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The Use of Lattice Radiotherapy (LRT) for Loco-Regionally Advanced Bulky Cervical Cancer

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Abstract
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Abstract

Objectives:

To present our experience in the management of 20 women with voluminous cervical cancer treated with Lattice Radiotherapy (LRT) at our Institution and to demonstrate its value as a definitive technique in the management of these tumors.

Methods:

Twenty women with loco- regionally advanced bulky cervical cancer were treated in our institution between January 2013 and December 2021. All patients initially received 3 fractions of Lattice Radiotherapy (LRT) delivering 8 Gy per fraction in the vertices and 3 Gy or less in the periphery of the tumor followed by conventional radiation to the pelvis or pelvis and para-aortic lymph nodes. All patients but one received concurrent systemic chemotherapy. Dose delivered after LRT consisted of 21 to 25 fractions of 1.8 Gy/fx. After completion of this treatment half of the patients received a radiation therapy (RT) boost and the other half either underwent surgery or did not receive any further treatment. Treatment plans were performed using Volumetric Arc Therapy (VMAT). None were eligible for brachytherapy boost due to unsuitable anatomy.

Results:

The local control for the entire group was 68% complete response (CR) with a median imaging follow up of 19 months, ranging from 3 to 94 months. The median overall survival was 31 months and ranged from 12 to 120 months. There were two recurrences, after 12 and 14 months of LRT respectively: one patient with advanced adenosquamous carcinoma and the other with SCC who declined systemic therapy.

Patients were divided in 2 groups: A) boost or B) not boost, after LRT and conventional radio-chemotherapy.

Group A comprises 10 patients who underwent radiotherapy boost after the initial course of therapy. They received an average dose of 66 Gy, ranging from 55Gy to 85Gy and had 7/10 (70%) CR.

Group B includes the other 10 patients who did not receive further radiation. Total dose delivered was 52 Gy. The response was then 44 % CR in early evaluation. Some of those patients had salvage TAH & BSO with an ultimate survival of 60% in spite of their initial advanced stage.

After review of the pathology of all cases, we found that patients with adenocarcinoma and adenosquamous tumor did worse than patients who presented with the usual squamous pathology. Outcomes were independent of tumor size. There was no high-grade toxicity encountered.

Conclusion(s):

Our promising results demonstrate that the use of LRT followed by conventional management for patients with advanced loco-regional cervical cancer has the potential to be used with definitive intent, as an alternative to brachytherapy. These are preliminary results that would benefit from prospective studies in a larger number of patients.