Intracranial Stereotactic Radiosurgery
Edited by L. Dade Lunsford and Jason P. Sheehan

Intracranial stereotactic radiosurgery (SRS) is a technique that delivers a high dose of precisely targeted radiation using highly focused \( \gamma \)-or x-ray beams to a specific area of the brain to treat a tumor or another abnormality while minimizing the radiation effect on the surrounding normal brain tissue. As its radiobiology, mechanism of effect, and complication aspects have become better understood, SRS has become popular, and its use has increased markedly for treating brain lesions. Therefore, it is mandatory for practicing physicians to know the role and the results of SRS when treating intracranial lesions with this modality.

The textbook *Intracranial Stereotactic Radiosurgery* was edited by L. Dade Lunsford and Jason P. Sheehan, neurosurgeons who have vast experience in the evaluation and treatment of patients with different disorders of the brain. This work includes 20 chapters by 56 contributing authors who are respected clinicians (mostly from the field of neurosurgery) in the United States and abroad; these authors give a broad perspective on surgical and SRS treatment of diseases while also describing the risks and benefits of each procedure. The book succeeds in addressing the essential knowledge related to the intracranial use of SRS. Because focal radiation therapy can be applied to different parts of the body for a variety of disorders, consideration of SRS for intracranial use is reasonable, and the title of the book is appropriate. However, we wished that at least an overview of spinal radiosurgery had been included in such a well-written book because the use of SRS has been increasing in the clinical practice of neurosurgery and radiation oncology.

The first three chapters of this book focus on the basics of radiosurgery, including the history and evolution of neurosurgical radiosurgery, radiobiology, and histopathological changes related to radiosurgical treatment. Particularly in Chapter 3, histopathological changes after radiosurgery are outlined very briefly and effectively with color pictures of tumor specimens resected after radiation treatment, making the effect of radiation on the lesions clear to the readers. This basic information provides the foundation for the following chapters. However, a chapter in the first part of the book focusing on general considerations and basic knowledge of dosing and radiosurgical planning of the lesions would have been useful. Distinct disorders of the brain, including tumoral and vascular lesions, are included in the text. The use of radiosurgery is reviewed for the lesions in which the effect of radiosurgery is already well established; in addition, the disorders for which the use of radiosurgery is still controversial or for which data on the use of radiosurgery are lacking are reviewed, providing a good level of understanding to the readers. Also, the chapters on radiosurgical treatment for movement disorders and epilepsy are very helpful; the authors review the existing literature on this relatively new treatment modality for these entities and briefly describe the indications for radiosurgery as well as its benefits and complications.

Despite being written by many authors, in general, there is a consistency in writing style and presentation of knowledge from one chapter to the next. Each chapter presents background information on the specific disorder, reviews the indications for radiosurgery, compares radiosurgery with current treatment options, and discusses complications and outcomes, with an extensive literature review and description of the experience with each disorder at the authors’ institution. Also, there are tables summarizing the existing literature, and those that show tumor control rate, overall survival, and complications are very useful for readers. Furthermore, the most recent technological advances in radiosurgery modalities, such as Cyberknife and Gamma Knife Perfexion, are detailed for some of the intracranial lesions. In addition, in the chapter on SRS for skull-base chordomas and chondrosarcomas, a new focal radiation treatment modality, proton beam therapy, is described. In this well-designed chapter, the biological properties, technical aspects, treatment planning, and clinical results of proton beam therapy are very thoroughly detailed, with useful figures and tables.

The last three chapters describe radiosurgical treatment for gliomas, brain metastases, and pediatric brain tumors. Although these chapters could be expanded into books themselves, each topic is explained briefly, highlighting the current treatment modalities and existing therapeutic controversies. Also, a chapter on SRS for ocular disorders is included in this book, which should be informative for radiation oncologists but less so for neuro-oncologists and neurosurgeons.

Some chapters are inconsistent in terms of the content and length of the text. For example, Chapter 7, on cavernomas, includes very comprehensive text, whereas the chapter on meningiomas basically consists of a description of the authors’ own series, without sufficient background information. Also, in the chapter on movement disorders, there ought to have been descriptive images for SRS planning and more samples of radiological images to permit a better understanding of the technique.

In addition, there are some typesetting errors in the text, and there is a reversal of values in one table that may cause misunderstanding. For example, in the...
chapter on brain metastases, Table 19.1 (comparing the studies of surgery vs whole-brain radiation therapy [WBRT] vs stereotactic radiosurgery) contains an error: on the line detailing the study by Sanghavi et al., the median survival times for WBRT and WBRT + radiosurgery should be 7.1 and 16.1 months, respectively, not 16.1 and 7.1 months, as shown, and for the study by Andrews et al., the median survival times for WBRT and WBRT + radiosurgery should be 4.9 and 6.5 months, respectively, not 6.5 and 4.9 months, as shown.

In summary, this textbook provides valuable information about ISR. The information presented is up to date. The book is well written and easy to navigate. The target audience is clinicians such as neurosurgeons, radiation oncologists, and neuro-oncologists who treat patients with intracranial disorders. This book is also recommended to residents and fellows in these fields because it makes available the most recent information on this topic, including a comprehensive literature review.

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