**Book Review: Adult CNS Radiation Oncology: Principles and Practice**

By: Eric L. Chang, Paul D. Brown, Simon S. Lo, Arjun Sahgal, John H. Suh, editors
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*Adult CNS Radiation Oncology*, edited by Drs Chang, Brown, Lo, Sahgal, and Suh, is a comprehensive resource that fills a major gap in the medical textbook literature: radiation oncology for adult central nervous system diseases. This timely textbook addresses modern developments in radiation therapy technology including image guidance and advances in molecular prognostic and predictive factors in the field of neurological radiation oncology. While existing radiation oncology and neurosurgery textbooks do cover benign and malignant brain tumors in select chapters, no other textbook is specifically dedicated toward providing readers with a comprehensive review of the roles of radiation oncology in the treatment of adult patients with benign and malignant brain tumors.

The authors are keenly aware of the advances and multitude of available radiation treatment systems for CNS tumors including 3-dimensional conformal radiotherapy, intensity modulated radiotherapy, LINAC-based radiosurgery, Gamma knife (Elekta AB, Stockholm, Sweden), spine SBRT, proton beam therapy, and brachytherapy. These treatment modalities are addressed appropriately for applicable disease sites. From a practical perspective, the authors do an excellent job organizing each disease site with representative cases, detailed treatment planning information including target volumes and recommended fractionation schemes.

The book is well-organized by disease sites—brain, skull base, and spine—which include both benign and malignant tumors. Chapters start with basic background information on the disease, followed by diagnostic workup including molecular diagnostics when appropriate, overall treatment strategy, radiation dose, target volume delineation, case presentation, summary, and self-assessment questions. There is also a dedicated chapter that addresses palliative radiotherapy for CNS diseases. Each chapter includes key learning objectives and self-assessment questions to help readers solidify their understanding of each chapter's subject matter.

The initial couple of chapters describe common benign and malignant primary brain tumors with perspectives from preeminent authorities in each disease site. The first chapter discusses meningioma, including comprehensive epidemiology and natural history, followed by the role of surgery and multiple radiation modalities used for meningiomas, and concludes with guidelines for radiation utilization and updated contemporary clinical trial results. The following chapters then include pituitary adenoma, craniopharyngioma, and vestibular schwannoma using a similar format. The next section continues with chapters on benign and malignant spine tumors, an area of great development. I found the case presentations of the spine chapters to be highly relevant and helpful. Each of these chapters is strengthened by key discussions on updates in molecular classification of tumors, when appropriate, and thoughtful self-assessment questions.

Next, the book focuses on less common diseases including leptomeningeal disease, optic/ocular tumors and rare tumors. The leptomeningeal disease chapter starts with background and basic workup followed by discussion of various treatment options including involved-field radiotherapy and craniospinal irradiation. This chapter explains the expected symptomatic and survival outcomes in detail. The book then moves on to a number of chapters dedicated to optic/ocular tumors addressing a variety of situations where radiotherapy is indicated with discussions of brachytherapy, stereotactic radiosurgery, recommended doses, and constraint parameters. While some of the material may be repetitive, this organization allows each disease site to be covered comprehensively.
Later, the book moves on to metastatic brain disease and, importantly, radiation-associated complications. There has been a great deal of interest in the role of brain metastases and radiation, particularly with the advent of newer targeted systemic therapy agents. The chapter on multiple metastases extensively discusses various treatment options including fractionated radiosurgery as well as EGFR-mutated and ALK-rearranged lung cancer systemic therapies. I found the chapters on radiation-associated complications to be most timely. With newer treatment modalities and systemic therapies, current understandings and ongoing questions regarding radiation-induced complications need to be addressed.

The last part of this textbook specifically discusses different radiation treatment modalities for brain and spinal tumors. Chapters specifically address 3D conformal therapy and intensity modulated radiotherapy, LINAC-based stereotactic radiosurgery, Gamma Knife stereotactic radiosurgery, protons, and brachytherapy. Each of these modalities is discussed at length by authorities in their respective fields.

Overall, the editors have done an excellent job with the creation of this comprehensive textbook. This book has many strengths, including well-designed descriptive figures, thorough discussion of management strategies and useful self-assessment questions. The editors have assembled credible contributors for the individual chapters who have wide experience on these various topics. Each chapter is well-organized, particularly the brain and spine disease sites. I foresee this textbook to become the leading neurological radiation oncology book and may be applicable to neurosurgeons as well, filling a strongly needed gap in the medical literature currently missing from general radiation oncology and neurosurgery textbooks.

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