Local recurrence of soft tissue sarcoma revisited: Is there a role for “selective” radiation?

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BACKGROUND

• Soft tissue sarcomas (STS) are uncommon tumors of mesenchymal origin, most commonly affecting the extremities.
• In recent decades multimodal treatments for STS have become standard, with combination surgery and external radiation treatment used together to improve local control and patient survival.
• Certain prognostic factors, such as positive surgical margins, are associated with an increased risk of local recurrence.
• Perioperative radiation is generally utilized when a high-grade soft tissue sarcoma is removed with close or positive margins.
• However, there are occasional clinical situations, such as delayed wound healing, the perception of adequate margins, or patient preferences, where treatment is with surgical excision alone.

PURPOSE

• Primary Aim: determine the local recurrence rate of soft tissue sarcoma which would have met criteria to receive perioperative radiation, but were not treated with radiation.
• Secondary Aim: further elucidate any associations between local recurrence and patient, tumor, and treatment factors in the group of patients who did not receive radiation.

METHODS

• Through a retrospective review of consecutive soft tissue sarcoma patients in the electronic medical record, recorded patient demographics, tumor characteristics, treatment, recurrence, and survival.
• Included patients 18 years or older with diagnosis of a primary (nonrecurrent) grade 2/3 or 3/3 STS who presented for initial resection or tumor bed re-excision between September 1, 2010 and May 8, 2019.
• Used simple bivariate statistical methods (chi squared and Fisher’s exact testing) and time-based survival measurements to investigate variables associated with the primary endpoint of local recurrence.
• Multivariate Cox proportional hazards model was calculated using death as a competing risk for local recurrence.

RESULTS

Comparison of local recurrence rates in the entire cohort

Multivariate Cox proportional hazards model for local recurrence at 5 years, with competing risk of death, for the full cohort and patients without radiation treatment.

CONCLUSIONS

• The overall local control rate in high-grade STS without use of adjuvant XRT in this cohort was 80.2% (16/81 cases).
• This was disproportionately due to myxofibrosarcoma (12/25 cases, 48.0%) and lower rates of recurrence were seen in other subtypes (4/56 cases, 7.1%).
• In certain circumstances, treatment with a negative margin surgical resection followed by close observation is justifiable.
• However, durable local control may be more difficult in myxofibrosarcoma and resections with close or positive margins.
• In these circumstances, the addition of radiation or a wider excision is recommended to minimize the likelihood of local recurrence.

IMPACT

• The associations found in STS patients who have not received radiation therapy and experienced local recurrence will help to guide conservative management strategies.
• This research further supports recommendations for aggressive treatment of myxofibrosarcoma.

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