

Stress Fracture

Introduction

Bone is a living tissue that has an ability to repair, regenerate and remodel to external force. However, as the intensity and frequency of stress exceed the healing capacity of bone, stress fracture would occur. Unlike an acute fracture, which usually occurs after a single high impact, stress fracture usually occurs after a period of repetitive sub-threshold impact, i.e. stress fracture is an overuse injury.

The common sites of stress fracture include the lower limb bones, e.g. tibia, metatarsals, tarsals and fibula. It can also occur in the spine (posterior arch) and femoral neck.

Symptoms

Stress fracture can occur in any people; no matter you are elite athletes or recreational players. It usually occurs after an abrupt change in the training program, increasing both the intensity and duration. However, changes in shoe wear, training surface, dietary or hormonal imbalance, muscle fatigue are also potential risk factors for stress fracture. It tends to occur more frequent in the following sports: distant running, basketball, ballet etc.

The typical symptom would be pain over the fracture site, which increase with activity and improve with rest. However, if the condition was neglected, as the fracture progress, patient may experience rest pain.

Diagnosis

Your orthopaedics surgeon would take a detail history and perform a detail physical examination to help in the diagnosis. The first line of investigations would be plain X-ray. But the sensitivity of plain X-ray to detect stress fracture would depend on the stage of fracture. Early stress fracture may not be shown up in plain X-ray. Further investigations, e.g. MRI scan, CT scan or bone scan may be required to confirm the clinical suspicious.

Treatment

Most of the stress fracture responds well to non-operative treatment, which includes rest and activity modification. Orthosis or splintage may help to provide a more stable environment for bone healing. It also helps in symptoms relief. The healing time would be around 3 months, but it would depend on the compliance and severity of fracture. Surgical treatment with internal fixation may be indicated for displaced fracture. A well designed training program would be required for return to game and prevention of future overuse injury.

Prevention

Prevention is always better than cure.

For recreational players, set a realistic goal for training. For elite athletes, avoid excessive training program. For distant runners, the increase in training intensity/frequency should be less than 10% in each week. Set a balanced training program, including muscle strength and flexibility training. Replace running shoes that are worn out. Ensure adequate vitamin D and calcium intake. Seek help from professional trainer or coaches for setting up of training program.