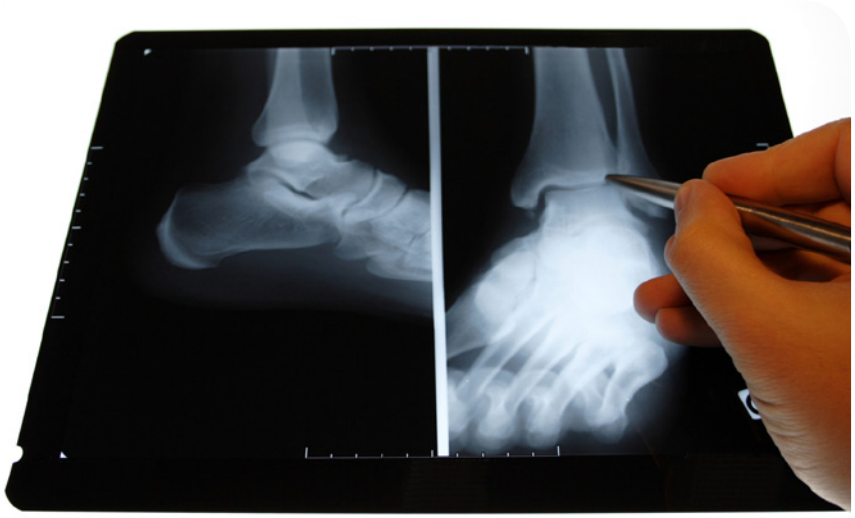
PODIATRY

Feet & Practice

A foot health message from Bayswater Allied Health

Cancers affecting the feet



The main types of bone and soft tissue tumours affecting podiatric patients include chondrosarcomas, osteosarcomas, Ewing's sarcoma and synovial sarcomas. These conditions can be mistaken for sports injuries or conditions such as rheumatoid arthritis or osteomyelitis, depending on the specific condition.

PRIMARY BONE SARCOMAS OF THE FOOT

The most common malignant bone tumours that occur in the foot are chondrosarcomas, Ewing's sarcomas, and osteosarcomas. Malignant bone tumours of the foot are rare, accounting for an estimated 1–2% of bone sarcomas that occur in the entire body. Although the foot does not have a thick soft tissue layer that may cover the developing mass, a long delay in correct diagnosis is reported for foot sarcomas. Yet despite a high rate of misdiagnoses (leading to incorrect first-line treatment), foot sarcomas rarely develop metastases, and patient prognosis is similar to that of tumours at other skeletal locations. A systematic comparison of reported delays and tumour volumes suggests that primary malignant bone tumours of the foot grow more slowly, and are less aggressive, than those at other anatomical locations. Despite this, even if numerous benign conditions are far more likely to occur, sarcomas must be ruled out to avoid delays in treatment.

TYPES OF PRIMARY BONE SARCOMAS OF THE FOOT

Chondrosarcoma: Chondrosarcomas — derived from cartilage cells — are the most common malignant bone tumours of the foot, although they account for only 1–3% of all chondrosarcomas. The peak age at presentation is 50–60 years. The lesions are mostly slow growing, with mild pain. Chondrosarcomas may be difficult to distinguish from benign enchondromas, and hence clinical, radiographic, and histologic findings must be combined for a proper diagnosis.

Osteosarcoma: Osteosarcomas of the foot are often misdiagnosed, as they almost always occur in adults, in contrast to osteosarcomas in general, which usually present in teens and young adults. They can occur in any bone of the foot, but the calcaneus is most commonly involved.
Patients will present with insidious pain, and eventually, a mass. The pain may be intermittent and is frequently confused for pain relating to injury or exercise.

Ewing's sarcoma: Ewing's sarcoma is often seen in younger patients, with a mean age at diagnosis of 17 years. Males are more commonly affected than females. While the pelvis and long bones are the usual sites for this sarcoma, localisation of the disease in the foot can also occur. Any foot bone can be affected — although the calcaneus appears to be most commonly involved. Patients will usually have pain, which is sometimes intermittent, along with significant diffuse swelling. The radiographic presentation of Ewing's sarcoma can be highly variable, with the most common misdiagnosis being osteomyelitis.

TREATMENT OF PRIMARY BONE SARCOMAS

Most low grade tumours can be treated through curettage or marginal excision. High grade lesions such as most osteosarcomas should be excised with a wide margin. Severe cases may require amputation of the affected area if necessary to achieve a clear margin. Chemotherapy is not effective for the treatment of chondrosarcomas, but may be used as adjuvant treatment for osteosarcoma and Ewing's sarcoma. Plastic reconstruction procedures permit limb salvage, allowing the patient to preserve limb function. However, larger tumours (especially those requiring amputation or bone reconstruction) require novel multimodal treatment to improve outcomes.

SYNOVIAL SARCOMA OF THE FOOT

Synovial sarcoma is the most common malignant soft-tissue sarcoma of the foot. Approximately 20% of all synovial sarcomas are located in the foot, and it is the single most common sarcoma of any type in the distal lower extremities. Synovial sarcoma should be considered at diagnosis for every lump or mass in the foot. As benign soft-tissue lesions of the foot are relatively common, not considering a sarcoma may lead to excision of the lesion without appropriate imaging or staging. Such an unplanned excision is inadequate for the treatment of a soft-tissue sarcoma, and re-excision will be necessary to ensure a clear margin and to lower the incidence of local recurrence. The limited soft tissue present in the foot places the tumours in close proximity to neurovascular structures or bone, meaning resection often leaves large defects that may require complex reconstruction.

SYMPTOMS AND RISK FACTORS

Synovial sarcoma is common between ages 15 and 35, with men affected more often than women. Presentation can be quite variable and may mimic benign processes such as a ganglion cyst. The tumour is often a slow-growing, firm, fixed mass, with little or no symptoms for years or even decades. Conversely, it may show a period of recent rapid growth, and be quite painful even before appearance of the mass. The tumour is usually found around the joint capsule — most commonly the knee — but it rarely invades the joint itself. Unfortunately, imaging studies are often not adequate to distinguish this tumour from benign soft-tissue masses. Biopsy is therefore an essential diagnostic tool. Risk factors include past radiation treatments, exposure to certain chemicals, and some inherited diseases.

TREATMENT

Wide and radical excision is the cornerstone of treatment and some advanced cases may require foot amputation. As the sarcoma may spread via the lymphatic system (although this is rare for a sarcoma), regional lymph nodes should also be removed. Chemotherapy for the treatment of synovial sarcoma remains controversial, with some studies showing improved survival rates, while others fail to show significant benefit. Radiotherapy has been shown to have a positive effect.

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