

HARLEYSTREET AT UCH

Working in partnership with University College Hospital

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Sarcoma

Sarcomas are malignant tumours that arise from cells that make up connective tissue (bone, cartilage, blood vessels, muscle, fatty tissue, nerves), and can develop at any site in the body. There are many different types of sarcoma, but it is useful to think of them as either soft tissue sarcomas or bone sarcomas. Sarcomas are rare cancers, and are only the 21st most common cancer. A GP can expect to see only one or two sarcomas in an entire career. There are approximately 2000 soft tissue sarcomas and 400 bone sarcomas diagnosed each year in the UK.

Soft Tissue Sarcoma

Soft tissue sarcomas account for about 1% of all malignant tumours. The cause of these tumours is not known, although they may be associated with previous radiotherapy, some toxins, and very rarely may be hereditary. They can affect any age group, although are more common in the middle-aged and elderly, and less common in younger age groups. There are many different histological subtypes of soft tissue sarcomas, although the commonest include liposarcoma, leiomyosarcoma, synovial sarcoma, and malignant peripheral nerve sheath tumour. Nearly 60% of soft tissue sarcomas arise in the arms or legs, 20% in the trunk, 5% in the head and neck, and 15 – 20% in the abdomen or internal organs. The commonest sarcoma arising from the gut is gastrointestinal stromal tumour. The signs and symptoms of sarcomas vary according to where they develop, but often the first sign is of a lump in an arm or leg. Worrying features that might indicate a sarcoma include size greater than 5cm, a lump that is increasing in size, and pain.

Newly diagnosed soft tissue sarcomas are usually treated with surgery, sometimes followed by radiotherapy. Chemotherapy may also be used to treat localised tumours, although less commonly. For advanced tumours that have spread around the body, chemotherapy is usually the most important part of treatment, although radiotherapy may also be helpful.

Bone Sarcoma

Bone sarcomas are very rare, accounting for 0.2% of all malignant tumours. They are commonest in children, teenagers and young adults, accounting for 4% of all malignancy in children up to 14 years, although much less commonly they can occur in older age groups. The cause of bone sarcomas is not known, although they may be associated with underlying bone diseases, previous radiotherapy, and very rarely may be hereditary. The commonest types of bone sarcomas are osteosarcoma, Ewing's sarcoma, chondrosarcoma and spindle cell sarcoma. They can arise in any bone in the body, although are most common in the limbs and pelvis. Initial symptoms usually include pain, tenderness and swelling of the affected bone, or an unexpected fracture.

Bone sarcomas are particularly aggressive tumours that are usually treated with a combination of surgery and long courses of chemotherapy. Modern surgery aims to remove the primary tumour, while at the same time preserving the limb function (or other body part) wherever possible. This is usually done by replacing the bone with a metal prosthesis. Radiotherapy is sometimes used after surgery, or instead of surgery if an operation is not possible.

Treatment and Care

Diagnostic Services

- **Diagnosis and staging**

The most important part of diagnosis is to take a sample of the tumour, called a biopsy. The biopsy is examined by the pathologist under a microscope, to confirm whether there is cancer, and to decide the type of sarcoma. Most biopsies are done under local anaesthetic using ultrasound or CT scanning to guide the biopsy. Then scans must be done to find out whether the tumour has spread anywhere else in the body, or whether it is confined to the primary site. This is called staging. Soft tissue sarcomas of the limbs are most likely to spread into the lungs, whereas those of the abdomen or gut may spread into the liver. Bone sarcomas most commonly spread to the lungs and bones. Staging scans may include CT scans, MRI scans, bone scans and PET scans. Management of Head and Neck Cancer

- **Imaging**

A large team of musculoskeletal radiologists provide highly specialist expertise in CT, MRI, ultrasound and nuclear medicine in the evaluation of bone and soft tissue tumours.

- **Pathology**

Specialist diagnostic histopathology is provided by a team of two dedicated bone and soft tissue tumour musculo-skeletal pathologists, and also includes molecular cytogenetics to identify characteristic chromosomal translocations and gene mutations (abnormalities of the genetic material at the centre of the tumour cell), now an essential component of a state-of-the-art diagnostic service.

Treatment

- **Surgery**

Surgery can be carried out for sarcomas in all sites of the body and a number of site-specific extended multidisciplinary teams provide surgery for abdominal sarcomas, thoracic sarcomas, gynaecological sarcomas, head and neck sarcomas, peripheral nerve sarcomas, spinal sarcomas, and thoracic sarcomas.

Surgery is a very important part of treating early stage bone sarcomas and soft tissue sarcomas. Before surgery your surgeon and your clinical nurse specialist will discuss the operation and possible side effects with you so that you know what to expect. Wherever possible, every effort is made to remove the tumour while preserving good function of the part of the body where the tumour has arisen. For bone sarcomas, this will often involve replacing bone with a metal prosthesis. After surgery you will need physiotherapy and rehabilitation, which may be arranged at a physiotherapy department closer to your home.

- **Radiotherapy at UCH**

Patients receive high quality radiotherapy treatment for sarcomas at all body sites, for children, teenagers and adults. The new radiotherapy department at UCH, which opened in 2005, has the most up-to-date equipment and consequently is at the forefront of current radiotherapy techniques, with routine use of conformal radiotherapy, intensity modulated radiotherapy (IMRT), brachytherapy, and the introduction of new technologies including image fusion in radiotherapy planning, respiratory gating, and image-guided radiotherapy (IGRT).

Radiotherapy treats cancer by using high-energy rays, which destroy the cancer cells while doing as little harm as possible to normal cells. Radiotherapy may be used as part of treatment for both soft tissue sarcomas and bone sarcomas. It involves being treated for a few minutes everyday, except weekends, usually for several weeks. The number of treatments will depend on the type, size and position of the cancer within your body, but the whole course of treatment for early cancer will usually last about 6 weeks. Radiotherapy is given in the Radiotherapy Department at University College Hospital, which is located in the basement of the hospital.

Your doctor will discuss the aims and side effects of radiotherapy with you in clinic. Before treatment can be started it must be planned. If your tumour is in a limb you will need to have an immobilisation cast made to keep the limb still, so that you will be treated in exactly the same position every day. This is made in the mould room. You will then have a CT scan wearing the cast, which is used to plan the radiotherapy. This process takes 2 – 3 weeks, which is why radiotherapy does not start immediately. During radiotherapy you will be seen every week by one of radiotherapy nurses or your consultant, to monitor for side effects.

- **Chemotherapy**

Chemotherapy involves being given anti-cancer drugs through a drip. Many sarcoma patients will need chemotherapy as part of their treatment. At Harley Street at UCH there is extensive experience in the delivery of high intensity chemotherapy for sarcomas, and in providing the required supportive care including full ITU and interventional radiology services. Patients may be treated as in-patients on the ward, and as out-patients in Day Care (also located on the 15th Floor in Harley St at UCH).

- **Ablative therapies**

A range of innovative ablative (locally destructive) therapies are available at Harley Street at UCH, which can be used in conjunction with other treatments such as chemotherapy and radiotherapy. These include radiofrequency ablation of liver, lung and soft tissue metastases, and vertebroplasty to strengthen bones in the spine weakened by cancer. These therapies allow destruction of a tumour using energy delivered to the tumour through fibre-optic probes placed into the tumour. The procedure is carried out under sedation or a short general anaesthetic. It allows patients to have tumours treated without having large operations.

When treatment has finished

- **Follow-up**

When you have finished treatment it will be important for you to be monitored to check for any signs that the cancer has returned or become active again. Even if your cancer is completely gone, we will still need to check you for several years.

- **Rehabilitation**

After surgery, many patients need rehabilitation. Straight after surgery, this will mean seeing the physiotherapist and occupational therapist. If you have had an amputation then you be referred to the limb fitting service so that a prosthetic limb can be made for you.