Myositis ossificans circumscripta: An unusual cause of backache in a teenager
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Introduction
Myositis ossificans circumscripta or traumatica is a benign condition that is difficult to distinguish from bone or soft tissue tumors. It is a rare entity in children, with only 58 cases being reported in literature to date. We report an interesting case of a 15 year old teenager who presented with backache and was diagnosed with Myositis ossificans circumscripta in the Right paraspinal muscle. He showed a well demarcated osseous mass in the right paraspinal muscle suspicious of tumor. The mass was excised completely and histology confirmed the diagnosis of Myositis ossificans circumscripta (MOC).

Discussion
The most common cause is thought to be trauma, though in a review of 56 pediatric cases only 24% reported a definite history of trauma. The absence of trauma in the initial history (as in this case) can be misleading and may result in inclusion of MOC in the differential diagnosis.
Pathophysiology involves a soft tissue injury followed by ossification of non-malignant fibrous connective tissue, with a marked inflammatory response leading to ossification. CT scan can be diagnostic by allowing visualisation of peripheral rim of calcification as early as 2-3 weeks of evolution. MRI findings are non specific especially in early stages of MOC and can mimic findings of malignant musculoskeletal tumors. This leads clinicians to rely on histology for a confirmative diagnosis, and a biopsy is performed in most cases. A biopsy was performed in 26% of cases as reported in review by Micheli et al.2008. In our patient MRI was non specific suggesting a tumor, so a full surgical excision was planned instead of biopsy.
Spontaneous regression can occur in MOC and surgical intervention is not recommended unless the patient is symptomatic and has functional limitation. However, our patient presented with a mass in an unusual, rare location for MOC and with an initial prior history of trauma leading to suspicion of malignancy and surgical excision. The patient had complete symptomatic recovery following surgery with no recurrence till date.

Case Report
A 15 year old hispanic teenager presented to the emergency department with one week history of severe right low back pain. The boy is a very active football player but denied any recent trauma prior to the onset of pain. No systemic or neurological symptoms were noted at the time of admission. On examination he had slight right sided weakness in the left lumbar region at L1 level with tenderness but without any overriding erythema.

An MRI of the spine (Fig 1.2) showed a 5.3 x 3.5 x 4.2 cm well marginated mass in the right paraspinal muscle. The differential diagnosis included malignancy, infection and MOC. As a malignancy was suspected, the mass was resected completely and histology (Fig 2) showed that it was well marginated with entity texture in the periphery with gelatious core. Histology (Fig 3) showed ossicles with myxoid areas in the circumference loosely arranged spindle cells and alternating areas of cancellous bone in the periphery. Immunohistochemistry stains were negative for a malignant component and the final diagnosis of Myositis ossificans circumscripta or traumatica was made. In retrospect the boy reported a very trivial fall while playing football 4 months earlier.

Myositis ossificans is a rare entity in children. There are three different types described namely Myositis ossificans circumscripta or traumatica, Fibrodyplasia ossificans progressiva (FOP) and Myositis ossificans with no history of trauma (in patients with burns, paraplegia or myelomeningocele). Myositis ossificans circumscripta (MOC) is the most common type among children. Adolescents and young adults are most commonly affected and incidence in children less than 10 yrs of age is rare. MOC mainly affects extremities, either limbs or arms and occasionally other sites such as the temporal muscle, abdominal muscles or paraspinal muscles.

Conclusions
• Clinicians should consider MOC in the differential diagnosis, when a physically active child or adolescent presents with pain and soft tissue swelling.
• A preceding history of trauma may not be present in all cases and that should not preclude the inclusion of MOC in the differential diagnosis.
• The lesions may mimic ominous conditions like Rhabdomyosarcoma, on imaging and histology can provide definitive diagnosis.
• Unlike malignant tumors, the prognosis in MOC is excellent with complete recovery.

References

Figure 1: 3D Grown section showing central gelatious core with peripheral osseous tissue
Figure 2: Coronal section showing the mass in the right paraspinal muscle
Figure 3: Helical scan showing densely myxoid areas, with loosely arranged ovoid and alternating areas of cancellous bone.