

Adaptive radiation therapy in a patient with a massive nodal breast cancer recurrence

Marco Trovò¹, Annalisa Drigo², Andrea Dassie², and Imad Abu Rumeileh¹

¹Department of Radiation Oncology, and ²Department of Medical Physics, Oncologic Referral Center, Aviano, Italy

ABSTRACT

Adaptive radiation therapy (ART) is the next improvement in image-guided radiation therapy (IGRT). ART consists in changing treatment delivery to compensate for changes in patient anatomy or tumor volume. The treatment planning is therefore adapted to the new target volume. By daily imaging, the tumor volume can be assessed and compared with the initial volume. In case of tumor progression or tumor response, a new plan can be obtained to adequately treat the new volume.

We report the use of ART with the Plan Adaptive software of TomoTherapy Inc. in a patient with massive breast cancer recurrence in the axilla. Between the CT simulation and the first day of radiotherapy the axillary lesion progressed. Megavolt CT performed to image-guide the treatment showed impressive growth of the lesion, which went out of the treatment field. By studying the dose distribution on the new anatomy, we found that the planning target volume was substantially undercovered by the prescription dose. Adaptive planning was performed using the anatomical information acquired by the megavolt CT.

Key words: adaptive radiation therapy, tomotherapy, image-guided intensity-modulated radiation therapy.

Correspondence to: Marco Trovò, MD, Department of Radiation Oncology, Centro di Riferimento Oncologico, Via F. Gallini 2, 33081 Aviano (PN), Italy. Tel +39-0434-659855/523; fax +39-0434-659524; e-mail marcotrovo33@hotmail.com

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