

TomoTherapy[®] SBRT for Lung Metastasis

This clinical case study demonstrates the TomoTherapy[®] Hi·Art[®] system's ability to deliver stereotactic body radiation therapy (SBRT), in which very high doses are delivered to a precisely-defined target volume in a single or a few treatment fractions. A high degree of conformality and targeting accuracy are of paramount importance.

The Plan

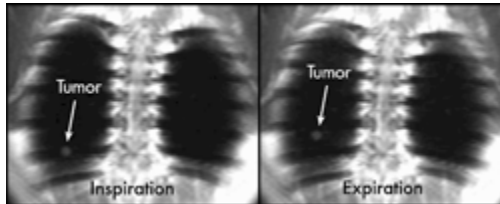


Figure 1: Frames from an MRI sequence used to define the range of motion for the primary tumor volume.

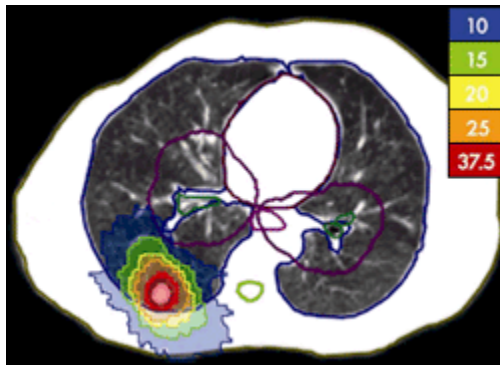


Figure 2: *TomoTherapy* treatment plan for SBRT to lung metastasis.

In this case, the *Hi·Art* treatment system was used to deliver SBRT to a 1 cm breast cancer metastasis in the right lung, which was the only site of disease. The target volume was defined with the help of dynamic MRI, in order to account for the full range of tumor motion (Figure 1). Treatment was in three fractions of 12.5 Gy, and the heart, bronchi, esophagus, and spinal cord were designated as sensitive structures (Figure 2).

The Results

CT images taken two, three and six months after treatment show the tumor's response and the accuracy of treatment delivery (Figure 3). The six-month scan shows a small region of pulmonary fibrosis surrounding the remaining 2 mm nidus, indicating that targeting was accurate.

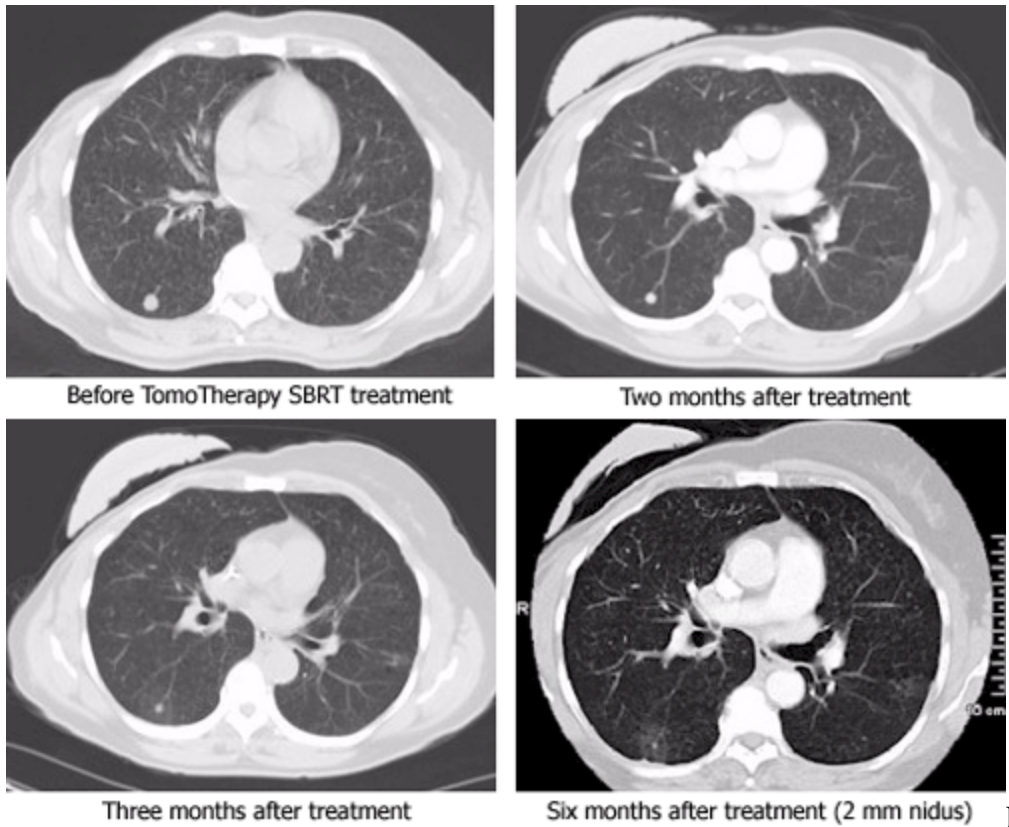


Figure 3: CT scans showing tumor response and treatment accuracy of *TomoTherapy* SBRT.

Treatment plan and case study summary courtesy of University of Virginia. Used by permission.