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Osgood-Schlatter's disease in a Nigerian male adolescent: A case report and literature review

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Abstract

Osgood-Schlatter's disease remains the most frequent cause of chronic knee pain in preadolescent and adolescent children although it is an uncommon disorder whose incidence is generally unknown. We report a 14 year-old Nigerian male adolescent who presented with a 3- year history of recurrent pain both knee joints- not associated with fever, swelling or limitation of ambulation. He was noted to be involved in sporting activity while domiciled in school. The diagnosis was missed at first contact at the orthopaedic clinic. Plain radiograph of the knee joints showed features in keeping with bilateral tibial osteochondrosis with right tibial tubercle fragmentation which suggest Osgood-Schlatter's disease. A high index of suspicion for this disease is advised for any adolescent with chronic knee pain –especially in the absence of additional symptoms and signs

Keywords: Osgood-Schlatter's disease, knee pain, adolescent

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Introduction

Osgood-Schlatter's disease was first reported independently and simultaneously in 1903 by Robert Osgood (an American orthopaedic surgeon) and Carl Schlatter, a Swiss Physician [1].

The synonyms include osteochondrosis of the tibial tubercle, Schlatter's disease and more recently Osgood-Schlatter's condition. It is the most frequent cause of knee pain in children aged 10 to 15 years. Affected children usually present with a history of pain below the patella at the insertion of the patellar tendon which is usually aggravated by sporting or other activity such as running or jumping but is ameliorated by rest [1].

The physical findings are limited to the tibial tubercle and patellar tendon, and include prominence and soft tissue swelling over the tibial tubercle, as well as tenderness of the patellar tendon.

The disease is self-limiting as about 90% of patients have complete symptom-resolution approximately one year after onset of symptoms.A few cases may however end up with residual anterior knee pain and problems with kneeling.

Although the incidence of Osgood-Schlatter's disease is generally unknown, some authors have reported an incidence of 13% among young athletes in a Scandinavian country (3).

The exact nature of the lesion remains controversial but the currently documented hypotheses include micro fractures in the tibial apophysis due to patellar tendon traction (4), and patellar tendonitis (5).

The disease is relatively rare but is frequently noted as the major cause of knee pain during adolescence. This case report therefore seeks to highlight the need to consider the condition in any adolescent child presenting with chronic knee pain not associated with any major signs and symptoms.

Case report

K.A - a 14 year-old male adolescent was referred to the Paediatrics Clinic of the University of Nigeria Teaching Hospital, Ituku Ozalla Enugu with a three year-history of recurrent bilateral knee pain without fever, joint swelling or limitation of ambulation. A year prior to the consult, he was seen at the hospital's orthopaedic clinic with similar complaint. His initial laboratory evaluation at this first contact only revealed haemoglobin AS genotype and normal osseous and soft tissue appearances on plain

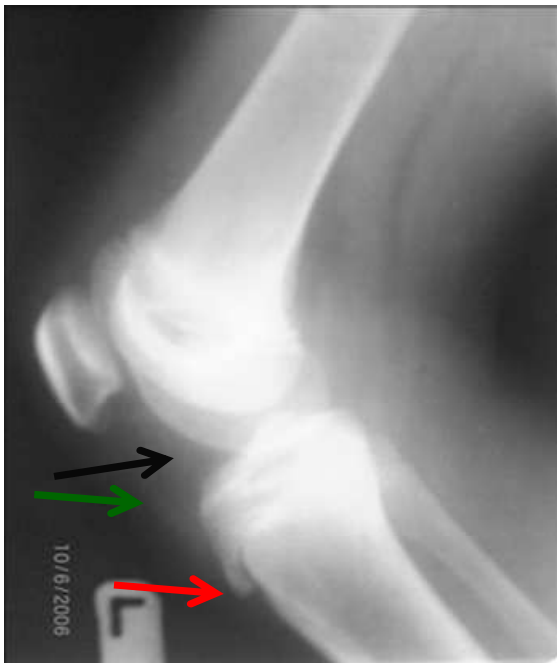

Figure 1. *Plain radiograph of the left knee joint showing soft tissue swelling anterior to the tibial tuberosity (red arrow) and indistinct patellar tendon (green arrow)*

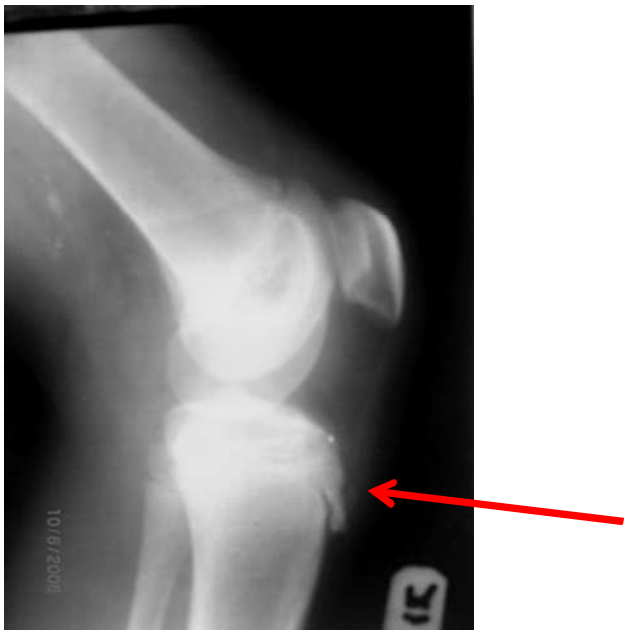

Figure 2. *Plain radiograph of the right knee joint showing soft tissue swelling anterior to the tibial tubercle (red arrow)*

radiograph of both knee joints. No definite diagnosis was made but patient was placed on a non-steroidal anti-inflammatory drug (ibuprofen), with no improvement. Further historical evaluation at the Paediatrics clinic showed that the episodes of pain were brief and were exacerbated by strenuous movements. Patient was also noted to be actively involved in sporting activity (football) while domiciled in his school.

Physical examination showed a well-nourished male adolescent in no obvious distress. Significant tenderness was noted at both knees especially at the tibial tubercles. There was however no limitation of movement around the knee joints. A tentative diagnosis of Osgood-Schlatter's disease was made. A repeat plain radiograph of both knee joints (lateral) was done which confirmed the diagnosis.

The patient received reassurance, was advised on rest and avoidance of sporting activity and was placed on topical/oral non-steroidal anti-inflammatory drug (clofenamic acid).

He however did not report for follow- up evaluation before this report.

Radiologist's Report

Plain radiograph of both knees were taken in lateral projection. This revealed soft tissue swelling of about 10mm thickness anterior to the tibial tuberosity bilaterally (red arrows). In addition, the right tibial tuberosity was fragmented as evidenced by the presence of nodular osseous densities within the overlying soft tissues and a defect along the anterior surface of that right tibial tuberosity (blue arrowheads). The outline of the patellar tendon appears indistinct on the left especially (green arrow). The infra-patellar fat pad in the left appears oedematous. The radiological diagnosis was acute stage of Osgood-Schlatter's disease. (See figures 1 -3).

Figure 3. *Image showing fragmented right tibial tuberosity (arrow head) and defect at 'donor' site (arrow)*

Discussion

Since the first reports of Osgood-Schlatter's disease several decades ago, a characteristic clinical presentation has been observed. For instance, knee pain is bilateral in 25-

50% of cases while the disease occurs more commonly in male subjects with male-to-female ratio of 3:1. (1, 2)

The ages of occurrence for both sexes are typically between 13-14 years for boys and 10-11 years for girls (1).Notably, the index patient was a male adolescent aged 14 years and presented with bilateral knee pain- which are consistent with the previously reported observations.

Generally, a relevant history and plain radiography are often sufficient to make a confident diagnosis of the disease. Plain radiographs demonstrate changes depending on the stage of presentation- acute, sub-acute or late (6). In the acute phase, soft tissue swelling, indistinct edges of the patellar tendon and fragmentation of the tibial tuberosity are the usual radiographic findings. Osseous densities may also be noted within the soft tissues anterior to the tibial tubercle and even extend along the inferior patellar tendon. In the sub-acute phase, the soft tissue swelling anterior to the tibial tubercle is not usually noted on the radiograph while in the late phase; the soft tissue osseous fragments may persist or eventually unite to form a normal-looking tibial tubercle (6). In our patient, the combination of relevant history and the radiographic findings of infra-patellar fat pad and patellar tendon oedema and a fragmented tibial tubercle made for a straight-forward diagnosis.

Regarding the treatment of patients with Osgood-Schlatter's disease, conservative measures result in an excellent outcome in more than 90% of cases and comprise rest and restraint from strenuous activity for a relatively short period of time before self-resolution; ice, non-steroidal anti-inflammatory drugs and pad to protect tuberosity; application of a plaster cast if pain is severe, as well as infra-patellar strap during activity (2).

Surgical treatment is rarely indicated. However, some authors (7) reported good results in some cases after surgery although a better outcome was not demonstrated; while another report(8)documented several post-surgical complications.

Although our patient did not report subsequently for follow-up review, it was presumed he could have made complete recovery. In conclusion, Osgood-Schlatter's disease should be considered by clinicians in any adolescent with chronic knee pain albeit a rare condition.

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