



A RARE UNDIAGNOSED CASE OF OSGOOD SCHLATTER DISEASE AND ITS REHABILITATION.

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Abstract

Osgood-Schlatter disease is a self-limiting, mostly benign knee disorder that most commonly affects fast-growing, athletically active adolescents. In active teens, it is a common source of pain and tenderness in the tibial tuberosity. It's usually a self-limiting syndrome that comes and goes, although it can take months or years to fully resolve. Clinical and radiological examinations are used to make a diagnosis. Analgesics and limits on physical activities involving the knee are common management options. Physical therapy evaluation is outlined, followed by approaches for pain control and stretching exercises for the quadriceps and hamstrings, with a focus on muscular stiffness as a probable causal component. Ice massage is recommended for treating post-exercise soreness in the tubercle area. Certain therapy techniques, such as quadriceps stretching and strengthening, appear to be useful, for patients with OSD.

Keywords: Osgood-Schlatter disease, adult, rehabilitation, undiagnosed case.

INTRODUCTION

Osgood-Schlatter disease (OSD), also known as osteochondrosis or sterile necrosis of tibial tuberosity, is tractional inflammatory condition of bone tissue that develops at attachment site of the patellar tendon to the tibial tuberosity. It is characterised by separating the tibial tubercle apophysis from the proximal end of the tibia. It's possible that this lesion has a history of trauma, or it could show up without any evident harm. According to Katz, this is a non-articular osteochondrosis of the quadriceps muscle/tendon insertion induced by significant muscle strain (1). Boys aged 8 to 15 who participate in sports that demand them to sprint and jump repeatedly are more likely to get OSD. Symptoms might last anywhere from six and eighteen months. The illness was originally described in 1903(2).

OSD's actual cause is uncertain. It could be caused to a tight quadriceps or recurrent microtrauma of the tibial tuberosity (3). The recurring traction of the patellar tendon on the distal insertion, according

to the first hypothesis, was the principal locus of secondary ossification center fragmentation and transitory necrosis(4).

The structure of the tibial tuberosity was adapted to respond to interacting traction forces. In OSD, traction forces acting on the apophysis area of tibia tubercle lead to injury of the secondary ossification center, which consequently gradually detaches the patellar ligament from the tibial tubercle. Further progression leads to fragmentation of tibial tubercle and tearing of part of tibia with patellar tendon (avulsion fracture), which requires surgical intervention. When a part of bone is detached from the ossification center at tibial tubercle, the additional formation of one or more bones between the detached fragments is observed. Clinical indications range from aching and discomfort to swelling, severe pain, and limping. The pain starts slowly, with minor intermittent pain, but in the acute phase, it can become intense and consistent(5). It may lead osteoarthritis in future because of continuous weight bearing and tibial condyle extension.

Osgood-Schlatter disease is treated with a combination of reduced physical activity, analgesia, and physical therapy. Symptoms are normally self-limiting, and patients can be instructed to gradually resume normal activities after the pain has gone away. Complete recovery is predicted once the tibial growth plate closes, while some patients with persistent problems throughout adulthood may require surgical treatment (6). Despite the knowledge that "wait-and-see" treatment for OSD-related pain complaints is unlikely to result in spontaneous improvement, comprehensive reviews of treatment options are still lacking. Hamstring and quadriceps stretching and strengthening exercises are frequently recommended. However, the particular muscle-stretching procedures, as well as the overall bundle of prescribed activities, are rarely discussed in detail (7).

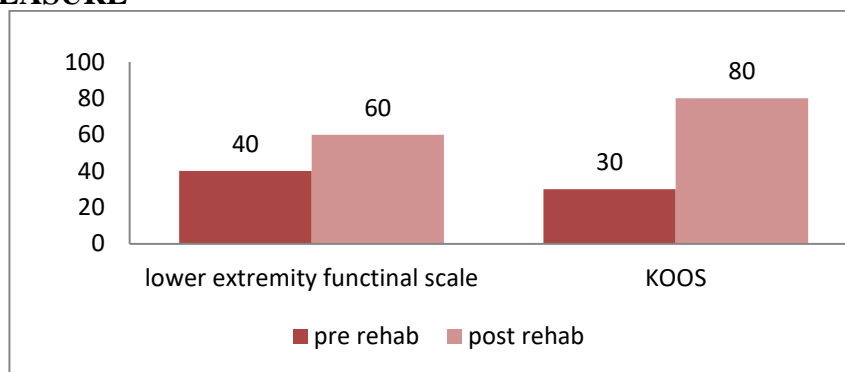
Patient's information

We report the case of a 47-year-old male farmer with the complaints of pain and bump in right knee (**FIG 1**) joint with discomfort gradually progressing with activities over the past 5 months so much that it is affecting his daily routine. Pain was associated with tingling sensation in both lower limbs. He had no history of fall or trauma. Until this period of persistent pain, the patient reported similar intermittent episodes, over the years that would self-resolve, precluding a doctor's visit. There were no systemic symptoms like fever, weight loss, etc. Initially, patient had less and tolerable pain which did not hamper his routine and continued his occupation but later in the day the pain worsened and he noticed depression while extending the knees. On progression, walking got painful so he visited nearby physician, who prescribed medication but symptoms were not relieved. Later, he came to MGM Physiotherapy OPD with similar complaints for which all investigations were done and after examination he was diagnosed with Osgood-Schlatter disease for which arthroscopic removal was advised.

Clinical findings

Patient was examined in supine lying position. On palpation, while performing knee extension there was a depression in the anterior region (Figure2). There was grade II tenderness (i.e. the patient complaints of pain and winces) with a small effusion, but no overlying erythema. On examination, limping in walking and pain during low sitting was noticed. Protruding piece of tibia was visible while doing Dynamic Quadriceps. Range of motion of right lower limb were not limited but were painful. According to mMRC Scale manual muscle strength was found to be 3+ for hip flexors and 3 for knee flexors. On soft tissue analysis of lower limb, hamstring tightness was noticed. Further, Radiographic examination showed an un-united Ossicle beneath the patellar tendon. Magnetic resonance imaging (MRI) sections showed tendinitis of the patellar tendon. Dimensions of the ossicle were 17 mm x 8 m.

OUTCOME MEASURE



THERAPEUTIC INTERVENTION

TABLE 2

GOAL	INTERVENTION	RATIONALE
1.patient education	<ul style="list-style-type: none"> About the factors contributing towards his condition <ul style="list-style-type: none"> About risk factors Instructions to avoid activities that aggravate pain. Changes in activity such as running at a slower pace, avoiding deep knee bending footwear, and wearing an infra patellar strap while exercising To avoid compressive stresses on the knee, kneeling on a pad should be preferred over maintaining a squatting position for these exercises. Concluding the exercise with a 5-7-minute ice massage on the tubercle area 	
2.pain relief	<ul style="list-style-type: none"> During the acute phase, treatment focused on lowering inflammation and pain signs and symptoms. RICE (rest, ice, compression, and elevation), which includes correctly warming up before activity, icing for 20 minutes thereafter, and short-term rest or immobilization (2 weeks) Iontophoresis was chosen as the therapy modality, and a three-treatment trial period was completed. Tenderness to palpation was reviewed after three treatments with iontophoresis performed every other day, and his condition was recorded. 	
3.stretching	<p>Quadriceps, hamstrings, hip flexors, calf, and iliotibial band should all be stretched.</p>	<p>Any tightness in the muscles or tissues surrounding the knee can increase the tension on the patellar tendon and the tibial tuberosity, causing alignment difficulties when walking, jogging, or leaping.</p>
4.strengthening	<ul style="list-style-type: none"> Straight Leg Raise - Leg Laterally Rotated <ul style="list-style-type: none"> Quadriceps Short Arcs Quadriceps Leg Lift Quadriceps Isometric Contraction <ul style="list-style-type: none"> Quadriceps Wall Slide Quadriceps Kneels Quadriceps Squats Closed chain activities. Initially with hamstring work, lunges, leg press 0-90°, proprioception exercises. <ul style="list-style-type: none"> stationary bike single leg balance, core, glutes, eccentric hamstrings, elliptical, and bike. 	
5.Taping	<ul style="list-style-type: none"> Standing or keeping the knee straight. Stretch the tape fully and lay it below the kneecap, holding it where it is folded back. Bending the knee to 45 degrees and placing the tape on either side of the knee with moderate tension (about 50%). With the knee bent to 90 degrees, lay down each strip of tape on either side of the thigh with the paper off strain. Tape the ends of the tape together with little stress. To activate the glutes, rub the finished taping with a piece of backing paper. 	<p>It helps in relieving pressure to reduce pain and increase circulation.</p>

Discussion

Although the natural history of Osgood Schlatter lesions is that most resolve and it is usually considered self-limited, some patients may still have pain and prominence with kneeling. Krause et al. reported that of 50 patients with an average of nine year follow up, 60% were still unable to kneel without pain or discomfort and 24% had additional continuing symptoms. Ross and Villard reported that athletes with a history of Osgood Schlatter disease have higher levels of disability on both daily living and sports activity scales. Since the first reports of Osgood-illness Schlatter's decades ago, a particular clinical presentation has been recognized. Knee pain, for example, is bilateral in 25- 50% of cases, and men are more affected than women, with a 3:1 male-to-female ratio (8). A comprehensive medical history and simple radiography are usually sufficient to obtain a solid diagnosis of the illness. Depending on whether the patient is acute, subacute, or late, plain radiographs reveal changes. In the acute phase, soft tissue edema, indistinct patellar tendon boundaries, and tibial tuberosity fragmentation are typical radiographic findings (9).

The entire treatment and maintenance includes symptomatic treatment with cold pack and NSAIDs, activity modification and relative rest from aggravating activities, and a lower extremities stretching programme to address underlying predisposing biomechanical traits (10). Taping or patellar strapping is frequently recommended, which is similar in motivation to the approach of isometric strengthening of the quadriceps in knee extension and stretching the hamstring. It is also important to focus on prevention strategies that reduce overuse injuries

Conclusion

The initial treatment with PRICE protocol is effective following up with the rehabilitation of athlete. We implemented a treatment of activity modification, pain monitoring, stretching and progressive strengthening, along with taping and make him return to his functional activities.

Patient's Perspective

The patient's parents had physiotherapy rehabilitation, which helped them improve their child's development, achieve milestones as well as gain confidence.

Informed Consent:

Written and oral informed consent was obtained from all individual participants included in the study. Additional informed consent was obtained from all individual participants for whom identifying information is included in this manuscript.

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Author's contributions:

Our every author contributed equally in this case report.

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CONFLICT OF INTEREST:

The authors declare that there are no conflicts of interest.



FIG 1: Presenting with bump in right leg



FIG 2: Depression in the anterior region

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