Treating primary cardiac angiosarcoma

Radiotherapy and chemotherapy are usually reserved for inoperable patients or given adjuvantly for those with residual tumor and/or metastatic disease. Elsayad and coworkers describe a novel treatment modality with adaptive radiotherapy using tumor-volume tracking in a 37-year-old woman who presented with unresectable primary cardiac angiosarcoma. Prior to radiotherapy, transthoracic echocardiography, exploratory computed tomography (CT), and PET/MRI identified a rapidly progressive tumor (515 cm^3). The patient was treated using positron emission tomography/magnetic resonance imaging (PET/MRI)-guided adaptive radiotherapy with 55.8 Gray (delivered in 31 daily fractions) simultaneous to paclitaxel chemotherapy. During the course of radiochemotherapy, image-guidance using cone-beam CT (CBCT) examinations demonstrated disease remission. Therefore, a new weekly planning CT had been undertaken until the completion of RT (Fig. 1b-d). No moderate or severe acute effects developed during the treatment period. Significant tumor volume reduction was achieved on the order of 57% (299 cm^3) during radiation (Fig. 1f). Further shrinkage of the cardiac tumor was observed in the follow-up CT scans with 71% volume reduction in comparison to initial imaging studies. This patient survived for 9.5 months after the initial diagnosis to date of publication, and no evidence of cardiac disease progression was detected at her 6-month follow-up appointment post-radiation.

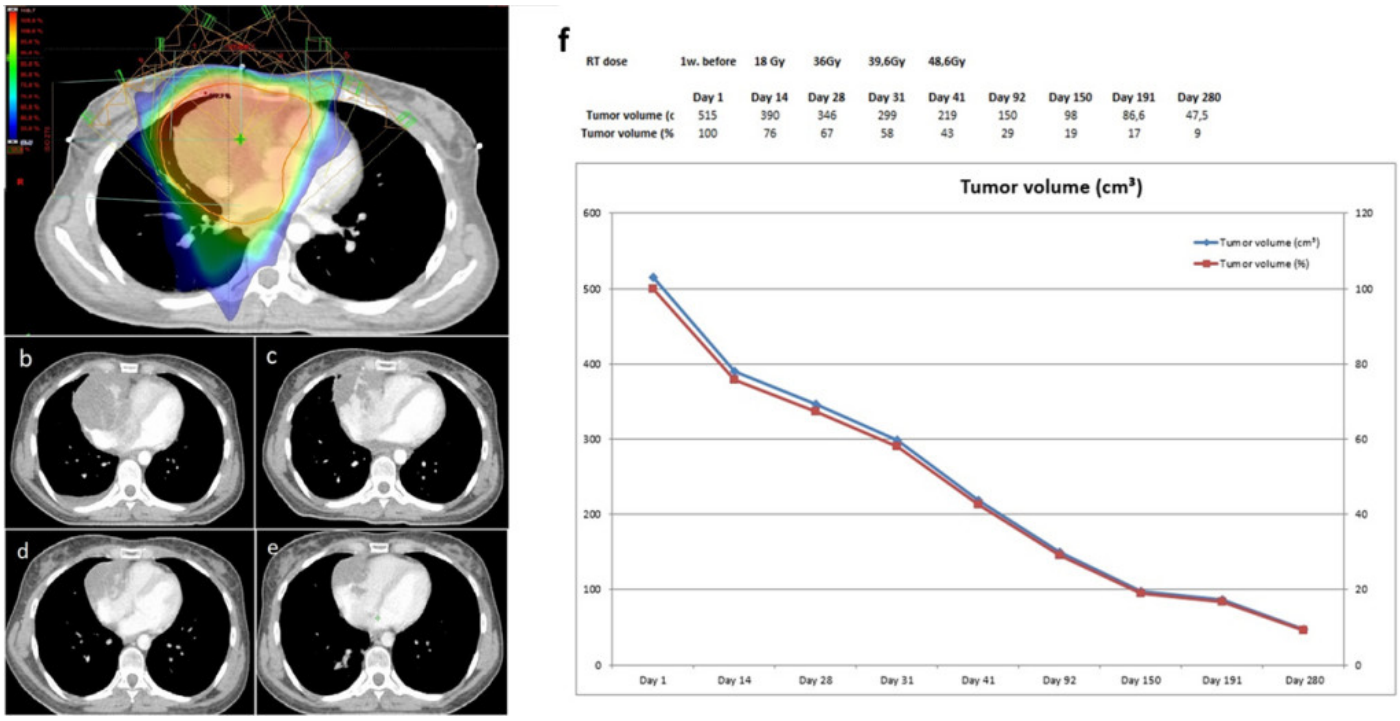

Fig. 1 (a) Dose distribution in the radiation field using intensity-modulated radiation therapy (IMRT)-based plan prescribed to 50%-isodose line; (b-e) Chest-CT scans during chemoradiotherapy on days 14, day 28, and day 35, at 8 weeks after radiation. (f) Tumor volume during and after radiation treatment (This patient survives 12 months with 92% Tumor volume

reduction to date).

In conclusion, adaptive radiotherapy was well tolerated and a marked tumor volume reduction was achieved by ~57% during radiotherapy, suggesting the effectiveness and tolerability of ART in combination with taxol-based chemotherapy. In this study, PET/MRI images were beneficial for accurate tumor delineation and to exclude tumor recurrence.

Publication

Primary Cardiac Angiosarcoma Treated With Positron Emission Tomography/Magnetic Resonance Imaging-Guided Adaptive Radiotherapy.
Elsayad K, Lehrich P, Yppaerilae-Wolters H, Dieckmann C, Kriz J, Haverkamp U, Eich HT.
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