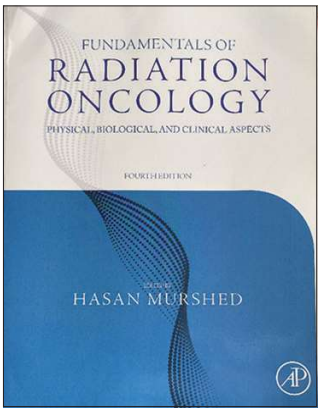
Fundamentals of Radiation Oncology: Physical, Biological, and Clinical Aspects



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"Fundamentals of Radiation Oncology: Physical, Biological, and Clinical Aspects" edited by Prof Hasan Murshed is a multi-author (61 authors) book. This book is divided into four parts and twenty-eight chapters. Part I: Basic Science of Radiation Oncology contains four chapters, namely (1) Radiation Physics Dosimetry and Treatment Planning, (2) Radiation Protection and Safety, (3) Radiation Biology and (4) Molecular Cancer Biology. Part I of the book presents basic aspects of radiation physics, radiation dosimetry and dosimetry parameters, radiotherapy treatment planning, quantities used in radiation protection, radiation protection principles, regulations pertaining to occupational workers and the general public, parameters used in layout planning and shielding calculations of radiotherapy installations, personnel monitoring and other aspects of radiation protection. Radiation biology pertaining to radiotherapy and molecular cancer biology are also discussed in greater detail. This part of the book is devoted to building knowledge and understanding of the parameters and terminologies which are required for understanding radiation dosimetry, radiation safety, and biological components of radiation therapy.

Part II: Techniques and Modalities of Radiation Oncology comprises ten chapters starting from chapter 5 to chapter 14, namely (5) Brachytherapy, (6) Intensity Modulated and Image Guided Radiation Therapy, (7) Stereotactic Radiation Therapy – Cranial Lesions, (8) Stereotactic Body Radiation Therapy (SBRT) – Lung Cancers, (9) Proton Radiation Therapy, (10) Adaptive Radiotherapy, (11) Artificial Intelligence in Radiation Therapy, (12) Immunotherapy, (13) Radiation and Combined Modality Therapy, and (14) Statistical Considerations in Radiation Oncology. This part of the book provides the details about various radiotherapy techniques and their applicability in the treatment of different types of cancer cases including brachytherapy, advance forms of beam therapy (intensity-modulated radiotherapy, volumetrically modulated arc therapy, stereotactic radiation therapy, SBRT, adaptive radiotherapy), proton therapy, immunotherapy, and combined modality therapy. Part II of the book is the core part which provides details of possible radiation treatment techniques and their applicability in the treatment of cancers of different body parts. The inclusion of artificial intelligence in radiation therapy and statistical considerations in radiation oncology are the two important attractions of this part of the book. This part of the book contains a combination of highly useful information (physical, technical, and clinical aspects of radiation therapy techniques) within one roof.

Part III: Clinical Radiation Oncology contains twelve chapters ranging from chapter 15 to chapter 26, namely (15) Skin Cancers, (16) Primary Brain Cancers, (17) Head and Neck Cancers, (18) Breast Cancers, (19) Thoracic Cancers, (20) Gastrointestinal Cancers, (21) Genitourinary Cancers, (22) Gynaecological Cancers, (23) Lymphoma and Hematologic Cancers, (24) Soft Tissue Sarcomas, (25) Pediatric Cancers, and (26) Benign Tumors. As is obvious from the title of the chapters, this part of the book is devoted to clinical aspects of radiation oncology and discusses in detail the type, incidence rate, symptoms and signs, investigation approaches, grade and staging, treatment options, outcomes, complications, and follow-up schedules for cancer cases of different body parts. Chapters of this part of the book contain compact but highly useful clinical information about various cancer cases. As almost all the relevant clinical information is compiled in a systematic manner, one can easily turn a page to note down the required parameter which helps in clinical decisions.

Part IV: Palliative Care and Radiation Treatment Toxicity Management contains two chapters, namely Chapter (27) Radiation Emergencies and Common Indications for Palliative Radiotherapy, and Chapter (28) Radiation Treatment Toxicity and their Management. Chapter 27 provides detailed clinical information about palliative radiotherapy for the brain metastases, spinal cord compression, painful bone metastases, and superior vena cava syndrome. Chapter 28 presents details about the early and late side effects of radiation treatment of various cancer cases which are included in part III of this book. This chapter also provides the treatment required for managing the side effects of radiation treatments.

As stated by Prof Hasan Murshed (editor) in a press release the notable updates and features of the 4th edition of this book include:

- In-depth updates on stereotactic radiosurgery, SBRT, proton therapy and immunotherapy
- New chapters focusing on the role of adaptive radiotherapy and artificial intelligence in advancing radiation treatments
- Comprehensive coverage of intensity-modulated radiotherapy/volumetric modulated arc therapy and image-guided radiotherapy techniques across all clinical chapters
- Integration of the most recent landmark studies, providing evidence-based recommendations for contemporary cancer care.

In summary, the book entitled "Fundamentals of Radiation Oncology: Physical, Biological and Clinical Aspects" is an indispensable resource for both students and professionals in the field of radiation oncology and medical physics. It has included the most recent aspects of radiation therapy and provided valuable insights about the applicability of a given technique for a given indication. This book provides a crisp compilation of highly useful practical insights about the physical, biological, and clinical aspects of radiation oncology which is expected to be handy for both beginners and specialists in the field of radiation oncology. The authors have presented their concepts in a simple English language to make it easier for all. The title of the book and the contents inside resemble with each other. I expect that all the professionals of radiation oncology, namely, radiation oncologists, medical physicists, and radiation therapy technologists will find this book worthy to refer on day-to-day basis during their practice.

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