

3D Printed HDR Vaginal Cylinder Applicator For VariSource To Improve Dose Distribution

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Technology description

Invention

An improved design on the distal dwell position on the vaginal cylinder applicators for radiation therapy to enhance dose delivery at the tip.

Background

Brachytherapy is one form of radiation therapy which is used to treat cancer. It requires the placement of minimal radioactive material near the center of a tumor or group of cancer cells. Brachytherapy uses a high concentration of radiation, unlike external radiation therapy. High dose rate (HDR) brachytherapy is a common form of treating cervical and endometrial cancer. HDR brachytherapy is applied to a small area so the radiation is performed for a shorter time. Current vaginal cylinders used for application are self-shielding and are designed in a way where the cylinder has an overshoot at the apex of the device. This means, there is a relatively large distance from where the radiation is to where the tumor is and therefore, there isn't the best dose coverage. There is a need for an improved method of delivering radiation for high dose rate intracavitary brachytherapy procedures, such as in the vaginal region.

Application area

- Brachytherapy for cervical cancer treatment
- High dose rate (HDR) brachytherapy

Advantages

- Able to be 3D printed
- Cost effective
- Disposable
- Uniform dose distribution

Institution

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