

AbstractID: 1654 Title: A Novel IMRT Technique of Total Abdominal Irradiation (TAI) for Ovarian Cancer Patients

Total abdominal Irradiation (TAI) for ovarian cancer patients with IMRT is technically limited by the large field irradiation and dosimetrically limited by the toxicity of the kidney. Hong et al developed the 2-isocenter matching fields technique which is relatively complicated especially when the target is larger than 31 cm with Varian's multi-leaf collimator. To deal with the particular challenge for total abdomen irradiation, we developed the new extended SSD IMRT technique. The patient is set up and scanned with CT in supine position. The gantry of linear accelerator was set at 0, 55, 100, 260, and 305 degrees with 110cm SSD at center of the fields. The target volume is covered from the BEV. Inverse plans were performed on four patients with both the extended SSD technique and the match field technique for the same constraints. The results of both techniques showed the PTV dose coverage and critical organ dose constraints are very similar with dynamic IMRT delivery. Furthermore, quality assurances on phantom plans for both techniques were performed. The results of the extended SSD IMRT plans showed that 3.8% deviation in chamber measurements of absolute doses. The isodose distributions of the extended SSD IMRT plans also showed reasonable match with film dosimetry measurements. However, the extended SSD technique showed 13~22% less MU than the matching field technique. In practice, the extended SSD IMRT provides also shorter treatment time than the matching field technique.