

RECURRENCE FOLLOWING INTENSITY MODULATED RADIOTHERAPY (IMRT) AND 3D CONFORMAL RADIOTHERAPY FOR LOCALLY ADVANCED DIFFERENTIATED THYROID CANCER

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Background/Purpose: Radiotherapy (RT) and radioiodine are effective in controlling locally advanced differentiated thyroid cancer (DTC). We evaluated the clinical outcome using 3-D conformal and intensity modulated radiotherapy (IMRT) techniques.

Methods: We analysed the outcome of patients in our prospective thyroid cancer database who underwent radical radiotherapy for DTC in the years 2004-2012. 3-D conformal was standard radiotherapy technique in the years 2004-2007 and IMRT was used thereafter. Patients with distant metastases at presentation were excluded.

Overall survival, cause specific survival and local control were analysed. In addition, multivariate analysis was performed on factors that may have predicted for recurrence.

Results: 39 patients were included in the final analysis. 4 and 34 patients had T3 and T4 disease respectively and 16 patients had N1 disease. 35 patients had radioiodine in addition to RT. With a median follow up of 45 months (range 3-89 months); the local recurrence rate was 20%. Fifteen (38%) patients developed distant metastases.

Pre-radiotherapy macroscopic disease was a risk factor for recurrence. Only one recurrence was observed within the superior mediastinum following radiotherapy.

Discussion & Conclusion: Residual macroscopic disease is a risk factor for recurrence following radiotherapy. This group had technically unresectable disease or were not suitable for surgery due to co-morbidities. Our data also suggests that newer 3-D conformal and IMRT techniques reduce the incidence of superior mediastinal recurrence compared to 2-D techniques we previously reported, where the superior mediastinum was not included in the target volume¹.

1. Azrif et al. (2008) Rad and Onc 89:105-133