

Soft Tissue Sarcoma: Status in 2005

Soft tissue sarcoma represents a diverse group of tumors with unpredictable behavior. In recent years a substantial increase in research has focused on soft tissue sarcoma, and we are beginning to better understand how and why this set of diseases behaves in the manner that it does. Diagnosis of soft tissue sarcoma has always been difficult and is often delayed. Education of physicians and patients on the common presenting symptoms and signs might help, but sarcomas are rare and are often confused initially with a variety of benign conditions. The good news is that advances in detection and diagnostic methods have improved categorization into specific subtypes of sarcoma, thereby allowing better assessment of the likely biologic behavior of any individual tumor.

Improvements in diagnostic tools have minimized the need for open surgical biopsies. MRI and PET scanning provide more accurate radiologic impressions of the extent of disease than heretofore and allow the use of smaller incisions in biopsies, such as true-cut needle biopsies. With these limited and minimally invasive surgical techniques, surgical management of the disease is enhanced since a smaller amount of normal tissue needs to be removed at the time of resection. In addition, our diagnostic process is enhanced by inclusion of gene microarray techniques and better biochemical testing to document and assess the multiple genetic changes that occur in sarcomas. One management goal is to diagnose sarcomas during an office visit through a needle biopsy and, using gene microarrays from the tumor, determine if this specific tumor will respond to medical management. With the ability to predict the behavior of the disease, we can better plan optimal management for these patients.

Treatment has also improved in the last several years with advances in radiation oncology techniques and with the development of new chemotherapeutic and molecularly targeted agents. Multimodal therapy, planned at the time of diagnosis by an experienced team, is key to success. Less radical surgery is often possible for these patients, thus maximizing and maintaining limb function without enhancement of rates of recurrence or development of metastatic disease. This issue of *Cancer Control* is intended to highlight some of these advances.

Dr. Mankin and Dr. Hornicek provide a superb review of key aspects of soft tissue sarcomas and their modern-day management. Dr. Mankin is one of the "fathers" of sarcomas and their treatment, and the experience of the Massachusetts General Hospital Orthopaedic Oncology

Service provides a solid basis for defining current survival outcomes.

Imaging studies are key to the detection, staging, and monitoring of soft tissue sarcomas. Drs. Knapp and Kransdorf and I delineate newer methods and techniques in radiology. We show how MRIs more accurately predict tissue type and demonstrate their ability to evaluate the effectiveness of therapy.

Dr. Delaney and colleagues then update us on the current and investigational approaches using radiation therapy, including the clinical use of IMRT and proton beam radiation.

Retroperitoneal soft tissue sarcomas are particularly difficult to diagnose and manage. Drs. Windham and Pisters have had appreciable experience with these lesions and present us with the state-of-the-art management of this particular group of sarcomas. Adequate surgical resection is the key here.

Targeted therapies are very much an "in" concept in current clinical oncology. Following the outstanding success of imatinib in chronic granulocytic leukemia, the recognition of similar targets in GISTs has revolutionized the management of this fascinating disease. Dr. Trent and colleagues bring us up to date with the biology and management of GISTs and point out the markedly different outcomes that are now possible.

Finally, Dr. Ebeid and coworkers describe new multimodal management techniques that include limb salvage for the treatment of pathologic fractures in primary extremity sarcomas, a difficult and highly morbid clinical condition.

I believe that this review of the diagnosis and management of soft tissue sarcomas, which is provided by some of the most renowned national and international experts in sarcomas, provides an excellent insight into this complex set of diseases. I trust you will benefit from reading their observations and recommendations.

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