

AbstractID: 11755 Title: Clinical Implementation of new endometrial cylinder applicator for electronic brachytherapy

Introduction:

Cylindrical applicators for vaginal cuff irradiation are now commercially available for use with a 50 kV electronic brachytherapy (EB) source and are similar in size and shape to cylinders that have been long employed with iridium-192 brachytherapy (IB). Although the insertion of the new applicator is relatively the same, the implementation from simulation to treatment can be quite different than conventional IB. This study describes the clinical implementation process of the first ever treatment of a patient using this applicator.

Methods:

The EB endometrial cylinder applicator (Axxent Vaginal Applicator) was supplied and manufactured by Xofigo Inc., Sunnyvale, CA. Prior to treatment, a detailed analysis was performed to verify the position of dwell positions, dose distribution verification using gafchromic film and applicator geometry measurements to verify length and diameter. Finally, treatment plans were generated using PLATO software (Nucletron Corp., Columbia, MD) on CT scan data and verified using TLD data.

Results:

The results of the dwell position verification show that the dummy seed insert agree with the gafchromic film measurements. The distance from dwell position 1 and the surface of the apex of the applicator vary with cylinder size. The dose distribution can be verified at the point of prescription.

Discussion:

The results of this study show that the EB endometrial cylinder applicator can and has been implemented safely. It should be noted that this applicator has some differences from the traditional IB applicators and need to be accounted for.