

HyperArc

Covington et al. reported on the use of surface guided imaging during [frameless](#) intracranial [stereotactic radiotherapy](#) with automated delivery via HyperArcTM ([Varian Medical Systems, Palo Alto, CA](#)).

All patients received intracranial [radiotherapy](#) with HyperArcTM and were monitored for intrafraction motion by the [AlignRT®](#) ([VisionRT](#), London, UK) surface imaging (SI) system. Immobilization was with the [EncompassTM](#) (Qfix, Avondale, PA) aquaplast mask device. AlignRT® log files were correlated with trajectory log files to correlate treatment parameters with SI reported offsets. SI reported offsets were correlated with gantry angle and analyzed for performance issues at non-zero couch angles and during camera-pod blockage during gantry motion. Demographics in the treatment management system were used to identify race and determine if differences in SI reported offsets are due to skin tone settings.

A total of 981 fractions were monitored over 14 months and 819 were analyzed. The median AlignRT® reported motion from beginning to the end of treatment was 0.24 mm. The median offset before beam on at non-zero couch angles was 0.55 mm. During gantry motion when camera pods are blocked, the median magnitude was below 1 mm. Median magnitude of offsets at non-zero couch angles was not found to be significantly different for patients stratified by race.

Surface image guidance is a viable alternative to scheduled mid-treatment imaging for monitoring intrafraction motion during [stereotactic radiosurgery](#) with automated delivery ¹⁾.

¹⁾

Covington EL, Stanley DN, Fiveash JB, Thomas EM, Marcrom SR, Bredel M, Willey CD, Riley KO, Popple RA. Surface guided imaging during stereotactic radiosurgery with automated delivery. J Appl Clin Med Phys. 2020 Oct 23. doi: 10.1002/acm2.13066. Epub ahead of print. PMID: 33095971.

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