel to work with Professor Jensen at the Neurosurgical University Hospital. He had to graduate one more time in Germany and he did this with "Ultrasound Tomography in Neurosurgery". Together with the Department of Pediatrics he started to build the Pediatric Neurosurgical Department. At this time he started his research on pineal, midbrain and brainstem surgery. In September 1976 he started at the Ostsee Clinic Damp in Schleswig-Holstein to build a Neurosurgical Department that opened its gates on 1977 and he became the first chairman. On On September 30th, 2002 Professor Gerhard Pendl, April 1, 1978 he went back to Vienna as the Vice M. D. retires from his chairmanship at the Department Chairman of the Department of Neurosurgery at the of Neurosurgery at the University Hospital in Graz. University Hospital in Vienna under Professor Koos Shortly after his birth on July 10, 1934 in Linz and in 1980 he got his Ph. D.

Stereotactic radiosurgery, a field of increasing importance worldwide, is proving its value in primary and adjuvant treatment. Particle beam, gamma knife, and linear accelerator technology have already been successfully used in many operations, and their potential is being further explored. This series, featuring the latest achievements in radiosurgery, reflects the actual state of knowledge in the field. It is the official publication of the International Stereotactic Radiosurgery Society and volumes in this book series will be published every two years, following the main society congress. For neurological surgeons, radiation oncologists, radiologists, and medical physicists, neurologists and allied health practitioners each new volume will set the standard for work in radiosurgery during this period.

Gamma knife radiosurgery is a minimally-invasive treatment alternative for intracranial disorders, including tumors, vascular malformations, facial pain and epilepsy. This book will allow the reader to learn when gamma knife radiosurgery is appropriate and what to expect as treatment results.

Intracranial Stereotactic Radiosurgery

Handbook of Radiosurgery in CNS Disease

Image-Guided Neurosurgery

Top 25 Cited Gamma Knife Surgery Articles

A Practical Approach to Guide Treatment of Brain and Spine Tumors

The recent development of hypofractionated stereotactic radiation therapy (SRT), which calls for one to five fractions of high-dose radiation to be administered using special equipment, has resulted in the need for education on practice guidelines. **Image-Guided Hypofractionated Stereotactic Radiosurgery: A Practical Approach to Guide Treatment of Brain and Spine Tumors** offers comprehensive, how-to guidance on hypofractionated SRT for brain and spine metastases, glioma, benign tumors, and other tumor types. Presenting the state of the art of the technology and practice, this book: Discusses the pros and cons of hypofractionated SRT compared to single-fraction radiosurgery, providing a deeper understanding of radiosurgery and radiobiology Explains the toxicity and adverse effects of hypofractionated SRT, aiding practitioners in communicating the risks and benefits of treatment and in obtaining their patients' consent Outlines the current standards for safe practice, including checklists for implementation Comprised of chapters authored by well-recognized experts in the radiation, oncology, and neurosurgery communities, **Image-Guided Hypofractionated Stereotactic Radiosurgery: A Practical Approach to Guide Treatment of Brain and Spine Tumors** delivers a level of technological and clinical detail not available in journal papers.

**Spine Radiosurgery, Second Edition** , is a comprehensive text that includes discussions of the latest devices, treatment planning techniques, target definition, and patient selection in this specialty. Written by leading experts in the fields of neurosurgery, radiation oncology, and medical physics, this book is the definitive reference for clinical applications of state-of-the-art radiosurgery of the spine. Key Features: Six new chapters on such topics as histopathological examination of spinal lesions, minimally invasive techniques, and treatment of spinal chordomas More than 100 full-color illustrations demonstrate key concepts Discussion of new treatments for metastatic spine disease and spinal cord compression This book is a must-have resource for clinicians, fellows, and residents in neurosurgery and radiation oncology. Spine surgeons, orthopaedists, medical physicists, and oncologists at all levels will also benefit from the wealth of information provided.

The articles in this volume cover the various options of the optimal management of brain tumors, vascular lesions, and functional disorders. They provide a good balance between microneurosurgery and radiosurgery, presenting also alternative surgical and radiosurgical treatment options with discussions on their advantages and disadvantages. The presentation of multiple treatment methods will help to provide better service to patients. Some papers, specifically highlighting alternative treatment options, are accompanied by editorials prepared by recognized experts in the field. Additional emphasis is put on importance of the advanced neuroimaging techniques for radiosurgical treatment planning and subsequent follow-up.

This open access book presents the diagnosis, investigation and treatment of neurovascular diseases, and offers expert opinions and advice on avoiding complications in neurovascular surgery. It also covers complication management and post-operative follow-up care. The book is divided in to three parts; the first part discusses common approaches in neurovascular surgery, describing the steps, indications for and limitations of the approach, as well as the associated complications and how to avoid them. The second part addresses surgical treatment based on pathology, taking the different locations of lesions into consideration. The third part focuses on the technological developments that support neurovascular surgery, which may not be available everywhere, but have been included to help vascular surgeon understand the principles. This book is a guide for young neurosurgeons, neurosurgery residents and neurosurgery fellows, as well as for medical students and nurses who are interested in neurosurgery or are associated with this field in any way. It is also a useful teaching aid for senior neurosurgeons.

Radiosurgery and Pathological Fundamentals

Image-Guided Hypofractionated Stereotactic Radiosurgery

The History of the Gamma Knife

Spine Radiosurgery

7th International Stereotactic Radiosurgery Society Meeting, Brussels, September 2005

**This publication provides an excellent overview of Japan's 20-year experience with stereotactic radiosurgery using the Leksell Gamma Knife. Leading experts discuss their long-term results with gamma knife radiosurgery. Studies focusing on dose selection for optimal treatment results and avoidance of complications are also presented. In addition, gamma knife treatments of extracranial pathologies are reviewed.**

**This book attempts to combine many different threads into a comprehensible whole. Since the subject is the Gamma Knife and the author is a neurosurgeon, the field of clinical interest is restricted to intracranial pathology. The discipline of radiosurgery now applies to patients who may reasonably be referred by internists, neurologists, otolaryngologists, endocrinologists and several others. Some of the topics, touched upon, such as stereotaxy and the construction of a radio surgical instrument are unfamiliar to the majority of medical men. Other topics, such as those pertaining to the reactions between radiation and living tissue, are not exactly unfamiliar and yet, for most of us, they are not comfortable areas of expertise: in that we have some basic knowledge but not enough to draw conclusions and interpret. In particular, it is not easy to answer the very sensible questions that patients ask, when being considered for this particular form of treatment. The author has attempted to describe the basic relevant phenomenology in terms that should be readily understandable to a non-specialist physician. To do this, he has been heavily dependent on the expertise of a number of mathematically sophisticated collaborators, who have checked his manuscript. They are named in the acknowledgments section. The relevance of the different sections of this book will naturally be assessed differently, according to the experience and interest of the reader. To simplify access to the information that is required, the book is divided into three main sections.**

**" Handbook of Radiosurgery in CNS Disease is a concise and practical manual offering radiation oncology, neurology, and neurosurgery residents, trainees, fellows, and clinicians up-to-date information on the role of radiosurgery within the overall context of CNS disease management. The emphasis is on decision making and the evaluation of radiosurgery as a viable option among the suite of potentially applicable treatments, including frame-based systems, non-invasive body immobilization, and image-guided targeting. The book examines radiosurgery as a treatment modality for various CNS pathologies, discussing relevant radiobiology, current technology, and the technical aspects of specific procedures. Chapters organized by pathology provide practical coverage of clinical evaluations, patient selection and management decision-making, and relevant points in radiosurgical applications for the entity under discussion. Pertinent cases are presented to demonstrate the process for each treatment paradigm. A unique collaboration of editors with an international reputation for excellence in radiation oncology, vascular neurosurgery, and neurosurgical oncology will offer insights into the role of radiosurgery in the entire central nervous system (i.e. both brain and spine). Handbook of Radiosurgery in CNS Disease features: Practical focus on key clinical issues in radiosurgery of CNS disease: patient selection, radiosurgery in context with other modalities, pitfalls Coverage of cranial and extracranial disease Relevant cases illustrate discussion of each treatment paradigm Outstanding editorial team Concise format makes for an easy review or quick reference, in contrast to large texts "**

**Stereotactic radiosurgery (SRS) is a noninvasive treatment for a variety of intracranial lesions. Unlike conventional radiation therapy or whole brain radiotherapy, SRS is designed to focus a radiation dose on a predefined target while minimizing the radioactive dose outside of the target. The advanced imaging techniques, computed tomography (CT) and magnetic resonance imaging (MRI), have enabled precise, submillimeter targeting of intracranial lesions in three dimensional space using different SRS systems. As the various modern SRS systems represent a substantial investment, an evidence-based approach to a purchasing decisions serves the interests of patients and healthcare providers. The purpose of this report is to retrieve and review existing evidence comparing different stereotactic radiosurgery (SRS) systems with regard to accuracy and precision, clinical safety and effectiveness, cost-effectiveness and to review evidence-based guidelines for particular SRS systems.**

**Gamma Knife Radiosurgery for Brain Vascular Malformations**

**Gamma Knife Neurosurgery in the Management of Intracranial Disorders**

**Gamma Knife Surgery**

**A Review of the Precision, Accuracy, Clinical Effectiveness, Cost-effectiveness, and Guidelines**

**Gamma Knife Radiosurgery**

The book presents the evolution of concepts and technology which ended in the production of the modern Gamma Knife. The story starts before the Second World War and links pioneers in Berkeley and Sweden. To the best of the author's belief it is the first account of the development of this important therapeutic method. The author has been involved in Gamma Knife surgery since the early days and has written 3 books and many papers on the topic The author is fluent in Scandinavian languages and knows the field and has consulted with them to ensure the story is accurate The book is written in an informal easy to read style The book fills a vacuum in the literature. There are many short accounts of a few pages but no hopefully definitive account of the story short accounts all too often contain errors which hopefully are absent from the current text

Because of the huge clinical experience that has been accumulated in radiosurgery, it seems timely to explore and process out systematically pathological fundamentals on the effect of focused irradiation. The better understanding of radiobiology will enhance procedures. Renowned experts from all over the world discuss the baselines of pathology and radiobiology, medical physical principles, dose prescription guidelines, current radiosurgical techniques, advanced computer technology and recent imaging methods. This unique volume the most pioneering feature is the parallel discussion of clinical radiosurgical results with fundamental pathological findings following high-dose focused irradiation. Topics range from benign and malignant brain tumors, vascular malformations, ocular and spinal radiosurgery, interstitial brachytherapy to experimental efforts. This publication gives neurosurgeons, radiosurgeons, radiologists, pathologists, medical physicists, neurologists, oncologists, ophthalmologists, otolaryngologists as well as nuclear information technology experts an excellent understanding of the latest development of pathological fundamentals and new trends in radiosurgery.

Since its introduction 52 years ago, Leksell radiosurgery has become a widely applied technique for the management of a diverse group of vascular, neoplastic, and functional disorders. This publication presents an update on state-of-the-art radiosurgery techniques by the pioneers in the field. Experts have contributed chapters on various topics. They provide a history of the development of Leksell Gamma Knife and its evolution from frame-based to the inclusion of mask-based radiosurgery in the latest Gamma Knife mask. This valuable information related to imaging, quality assurance, patient care, anesthesia, and regulatory requirements. Advance users will appreciate the summary of the long-term outcome of important indications. Additional chapters on cavernous malformation, trigeminal neuralgia, and disorders clarify the role of radiosurgery. This book is a concise overview for physicians interested in radiosurgery. It will be of great value to neurosurgeons, radiation oncologists, and medical physicists concerned with learning about the indications of radiosurgery. This publication aims to give comprehensive information on the methods of gamma knife radiosurgery and the results of treatment of the most frequent diagnoses using radiosurgery. A summarisation of existing knowledge and results obtained in gamma knife radiosurgery based on experience with treatment of more than 13,500 patients over 20 years at Na Homolce Hospital, Prague. Besides detailing the basic data of Leksell gamma knife radiosurgery, this book also provides thorough technical description of former and existing physics principles of gamma knife radiosurgery, calibration and quality assurance as well as standardised treatment procedures. The book is primarily intended for physicians, who, together with the patient decide on the most appropriate methods of treatment. This publication can be also helpful to medical physicists who are involved in gamma knife radiosurgery and responsible for its calibration and quality assurance. Finally, it is also intended for patients who are looking for, if necessary, more comprehensive information on the treatment method for tumours and other brain disorders.

Top 25 Cited Gamma Knife Surgery Articles: Meningioma

Recent Advances and Controversies in Gamma Knife Neurosurgery

Neurovascular Surgery

Principles and Practice of Stereotactic Radiosurgery

Leksell Radiosurgery

Over the past ten years, the number of patients who have undergone Gamma knife radiosurgery has increased at a dramatic pace. At the same time there has been a continual escalation in both the safety and the efficacy of radiosurgery. This book represents the most up-to-date and comprehensive review of indications, techniques, and results for Gamma knife radiosurgery. Leading experts from many parts of the world, who are currently working with radiosurgical techniques, share their knowledge and their own particular experiences.

They discuss the physics and radiobiological basis of radiosurgery, and provide detailed evaluations of specific indications for benign brain tumors, malignant brain tumors, vascular malformations, and functional disorders. Readers will be able to use this data to assess the overall impact of stereotactic radiosurgery in the management of a wide variety of neurological disorders. The book will be of immense value to neurosurgeons, radiation oncologists, medical physicians, neurologists, neuroradiologists, and patients interested in the indications, techniques and results of stereotactic radiosurgery.

Gamma knife radiosurgery has grown continually in importance in recent years. However, there was a lack of established clinical and physical quality standards and a good knowledge of the possibilities of radiosurgical treatment for brain lesions. This book fills the gap by giving an overview of the current status of European gamma knife radiosurgery. Leading european experts report on their specialities in this field which is a state-of-the-art summary of the possibilities and results of their current work. The book encompasses all important as well as the more rare indications. All relevant technical and clinical quality standards are addressed. Tailored planning strategies are described for different indications. All professionals who care for patients with neurosurgical disease, such as neurosurgeons, radiosurgeons, radiologists, radiation oncologists and neurologists will find the book highly useful for the management of patients with benign and malignant brain lesions in a multidisciplinary setting.

Gamma Knife NeurosurgerySpringer Science & Business Media

An excellent summary of more than 30 years of accumulated experience Clinical outcomes of brain vascular malformation have been greatly improved by advances in microsurgery, endovascular techniques and stereotactic radiosurgery. Radiosurgery has proven to be the least invasive technique and is associated with documented long-term success. The papers in this volume present the experience of leading brain vascular malformation specialists who describe the outcome of radiosurgery for arteriovenous malformations, cavernous malformations and dural arteriovenous fistulas. These reviews expand the knowledge of the role of stereotactic radiosurgery alone or in combination with other treatment modalities. Evidence-based guidelines are included in each section to provide a summary of the current management strategies. This unique publication includes additional data that will further define the long-term benefit and risks of radiosurgery for these often complex vascular disorders and makes valuable reading for neurosurgeons, neurologists and endovascular specialists interested in an excellent summary of more than 30 years of accumulated experience in the management of brain vascular malformations.

A Guide for Referring Physicians

Intracranial Stereotactic Radiosurgery, An Issue of Neurosurgery Clinics,

Japanese Experience with Gamma Knife Radiosurgery

European Standards and Perspectives

Neurosurgery of Arteriovenous Malformations and Fistulas

Recent Advances and Controversies in Gamma Knife Neurosurgery, Volume 270, the latest release in the Progress in Brain Research series, highlights new advances in the field with this new volume presenting interesting chapters on the latest in Dosimetry, Radiobiology, Evolving Gamma Knife Technology, Imaging,

Arteriovenous Malformations, Dural A-V Fistulae, Cavernous Malformations, Vestibular Schwannoma, Other Schwannoma, Meningiomas, Pituitary Adenomas, Craniopharyngiomas, Metastases, Glioma Low Grade, Glioma High Grade, Glomus Tumors, Less Common Tumors, Orbital Indications, Trigeminal Neuralgia, Epilepsy, Movement, Psychosurgery, and Future Trends. Provides the authority and expertise of leading contributors from an international board of authors Presents the latest release in Progress in Brain Research series Updated release includes the latest information on Recent Advances and Controversies in Gamma Knife Neurosurgery

Arteriovenous malformations (AVM) and arteriovenous fistulas (AVF) differ from all other pathology affecting the central nervous system by their high-flow arteriovenous shunts. Permanent occlusion of these shunts is the essence and the challenge of therapy. Endovascular therapy and radiosurgery became accepted alternatives or adjuncts to surgery. In many instances the choice of the primary therapeutic modality is not clear and arguments can be found for several options. However, microsurgery, endovascular therapy and radiosurgery differ very much with regard to invasiveness, length of stay at the hospital but also residual risk after therapy. The emerging treatment concepts are the object of this book. The result is a unique structured presentation of AVM and AVF therapy.

This issue of the Neurosurgery Clinics of North America devoted to Intracranial Stereotactic Radiosurgery is Guest Edited by Dr. Bruce Pollock of the Mayo Clinic in Rochester, Minnesota. Articles in this issue include: Concepts and Techniques of Intracranial Stereotactic Radiosurgery; Stereotactic Radiosurgery of Intracranial Meningiomas; Stereotactic Radiosurgery of Pituitary Adenomas; Stereotactic Radiosurgery of Vestibular Schwannomas; Stereotactic Radiosurgery of Non-Vestibular Schwannomas; Multi-session Radiosurgery of Benign Intracranial Tumors; Stereotactic Radiosurgery of Intracranial Gliomas; Stereotactic Radiosurgery of Brain Metastases; Stereotactic Radiosurgery of Chordomas, Chondrosarcomas, and Glomus Tumors; Stereotactic Radiosurgery of Intracranial Arteriovenous Malformations; Stereotactic Radiosurgery of Intracranial Dural Arteriovenous Fistulas; Stereotactic Radiosurgery of Intracranial Cavernous Malformations; Stereotactic Radiosurgery for Trigeminal Neuralgia; and Stereotactic Radiosurgery for Epilepsy and Functional Disorders.

This second edition is written by renowned experts in neurosurgery, neurology, physics, and radiation oncology, many of whom are pioneers of radiosurgery. Throughout more than 30 detailed chapters, the authors share their vast expertise on this highly precise, minimally invasive form of radiation therapy. The first few chapters lay a foundation for understanding the differentiations in types of SRS technology: Leksell Gamma Knife®, Novalis, Linac and Proton Beam Radiosurgery, and Cyberknife, followed by an explanation on the physics and radiobiology of SRS. The remaining chapters provide a detailed discussion of all pathologies and disorders currently treated. Highlights: Radiosurgical procedures for a wide range of intracranial conditions/diseases including arteriovenous malformations, meningiomas, pituitary adenomas, trigeminal neuralgia, obsessive-compulsive disorder, epilepsy, ocular disorders, pediatric brain tumors, and gliomas. Important updates on skull base tumors, functional disorders, and brain metastases. Evidence-based findings covering indications, patient selection, benefits, limitations, outcomes, potential complications, and alternative treatment modalities. This updated reference tool is an invaluable, comprehensive guide to current concepts in SRS. It is a must-have resource for neurosurgeons, radiation oncologists, neuroradiologists, and medical physicists, from residents to advanced clinicians.

Proceedings of the 15th International Meeting of the Leksell Gamma Knife Surgery [Athens, Greece, in May 2010].

(Die Rolle Des Gamma Knife in Der Neurochirurgie)

Gamma Knife Surgery Compared with Linac-based Radiosurgery Systems in the Treatment of Intracranial Lesions Or Tumours and Functional Neurosurgery

Radiosurgery

Advances in Epilepsy Surgery and Radiosurgery

Today, over 500,000 patients have been treated world wide in 250 Gamma Knife Centres in 37 countries each one treating between 150 and 700 patients a year. The current book serves as a textbook, training manual and reference book for those involved in Gamma Knife practice covering the theoretical background, the practical aspects of treatment, the social side of the method and necessary information not only for users but for those who refer to the Gamma Knife. It also covers some aspects of the hospital and social administration required for optimal use of the technology, also looking at the effect of the internet on specialist medical practice. It also presents the completely new Gamma Knife (Perfexion), a new technology which extends the range of the Gamma Knife and will be the treatment standard for the future. The History of the Gamma Knife presents the evolution of concepts and technology which ended in the production of the modern Gamma Knife. The story starts before the Second World War and links pioneers in Berkeley and Sweden. To the best of the author's belief it is the first detailed, factually accurate account of the development of this important therapeutic method. The author has been involved in Gamma Knife surgery since the early days and has written 3 books and many papers on the topic The author is fluent in Scandinavian languages and knows the original pioneers in the field and has consulted with them to ensure the story is accurate The book is written in an informal easy to read style The book fills a vacuum in the literature. There are many short accounts of a few pages but no hopefully definitive account of the story of the Gamma Knife. Also these short accounts all too often contain errors which hopefully are absent from the current text

The aim of the International Stereotactic Radiosurgery Society (ISRS) is to promote technical developments in stereotactic radiosurgery on the highest level of clinical experience based on clinical investigations. In this volume, high-quality peer-reviewed papers from the 8th International Stereotactic Radiosurgery Society meeting held in San Francisco 2007 are presented. The reports include new studies on physics, imaging and radiobiology in radiosurgery as well as the latest research in the field of cranial radiosurgery on benign tumors, malignant tumors and vascular malformations. Further articles cover new investigations in the practice on spinal and body radiosurgery. This publication is of special interest to neurosurgeons, radiation oncologists and medical physicists who require precise information to keep up to date with the important developments on the use of stereotactic radiosurgery.

Radiosurgery has become an established technique, with more than 15000 patients treated world-wide, most of them in the last five years. Yet, there is much uncertainty in the general medical community as to the nature, advantages and limitations of the method. This uncertainty provokes unnecessary debate between colleagues and is a source of avoidable stress to patients. This book provides an account of the scientific basis of radiosurgery and describes its current applications in respect of the only well established radiosurgical device, the Leksell Gamma Knife. The book assumes the general medical knowledge of a newly qualified medical practitioner. There are three sections. The first outlines the rationale for radiosurgery and the principles of stereotaxy, radiophysics and radiobiology. The middle section, consisting of a single chapter, describes what a potential patient may expect to experience. In the final section, the current applications are gone through, one by one, indicating what can and what cannot be achieved. The book is intended for neurologists, neurosurgeons, internists, otolaryngologists, oncologists, ophthalmologists, general practitioners, medical students and anyone else who might wish to refer a patient to or advise a patient about Gamma Knife radiosurgery.

Surgical Approaches for Neurovascular Diseases

Gamma Knife Brain Surgery

Gamma Knife Neurosurgery in the Management of Intracranial Disorders II

Top 25 Cited Gamma Knife Surgery Articles: Trigeminal Neuralgia

New horizons in neurosurgery

***The articles in this volume cover the various radiosurgical techniques used to treat benign and malignant intracranial tumors, cavernous malformations, and functional disorders, as well as a wide array of specific details on medical physics, neuroimaging, and anesthetic support. Particular emphasis is put on the optimal combination of microneurosurgery and radiosurgery for attaining the best functional results in patients with vestibular schwannomas, craniopharyngiomas, and pituitary adenomas, and on the most effective methods of treatment planning and radiation dosimetry in cases of metastatic brain tumors. The highlighted clinical aspects include indications for radiosurgery and the prediction of patients' prognosis, along with analysis of outcomes in comparison with results achieved by other modalities in the context of multifaceted therapeutic strategies. In addition, possible options for applying advanced treatment using such modern devices as Leksell Gamma Knife Perfexion™ and Icon™ are presented in depth. This information will interest both radiosurgical practitioners and neurosurgeons, and help them to provide optimal care and to achieve the greatest benefit of their patients. This book will serve as an excellent companion for the previous publication "Gamma Knife Neurosurgery in the Management of Intracranial Disorders" (Acta Neurochirurgica Supplement, Volume 116, Springer, 2013).***

***This is the first contemporary, comprehensive reference for neurosurgeons and radiation oncologists using Gamma Knife and Linear Accelerator technology. Each chapter includes specific case presentations representative of the most commonly treated conditions, including applications for spinal disorders. Chapters conclude with counterpoint experiences, oriented to treatment options other than radiosurgery. These counterpoint discussions are written by noted experts and address in greater detail the indications, results and complications of their approach and enable readers to improve decision making with regard to their own patients.***

***Principles and Practice of Stereotactic Radiosurgery, Second Edition serves as the definitive reference textbook for SRS practitioners. It provides a theoretical basis for the use of therapeutic radiation including imaging techniques and radiobiology. The bulk of the textbook contains chapters that are comprehensive in scope on all diseases that are treated by SRS. Lastly, it addresses administrative and technical aspects of running an SRS unit. Each chapter provides an expansive treatment of the subject, with emphasis placed on the technical aspects of SRS so that practitioners in this field can use it as a daily reference. Written by noted experts in the field, Principles and Practice of Stereotactic Radiosurgery, Second Edition is the only reference needed for neurosurgeons, radiation oncologists and medical physicists at all levels of training and practice who are interested in SRS.***

***A Multimodal Approach***

***Gamma Knife Neurosurgery***

***gamma knife surgery 5000 case***

***Gamma Knife Surgery Compared with Linac-Based Radiosurgery Systems in the Treatment of Intracranial Lesions Or Tumours and Functional Neurosurgery: A Review of the Precision, Accuracy, Clinical Effect***