Practical Guides in Radiation Oncology

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The series *Practical Guides in Radiation Oncology* is designed to assist radiation oncology residents and practicing radiation oncologists in the application of current techniques in radiation oncology and day-to-day management in clinical practice, i.e., treatment planning. Individual volumes offer clear guidance on contouring in different cancers and present treatment recommendations, including with regard to advanced options such as intensity-modulated radiation therapy (IMRT) and stereotactic body radiation therapy (SBRT). Each volume addresses one particular area of practice and is edited by experts with an outstanding international reputation. Readers will find the series to be an ideal source of up-to-date information on when to apply the various available technologies and how to perform safe treatment planning.

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Target Volume Delineation for Pediatric Cancers

Springer

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Preface

Optimizing the therapeutic ratio is critical in pediatric radiation oncology to effectively treat benign and malignant diseases while simultaneously decreasing dose to normal structures to reduce the risk of acute and late effects. Being able to achieve therapeutic improvements in radiation therapy is reliant on accurate target volume definition to precisely delineate tumor and critical normal tissues. Accurate target volume delineation has become ever more important as advanced treatment technologies such as proton therapy and image-guided conformal therapies become standard therapeutic options.

It is necessary to understand the specific and unique clinical considerations for multiple pediatric tumors in order to design radiotherapy fields that neither overtreat nor under-treat the disease entity. The clinical target volume (CTV) must be delineated on cross-sectional axial imaging in addition to normal tissues. With certain radiation treatment approaches such as proton therapy, the precise contouring of disease compared to normal structures is essential.

We hope that this text will serve as a comprehensive contouring guide for radiation planning for pediatric diseases in the modern era. Each chapter illustrates different case scenarios to capture the spectrum and diversity that we experience in the pediatrics field. In this age of advanced technologies, we feel that a consistent approach to target delineation is a critical element to provide the optimum treatment for our patients.

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