

AbstractID: 7741 Title: Tomotherapy as a Solution to Reduce Dose to Critical Structures in Previously Irradiated Areas

Purpose:

Patients who have had prior radiation therapy often present with recurrent/residual disease in the previously irradiated area. However, additional radiation is often not feasible because the maximum tolerated dose for normal critical organs have already been reached. We present a case of a patient with metastatic endometrial cancer who was retreated to the ninth rib/vertebral body with Tomotherapy although the spine had already received 4500 cGy.

Method and Materials:

A patient with metastatic disease to the ninth right rib and vertebral body was treated with 4400 cGy in 2003. The patient was recently found to have recurrent/progressive disease in the area of prior treatment. A PET scan was taken prior to treatment and an PET/CT fusion was performed in order to aid in the contouring of the tumor volume. The tumor volume(rib) wrapped around the liver and ended at the ninth vertebral body right next to the spinal cord. A Tomotherapy plan was generated to maximally cover the tumor volume while minimizing the dose to the spinal cord and liver. The positioning of the patient was verified daily with an MVCT.

Results: Treatment plans generated using the Tomotherapy treatment planning system and the ability of the Tomotherapy machine to verify patient set-up daily show that the Tomotherapy unit was able to deliver 6000 cGy to the tumor volume while only delivering a maximum dose of 575 cGy to the spine with an average of only 179 cGy. Dose the liver was kept to a minimum with an average of 1804 cGy.

Conclusions: Examination of the dose volume histograms determined that the Tomotherapy unit shows was able to keep at a minimum the doses to the spinal cord and liver and surrounding structures thus making Tomotherapy a useful tool in treating patients with prior radiation.

Conflict of Interest: