



# Pelvic and Paraaortic Field IMRT with Weekly Concurrent Cisplatin for the Treatment of Locally Advanced Squamous Cell Carcinoma of the Uterine Cervix

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## INTRODUCTION

The use of prophylactic paraaortic (PA) radiation (RT) in the treatment of locally advanced cervical carcinoma (LACC) has been shown to improve survival as compared to pelvic RT alone[1]. Its use concomitantly with chemotherapy has been limited in part due to high rates of acute and late toxicities reported. Pelvic and PA RT delivery utilizing IMRT can reduce the dose of RT to normal structures, potentially making this treatment more tolerable. We report our acute toxicity with pelvic and PA RT given concomitantly with CDDP and high dose rate brachytherapy (HDBRT) for patients with LACC.

## METHODS AND MATERIALS

15 patients with LACC were treated with concurrent CDDP (40 mg/m<sup>2</sup> weekly) and RT. The RT consisted of external beam RT followed by HDBRT using CT based planning. The clinical target volume (CTV) included the gross tumor volume, uterus, presacral space, in addition to the pelvic and paraaortic lymph nodes from the obturator nodes superiorly to the celiac axis. The planning target volume (PTV) included the CTV nodes and CTV tumor bed plus 7 mm expansion. Dose constraints were placed on the small bowel, bladder, rectum, kidneys, liver, heart, and iliac crest. The dose delivered was 45 Gy in 1.8 Gy/fx to the PTV. The patients then underwent HDBRT, either tandem and ovoids (T&O) or interstitial needle placement, as indicated by their disease. The patients who underwent T&O treatment received 27.5 - 30 Gy for 5 fractions. The interstitial patients received 18 Gy in 2 fractions.

RTOG ACUTE TOXICITIES						
	GI	GU	Skin	WBC	RBC	Platelets
0	33	60	93	33	27	47
1	53	40	0	13	13	27
2	7	0	7	7	47	13
3	7	0	0	40	13	7
4	0	0	0	7	0	7

## RESULTS

All patients completed the EBRT and HDBRT. Two patients (8%) required a break from radiation due to hematologic toxicity. The Acute toxicity was assessed using RTOG toxicity scales (see table). On multivariate analysis, the V20, D5, D15, D25, and Max Dose to the lumbar marrow were all found to be significant predictors of RBC toxicity. The D75 of the Iliac Bone Marrow was found to be a significant predictor of platelet toxicity.

## CONCLUSIONS

Previously reported data from our institution with similarly dosed 3D conformal (3DCRT) based PA RT revealed a total Grade 3-4 acute toxicity rate of 78%, with a 75% Grade 3-4 hematologic toxicity, and 25% Grade 3-4 GI toxicity[2, 3]. Other studies have reported less acute toxicities with PA RT given with CDDP, though employed lower doses per fraction to the PA fields[4, 5]. The acute hematologic toxicity seen in our series may be a result of a failure to constrain bone marrow outside of the iliac crests, a subject that will be addressed in subsequent patients. Our results of this small pilot study show IMRT seems to have significantly less GI and GU toxicity as compared to our institution's 3-D CRT, though further followup is needed.

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