

AbstractID: 12701 Title: Clinical Implementation of a Novel Frameless and Maskless Stereotactic Radiosurgery Treatment

Purpose: To develop and implement the workflow of a novel frameless and maskless stereotactic radiosurgery treatment at the University of San Diego, California, including patient simulation, treatment planning, and treatment delivery. The procedure involves minimal head immobilization and continuous monitoring of the patient with surface imaging. **Method and Materials:** A head immobilization device made of an expandable foam is used for maximum comfort and minimal immobilization of the patient's head. During treatment, the patient's motion is continuously monitored with a surface-imaging system that provides motion detection in 6 degrees of freedom. Based on motion information, the treatment is interrupted if motion thresholds are exceeded. End-to-end tests were performed to develop an optimal workflow for the treatment. The procedure development included providing instructions for patient compliance, simulation, treatment planning, imaging, and treatment delivery. The workflow was implemented and used to treat the first seven patients. **Results:** An optimal workflow was developed and implemented. Our first seven patients have been treated with the developed procedure. Some changes are planned based on our initial experience. **Conclusion:** We have successfully developed the workflow of a frameless and maskless stereotactic radiosurgery procedure. Pre-planning for the process is important but adjustments are necessary based on actual clinical experience with the procedure. Clinical experience will be discussed as it becomes available.