

Multimodality Local Therapy for Retroperitoneal Sarcoma

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Purpose/Objective(s)

Soft tissue sarcomas of the retroperitoneum are rare tumors that comprise less than 1% of all malignancies. Surgery is the mainstay of treatment; however, local recurrence remains the most common pattern of relapse and cause of death in these patients. The impact of radiation therapy (RT) on these patients remains undefined. The objective of this study is to report our institutional experience using multimodality local therapy for resectable retroperitoneal sarcoma and identify prognostic factors impacting disease control.

Materials/Methods

From 1974 to 2007, 59 patients with nonmetastatic retroperitoneal sarcoma underwent surgery and RT at the University of Florida (42 received preoperative RT; 17 received postoperative RT). The median age at RT was 58 years (range, 18 to 80 years). Of all tumors, 57% were either intermediate or high grade. The most common histology was liposarcoma. Twenty patients received 1.8 Gy once daily and 39 patients received 1.2 Gy twice daily. Eight (14%) patients received chemotherapy (adriamycin-based, 88%). Variables analyzed for prognostic value included age, tumor grade, kidney involvement, histology, de novo versus recurrent presentation, tumor diameter, margin status, RT sequencing (pre-op vs. post-op), total radiation dose, fractionation scheme, treatment era, and chemotherapy use. The median follow-up was 3.2 years (range, 0.3 to 24.2 years).

Results

The 5-year overall survival, cause-specific survival, and local control rates were 48%, 57%, and 62%, respectively. Nearly two-thirds of treatment failures involved local progression, including 7 patients with both local and distant recurrences. On multivariate analysis, only margin status was significantly associated with improved 5-year local control (85% for negative margins, 64% for microscopic positive margins, and 0% for gross positive margins; $p < 0.005$) and 5-year overall survival (64% for negative margins, 46% for microscopic positive margins, and 13% for gross positive margins; $p <$

0.005). Toxicity was scored per the NCI's Common Terminology for Adverse Events, version 3.0. Thirty Grade 3 or greater complications were noted, including 2 treatment-related deaths. Gastrointestinal events were the most common (33% of Grade 3+ events). The rate of complications after preoperative RT (39%) was similar to the rate after postoperative RT (41%).

Conclusions

Local control is a challenge in the treatment of retroperitoneal soft tissue sarcoma and combined modality therapy may be associated with significant morbidity. Our patterns-of-failure data suggest that improvements in local control may translate into a direct survival benefit. Advanced treatment modalities, including intraoperative radiation, image guidance, and proton therapy, should be explored in the hopes of improving the therapeutic ratio.