Treating soft tissue sarcomas

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The excellent paper in this issue of the Journal by Elliott et al\textsuperscript{1} from Middlemore Hospital is a timely reminder to us all of the optimal management of these rare tumours (<1\% of all malignancies). Soft tissue sarcomas can occur anywhere in the body but more commonly in the limbs.

The vast majority of appendicular or truncal soft tissue masses will be benign and it can be difficult to recognise those which are suspicious of malignancy and require further investigation prior to excision. However any soft tissue lump which has any of the following characteristics should be considered to be malignant until proven otherwise:\textsuperscript{2,3}

- Increasing in size.
- Size >5cm.
- Deep to or tethered to the deep fascia.
- Painful.

These cases all require axial imaging by MRI (most commonly) or CT scan prior to any biopsy or excision being performed. In many cases this may be diagnostic of a low grade fatty tumour (e.g. lipoma, atypical lipoma or well differentiated liposarcoma) or suggestive of other benign tumours (e.g. benign peripheral nerve sheath tumour) and treatment can be appropriately undertaken. The remainder are likely to require a biopsy for a histologic diagnosis prior to definitive treatment.

As the results of Elliott’s paper have shown, a poorly performed biopsy or inappropriate excisional biopsy can result in significantly increased complications, more extensive definitive surgery and overall morbidity for the patient.

The biopsy tract must be carefully planned to ensure that it can be excised with the tumour at the time of definitive resection and does not contaminate neurovascular structures or uninvolved anatomic compartments which as a result may have to be needlessly sacrificed in order to achieve local control. The biopsy must therefore be performed either under the direct supervision of or in consultation with the surgeon who will be undertaking the definitive resection if the tumour is proven to be a sarcoma.

Either open or core biopsy is recommended in order to obtain sufficient representative tissue to reach a histologic diagnosis. Fine needle aspirate analysis of these lumps has been shown to be notoriously unreliable with false negative results and there is no role for this type of biopsy in the routine workup of these lumps.\textsuperscript{2-5} Core biopsy may be guided by ultrasound or CT scanning in some instances. Core biopsy tracts should always be tattooed so that they can be identified and subsequently excised.
Soft tissue sarcomas are a very heterogeneous group of tumours and reaching the correct histologic diagnosis can be challenging and difficult and often requires the use of special stains and chromosomal analysis. All suspected sarcomas should be reviewed by a pathologist with a special interest in sarcomas and discussed in a multidisciplinary meeting with review of the imaging to ensure that the diagnosis is consistent with the imaging and that a representative tissue sample has been obtained.

Soft tissue sarcomas often occur close to important neurovascular structures, muscles, tendons and joints and therefore treatment is usually tailored to each individual case. The aims of treatment are firstly to minimise the risk of local and systemic recurrence and secondly to optimise functional outcome and quality of life. Surgical resection including the biopsy tract with clear margins with perioperative radiotherapy is the main treatment modality.

Unfortunately the majority of these tumours are relatively chemo[therapy] resistant, but chemotherapy is used for some more chemo sensitive subtypes and to help palliate metastatic disease.

Radiotherapy is often best administered prior to definitive surgical resection. Preoperative radiotherapy uses a lower radiotherapy dose and treats a smaller tissue volume than post operative radiotherapy, but achieves the same reduction in local recurrence. Final function is likely to be better with decreased fibrosis and lymphoedema and possibly a lower long term risk of malignancy, although in the short term there is an increased rate of wound healing problems.

The treatment plan for patients with soft tissue sarcomas is therefore also best formulated in a specialist sarcoma multidisciplinary team meeting so that the various options can be discussed and considered and optimal care provided to the patient. Close communication is required between the treating radiation oncologist and the surgeon to ensure that potentially close margins receive adequate radiotherapy. Timing of surgery in relation to radiotherapy and chemotherapy is also important.

When soft tissue sarcomas occur in more unusual locations a team approach working with other surgical specialties including general, cardiothoracic and urology is employed. Reconstruction of excised tissue is sometimes needed and this may require vascular grafting, nerve grafting and/or tissue flap closure by vascular and plastic surgeons. This team approach ensures that the best possible outcome with regards both local disease control and functional outcome is obtained for the patient.

Following treatment long term follow up of these patients for early detection of local recurrence and/or metastatic disease is important because early detection and intervention may improve the prognosis for some patients.

Readily accessible axial imaging in a timely fashion, especially MRI scanning, is required to appropriately investigate patients with suspected soft tissue sarcoma but unfortunately remains a very limited resource.

National Sarcoma Standards of Care are in the process of being developed by a working group and these will hopefully help to clarify the pathways for these patients and ensure that the resources required to expeditiously investigate, treat and follow up these patients are provided. National audit of treatment outcomes for these patients is also important and again resources to undertake this need to be available.
In New Zealand, Auckland and Christchurch currently provide tertiary referral multidisciplinary units for the treatment of soft tissue sarcomas. Patients with suspected soft tissue sarcomas should be referred to these units with appropriate axial imaging (MRI or CT scan) prior to undertaking biopsy or excision to optimise patient outcomes.2,4

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References:
5. NHS. Improving outcomes for people with sarcoma. March 2006.