

Using intensity-modulated radiotherapy to spare the kidney in a patient with seminoma and a solitary kidney: a case report

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ABSTRACT

Aims and background. Radiotherapy-related kidney injury is multifactorial and influenced by radiation dose-volume distributions, patient-related factors, and chemotherapy. Traditional radiation parameters for the kidney are based on pre-intensity-modulated radiotherapy (IMRT) data and focus on limiting the volume receiving high dose. We report a case of testicular seminoma with paraaortic adenopathy in a patient with a solitary kidney treated with radiotherapy.

Methods. A comparison was performed for IMRT and two 3D-conformal techniques. In our case, IMRT reduced the volume of kidney receiving high dose but increased the volume receiving low dose.

Results. Given the lack of data for suggesting that large renal volumes treated to low doses would cause excess toxicity, the consensus opinion was to proceed with IMRT. The patient tolerated treatment well without evidence of radiotherapy-related kidney injury.

Conclusions. As patients are treated with increasingly complex techniques such as IMRT, understanding low dose effects and monitoring low dose parameters may become clinically important.

Key words: radiotherapy, radiation nephropathy, seminoma.

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