

Local recurrence after surgery for soft tissue sarcoma

The Scandinavian Sarcoma Group experience

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Soft tissue sarcomas of the trunk wall and extremities are rare. Very few centers treat enough patients to be able to evaluate possible prognostic factors with sufficient statistical power. Consequently, due to the small number of patients, only a few factors, such as tumor malignancy grade and size, have consistently been reported as important for metastasis- or tumor-related death (Markhede et al. 1982, Rydholm et al. 1984, Gustafson 1994, Pisters et al. 1996). The importance of a local recurrence for survival is still controversial (Gustafson et al. 1991, Trovik and Bauer 1994, Lewis et al. 1997, Ueda et al. 1997). A local recurrence can be seen as a marker of the quality of local treatment and of increased risk of local and metastatic growth.

A noncausal interpretation of the association between local recurrence and metastasis implies different treatment approaches for the primary tumor. One extreme would be narrow surgical margins, no amputations and no adjuvant therapy, resulting in a large number of local recurrences that presumably would not kill the patient but require further local treatment. The other extreme would be aggressive local surgery, a higher rate of amputations and use of adjuvant radiotherapy. The latter strategy would be more expensive initially, would result in more patients with sequelae after treatment, but the local recurrence rate would be low. Today, no consensus exists as regards acceptable local recurrence rates, rates of amputation and use of adjuvant therapy.

Local control in soft tissue sarcoma is based on surgical excision and radiotherapy. At many centers outside Scandinavia, surgery for sarcoma is routinely combined with radiotherapy pre- or postoperatively. In Scandinavia, the indication for adjuvant radiotherapy has been an intralesional or marginal margin (Wiklund et al. 1993). Adjuvant chemotherapy has

been used only in a randomized Scandinavian Sarcoma Group (SSG) trial (Alvegård et al. 1989). Consequently, the SSG Register offers an opportunity to study a large group of patients using uniform and well-defined surgery as a single treatment.

Three studies, focusing on local recurrence and based on data reported to the Scandinavian Sarcoma Group Register, were started. They will be reported separately with all data available. In this survey of SSG Register work, the aim and feasibility of such studies based on the register, and some preliminary data, are presented.

1. We have analyzed 559 patients reported to the SSG register in 1986–1991 with soft tissue sarcomas on the extremities or trunk wall, no metastasis at the time of diagnosis and a median follow-up of 7 years for survivors. All were operated on for a primary tumor at a SSG center and none were given adjuvant treatment. Cox regression models were used to analyze the simultaneous effects of surgical margin, local recurrence and other clinical variables for metastases. The overall estimated 5-year metastasis-free survival rate was 0.73. Multivariate survival analysis showed that malignancy grades III–IV and large tumor size were the main risk factors. Local recurrence was associated with an increased risk of metastases, but we found no causal association between the two.

2. Few studies have evaluated the morbidity rate of surgery for local recurrent soft-tissue sarcomas (Stotter et al. 1988). 1224 patients with soft tissue sarcomas of the extremities and trunk wall underwent surgery in Swedish and Norwegian tumor centers from 1987 through 1995. 205 patients had a total of 284 local recurrences and they were included in a study of the consequences of a local recurrence. We analyzed the local recurrences to describe treatment as well as

estimate the morbidity and costs of hospital care. The local recurrence rate was 0.33 after the second recurrence. The overall amputation rate was 12% at SSG centers for a primary tumor or recurrences. The average cost of treatment for a local recurrence was USD 20 000 per patient.

3. 458 patients with deep-seated high-grade malignant soft tissue sarcomas, diagnosed from 1987 to 1993, were eligible for the third study, regarding the relationship between local recurrence and local treatment in patients on for a primary tumor at a SSG center. The purpose of this study was to evaluate local recurrence of deep-seated soft tissue sarcomas in relation to tumor and treatment factors. The crude local recurrence rate after local excision was 25%, 34% for intralesional or marginal excision without radiotherapy, 25% for the same margin with radiotherapy, 24% for wide margins and 0% for a compartmental margin. We did not find that myectomy gave lower local recurrence rates than other wide margins did.

Discussion

The Scandinavian Sarcoma Group Register has provided a functional basis for studies of local recurrence. The advantage of a multicenter register is rapid collection of patients who have received comparatively homogeneous treatment. A disadvantage is heterogeneity in the classification of clinical variables. The collection of data for the SSG Register and checks of validity of the database were based on experience from earlier studies, from the same institutions and investigators (Alvegård et al. 1989, Berlin et al. 1990). There were regular discussions about treatment, classification and reporting routines. All surgical margins were reevaluated and the histological type was stratified in all analyses. Alvegård et al. reported agreement on grading of histological malignancies among Scandinavian pathologists. Only 5% of the tumors were reclassified from high to low malignancy at peer review of soft tissue sarcomas by the SSG Pathologist Review Board. Indeed, the grade of histological malignancy was of equally prognostic value in the present study, even when many pathologists graded the tumors as in other studies of soft tissue sarcoma (Alvegård et al. 1989, Gaynor et al. 1992, Gustafson 1994).

The results of the three studies have stimulated discussion among Scandinavian orthopedic oncology surgeons regarding acceptable local recurrence rates, use of radiotherapy and adverse effects of such treatment. A recommendation to give or not give radiotherapy based on surgical margin alone is probably not sufficient.

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