

AbstractID: 13209 Title: Reproducibility of a vaginal dilator used for female anal cancer patients

Purpose: Dysparunia is a major source of post-treatment morbidity among patients treated with chemoradiation for squamous cell carcinoma of the anal canal. The main goal of IMRT plans in this setting is sparing of the anterior vaginal wall, vulva, and urethra. The daily of reproducibility vaginal dilators was investigated in this study.

Method and Materials: Seven patients were included in this study. Patients were placed in a frog-legged position and immobilized with a vacloc bag. A silicone vaginal dilator measuring 2.9 cm in diameter and 11.4 cm in length (Soul Source Enterprises, Portland, OR) was inserted in each patient before simulation and each treatment fraction. Antero-posterior (AP) and lateral kV images were used for daily set-up on bony anatomy. BBs inserted in the dilator improved visibility on kV images. Dilator and bony anatomy positions were compared with the digitally reconstructed radiographs (DRRs) generated from the simulation CT.

Results: Within the AP images, the average deviation of bony anatomy from the DRR was 0.3 ± 0.2 cm, while for the lateral images, it was 0.5 ± 0.3 cm. The 3-dimensional position of the apex of the dilator showed strong variation, with an average deviation of 1.3 ± 0.8 cm. However, the position of the dilator axis near the tumor volume showed less deviation, 0.5 ± 0.3 cm. Variation of the dilator angle was small in the AP images ($-2^\circ \pm 3^\circ$) and slightly larger in the lateral images ($-3^\circ \pm 9^\circ$).

Conclusion: The reproducibility of a reference point along the vaginal dilator's longitudinal axis was comparable to that of bony anatomy. While dilator depth was not as reproducible, the reproducibility of the distal dilator was excellent and could allow maximal sparing of the female genitalia in patients undergoing IMRT.