



Editorial

Special section on intensity-modulated radiation therapy for head and neck cancer (IMRT)



This special issue of Oral Oncology focuses on intensity modulated radiotherapy (IMRT) for the treatment of head and neck cancer. IMRT is regarded as one of the most successful developments in radiation oncology (Fig. 1). The concept of IMRT arose from the demonstration that a set of intensity modulated beams from multiple directions could produce homogeneous dose within a target with superior conformity even for concave or other complex-shape target volume [1]. With subsequent advancements in beam delivery system, multi-leaf collimator and optimization algorithm, IMRT quickly became the standard of care for head and neck cancer. A randomized trial has already demonstrated its superiority over 3D-CRT for organ-at-risk sparing, and in particular xerostomia [2].

While IMRT for head and neck cancer has been implemented for more than two decades, it is only very recently that consensus guideline in target volume delineation is being proposed [3,4]. Pattern of failure therefore varies significantly across many studies. An optimal code of contouring is needed not only to avoid geographical miss but also unnecessary treatment morbidities. Three articles (by Grégoire, Liang and Evans) in this special issue are therefore entirely devoted to target delineation, critically addressing the various considerations in different

subsites and in different clinical settings, with the ultimate goal of aligning treatment practices.

Another major challenge is to ensure that these guidelines could be consistently implemented in routine practice. Analyses from previous head and neck trials have shown that poor compliance and protocol violation could have significant adverse impact on treatment outcomes [5]. McDowell et al. remind us the role and importance of quality assurance program on target volume delineation, especially in large scale clinical trials. The article by Brodin and Tomé summarizes the latest evidence on the dose constraint for head and neck organs at risk, and revisiting these data could have tremendous impacts on the patients' quality of life.

The article by Gujral et al. reviews all the relevant IMRT trials in head and neck cancer, and lays out the benchmark results showing what could be achieved with this technique. A new entity of head and neck cancer has emerged – human papillomavirus mediated oropharyngeal cancer (HPV + OPC). While this disease could be managed quite well with radiotherapy, significantly improved surgical technique has become another important treatment option for these patients. Dr. Huang and colleagues elegantly present to us the ideal way to select the

IMRT for head and neck cancer

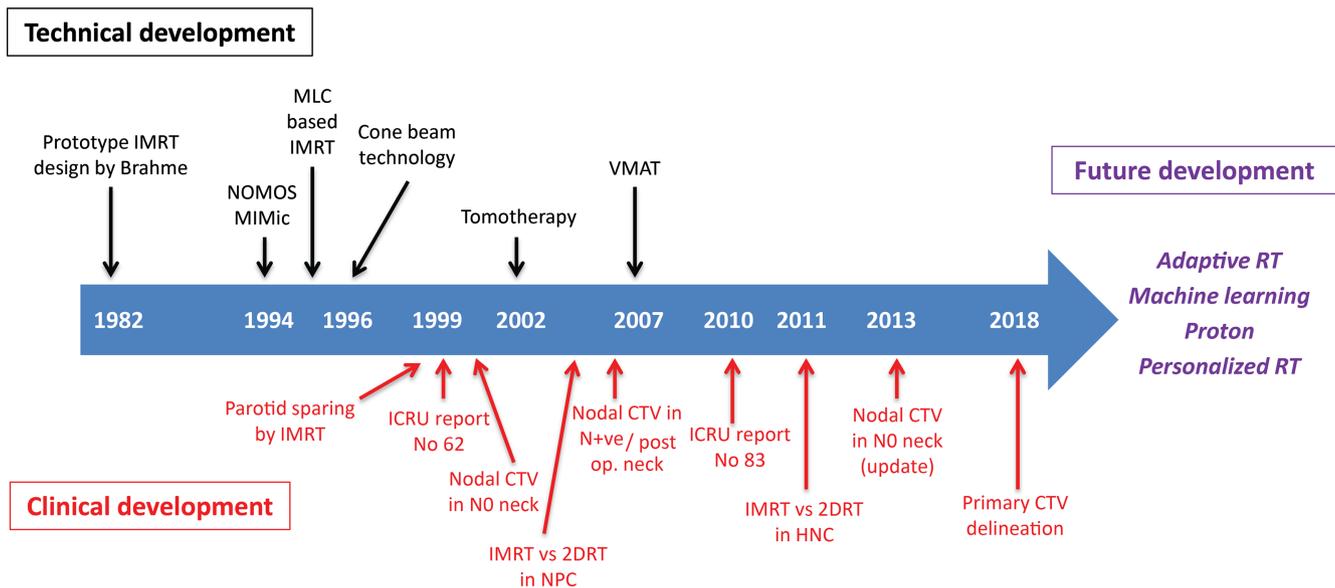


Fig. 1. Major milestones in the history of IMRT for head and neck cancer.

right treatment for the right HPV + OPC patient.

To round up this issue, we touch on four exciting topics involving IMRT including adaptive radiotherapy (by Gensheimer et al.), artificial intelligence (by Kearney et al.), personalized radiotherapy based on known and novel biomarkers (by Andreassen et al.) and intensity modulated proton therapy (by Moreno et al.). We hope the readers will find these articles both useful and thought-provoking.

Conflict of interest

None declared.

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