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AN ATHLETIC ADOLESCENT WITH LONGSTANDING SHIN SPLINTS COMPLAINTS

Introduction

A 20-year-old very athletic man consulted the general hospital Sint-Lucas (Belgium) with six-month pain in the left lower leg. His discomfort increased with load and he had nocturnal pain. Clinical examination of the patient showed a strong palpatory pressure pain over the medial border of the tibia. In most cases, involving an athletic young men and pain in the lower leg, shin splints are suspected. When the pain is predominant at night and relieved by non-steroidal anti-inflammatory drugs (NSAIDs) the diagnosis of an osteoid osteoma is suspected.



Red arrow: solitary mid-diaphyseal bone lesion in the left tibia with cortex thickening and a radiolucent nidus.

What is osteoid osteoma?

An osteoid osteoma is a solitary benign, non locally aggressive bone tumor without potential for malignant transformation. This tumor accounts for 10% of all benign bone tumors and most frequently affects the long bones of the femur and tibia. It is most commonly seen in the second and third decades. Men are affected 3 times more than women.

Imaging

The first choice of imaging technique is standard radiography showing a radiolucent nidus with surrounding reactive sclerosis. When this is inconclusive, an additional Computed Tomography scan (CT-scan), a bone scintigraphy or a Magnetic Resonance Imaging (MRI) are recommended.

A bone scintigraphy has a sensitivity of approximately 100% for diagnosis and typically a 'double density sign' is seen. This is a very intense activity at nidus surrounded by less intensity of reactive bone.

CT-scan better visualizes the anatomical localization of the nidus. Typically a round or oval-shaped lucent nidus is seen.

MRI is more sensitive than CT-scan for detection of reactive changes in soft tissue. However, CT-scan is more specific than magnetic resonance imaging (MRI) for identifying a nidus. On MRI marrow and soft tissue edema can mask the typical characteristics of the tumor. This is why CT-scan is the modality of choice for diagnosis and identifying a nidus.

Therapy

Therapy with NSAIDs makes the symptoms disappear quickly. This is often not a final treatment, because of the negative gastrointestinal and renal effects of long term NSAIDs. When conservative management fails, in case of persistent or debilitating pain, surgical excision of the nidus is necessary: a resection or an ablation. An Open-en-bloc surgical resection or a CT-guided percutaneous resection are the possible invasive techniques. Less invasive surgical techniques, a CT-guided percutaneous radiofrequency ablation and a CT-guided interstitial ablation, are the preferred treatments. These techniques are associated with fewer complications, shorter hospitalization, lower relapse rate and are more cost-effective.

Take home messages: OSTEIOD OSTEOMA

- Intermittent, severe localized pain in the lower leg
- Increased pain at night
- Pain relief by use of NSAIDs
- Imaging techniques:
 - Standard radiography
 - Bone scintigraphy or CT-scan

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