

**Purpose:**

Conventional high dose rate treatment of cervical cancer involves placement of tandem and ring applicators inside the patient. Prior to this, a surgeon sutures the Smit sleeve to the cervix. Before each treatment (5 fractions), the ring and tandem applicator is inserted into the patient with subsequent imaging using CT scanner or fluoroscopy. The whole insertion procedure is quite invasive and painful to the patient each time it is administered. Therefore, the main aim of this study is to investigate the potential use of Cyberknife in the treatment of cervical cancer, which would dramatically reduce unpleasant experiences associated with HDR treatments

**Methods:**

Using the CT images of the patient that underwent HDR treatment to the cervix, a structure was created out of the applicator. PTV was generated out of this structure by expanding the tandem by 10 mm and the ring by 8 mm in all directions. Thus formed PTV can be created out of different tandem and ring sizes and angles to generate different templates that would be fused to patient CT data based on the position of cervical os. Subsequent planning is based on prescribing 600 cGy to the PTV

**Results:**

The isodose line of 72% (30 Gy in 5 fractions) covers the outer boundary of the PTV. Only 0.48% of the bladder volume receives the highest dose of 22.5 Gy, well below the required 80% of the prescription. 0.6% of the rectum volume receives the highest dose of 15.83 Gy, well below the required 60% of the prescription. The B and P points receive 17.3% and 6.5% of the prescription correspondingly. The total treatment time is 25 min

**Conclusions:**

It is shown that Cyberknife treatment can be a viable alternative to endometrial HDR treatments, which may greatly improve the patient care with cervical cancer.