

AbstractID: 2077 Title: A Comparison of IMRT and Conventional Techniques for Craniospinal Field Matching

This study compares four different techniques for field matching in craniospinal irradiation. In all cases, opposed lateral brain fields are matched to a single posterior spine field using 6 MV X-rays for all fields. We compare (1) directly abutted brain and spinal fields, (2) abutted fields with feathering, (3) forward-planned IMRT with segmented fields, and (4) inverse-planned IMRT. We describe how to setup the objective functions to optimize the fields in the overlap region and increase setup error tolerance. We have estimated the effect of setup error in the match region by evaluating the hot and cold spots associated with relative isocenter displacements. Our study shows that IMRT techniques improve the setup-tolerance for craniospinal field matching over conventional techniques. In addition, the implementation of IMRT eliminates the need for matchline feathering .