

AbstractID: 1714 Title: Modification of the Gill-Thomas-Cosman Frame for Treatment of Infants with Stereotactic Radiotherapy

Stereotactic treatment of infants is often desirable but rendered unfeasible due to lack of immobilization options. In particular, the risk of long-term cosmetic problems due to irradiation of bone growth centers is much reduced if the dose can be more conformally delivered to tumors with minimal bone dose. We have treated two infants, ages 12 and 18 months with bi-lateral retinoblastoma using fractionated stereotactic radiosurgery. To accomplish this we have developed a modification to the Gill-Thomas-Cosman (GTC) stereotactic head frame to both immobilize infants and enable easy access for general anesthesia. A standard head and neck tray, with accompanying thermoplastic mask, was adapted to mount to the head frame to enable these treatments. Positioning reproducibility was assessed using a depth confirmation helmet, which allows measurement of up to 25 depth points. Comparing daily setups with initial fitting results, we found the overall average difference to be 0.47 ± 0.63 mm for the first case, and 0.19 ± 0.94 mm for the second case with a combined average of 0.35 ± 0.79 mm overall from a total of 381 point measurements. We have found that use of the modified head frame facilitates access to patients for anesthesia and allows us to offer the option of stereotactic treatment with an expected repositioning accuracy of better than 1 mm.