

AbstractID: 6613 Title: The treatment of bilateral orbital lymphoma with solid modulator IMRT

Purpose: To determine the feasibility of solid modulator IMRT (SM-IMRT) for a patient with bilateral orbital lymphoma and to compare this technique with historically used methods.

Method and Materials: After immobilization and CT simulation, a CTV was contoured consisting of the entire orbital volume minus the globes. A 3 mm margin was added to generate a PTV. A dose of 34 Gy in 2 Gy fractions was prescribed to the PTV. Dose constraints were placed on the lacrimal glands, lenses, optic chiasm, and pituitary. Treatment plans were constructed for SM-IMRT, wedged pair fields, and en face photon fields. Due to acute symptoms, treatment commenced with en face photons while planning continued. A fourth plan consisting of mixed SM-IMRT/en face photons was constructed.

Results: Acceptable target coverage was obtained with all four plans. The SM-IMRT plan offered significant sparing to the lenses, optic chiasm, and pituitary. The mixed SM-IMRT/en face photon plan (13 of 17 fractions IMRT) also offered significant sparing, though not at the level of the pure SM-IMRT plan. The maximum dose objective of 30 Gy for the lacrimal glands was almost met with the SM-IMRT plan (10% over 30 Gy). The wedged pair plan produced the most homogeneous target dose, though only because there was no attempt to sculpt dose to avoid critical structures as with SM-IMRT. SM-IMRT was chosen for further patient treatment. Quality assurance tests on the modulators showed excellent agreement between planning system calculations and measured dose, validating the data transfer and modulator milling process.

Conclusion: SM-IMRT is a feasible treatment modality for bilateral orbital lymphoma. The technique offers the ability to spare critical structures that is impossible with traditional techniques. Dose can be modeled accurately for the solid modulators. A drawback of this or any IMRT technique is the longer treatment plan preparation time.