Spontaneous avulsion of the tibial tubercle following Osgood-Schlatter lesion in an adult

Abstract

Background and aim:

Osgood Schlatter disease occurs in adolescent age group with male preponderance and persons indulging in active sports. Avulsion of tibial tuberosity with Osgood-Schlatter disease is rare but and occurs in adolescent and younger age.

Case report:

We describe a case of an spontaneous avulsion of tibial tuberosity in a 49 year old healthy male patient with no prior symptoms of this disease. After simple excision of the ossicle and uneventful postoperative course with partial weight bearing of 20 kg using two crutches for 4 weeks the patient was out of any complaints at latest follow-up after 24 months.

Conclusion:

To our knowledge the reported case is the first one of spontaneous avulsion of the tibial tubercle following OSD in an adult. Simple excision of the fragment led to an excellent result and can be recommended.

Keywords: Osgood-Schlatter, Spontaneous, Avulsion, Tibial tubercle, Operation

Introduction

Osgood- Schlatters' disease (OSD) is characterized by pain, swelling, and tenderness in the anterior aspect of the proximal tibia. In boys, the condition appears between the ages of ten and fifteen years and especially affects those actively participating in sports. Surgical treatment of OSD, albeit rare, may occasionally be warranted if disabling symptoms persist (1 - 4). In the previous literature, excision of the ossicle(s), with or without resection of the tibial tubercle prominence, has been shown to yield better results than other methods (2, 3) (drilling, bone grafting, or refixation of the ossicle). Binazzi et al (5) examined the results of twenty-six knees, in both skeletally immature and mature patients, at an average of thirteen years after surgical treatment. They found that excision of the ossicles, with or without removal

of the prominent tibial tubercle, clearly yielded better results than did various other procedures. Spontaneous avulsion of the tibial tuberosity after skeletal maturity following OSD is an extremely rare condition (6). We describe the first case of spontaneous avulsion of the tibial tuberosity following Osgood-Schlatters' disease in an adult.

Case presentation

A 49 year old healthy man with no medical history suffered spontaneous sharp pain of the left knee and consecutive swelling during walking on even ground. Height of the patient was 183 cm, weight was 85 Kg with a body mass index of 25.4. There were no signs of osteochondrodysplasias there was no history of fracture. He had no early or remote history of trauma or unaccustomed heavy work. Physical examination revealed swelling and tenderness in the region of the tibial tuberosity. No effusion of the knee joint could be palpated, collateral and cruciate ligaments were stable. Range of motion was limited to Extension / Flexion 0/0/40°. The stretched left leg could be lifted actively. Lateral x- ray of left knee (Fig.1) and MRI (Fig.2) showed avulsion of the tibial tuberosity of an unresolved OSD. After simple excision of the ossicle and uneventful postoperative course and partial weight bearing of 20 kg using two crutches for 4 weeks the patient was out of any complaints at latest follow-up after 6 years. Lateral X-ray revealed (Fig.3) the status after excision of the ossicle. At final follow up there was no local tenderness, range of motion of the left knee was Extension / Flexion 5/0/140°. The stretched left leg could be raised easily. During walking the patient showed no limping.

Discussion

Osgood-Schlatters' disease (OSD) was firstly described approximately more than 100 years ago, chronic avulsion injury caused by repetitive microtrauma and traction of tibial tuberosity (7). It almost occurs in adolescents performing sports activities and can be bilateral in 50 % of cases (8). Although various theories exist, most recently focus has been put on soft tissue component with suggestion that insult occurs at the anterior aspect of tibial tubercle at insertion of patellar tendon (9) in contrast to the general accepted theory of Ogden and Southwick who described avulsion of secondary ossification centre of the tibial tuberosity (10). The radiographs

may be either normal or show fragmentation of tibial tuberosity with ossicles. Although conservative treatment is the main stay and symptoms usually subside with rest, restriction of sports in majority of patients, surgery is advisable when conservative treatment fails (11). Pihlajtamäki HK et al (1) in a large retrospective study of 107 patients managed surgically by excision of the ossicle(s) with or without resection of prominent tibial tuberosity found good long term results with no deleterious results. The median age of surgery in their group was 20 (Range 18 - 29) years with duration of symptoms ranging from 1 - 14 years. The main indication of surgery in their group was persistent symptoms despite conservative treatment.

Avulsion fractures of tibial tuberosity occur after forceful physical activity or violent trauma (12) such as fall from height is rare but has been reported even bilaterally in few cases (13). The usual age group of occurrence is adolescence and usually patients have been found to indulge in strenuous activities despite medical advice on the contrary. All the previous cases reported were symptomatic and were diagnosed previously except one case of asymptomatic bilateral avulsion with preexisting OSD reported by Ogden et al (14). The patient had not been diagnosed prior to the presentation which is similar to our case but of younger age. Our case depicts an atypical presentation approximately more than 30 years after the occurrence of OSD with no history of trauma or forceful knee contraction.

However in few cases knee pain has been found to persist whether treatment is conservative or surgical (1,15). Despite resolution of symptoms, mobile osseous fragment fails to unite in approximately 10% of cases and causes pain during direct pressure on the tubercle and upon kneeling which has been reported in few studies (4). Despite removal of ossicles surgically recurrent ossicle formation have been found with the passage of time in a few patients however most were asymptomatic (1). In our patient there were no symptoms of any prior surgery for OSD or any knee pain which is quite different from previous reported cases.

The period between diagnosis of OSD and occurance of avulsion fracture ranges from a few weeks to 1 year (16, 17). Therefore a period of relative rest with restricted sports activity till physeal fusion or radiological healing is advised as healing at skeletal maturity is the rule. In our case the patient had avulsion fracture at 49 years of age. This was unusual and has not been reported before. We agree with

Niremberg et al (18) that surgical excision of the symptomatic mobile fragment should be done. At 6 years follow up our patient has normal quadriceps strength and normal range of motion.

Conclusion: To our knowledge the reported case is the first one of spontaneous avulsion of the tibial tubercle following OSD in an healthy adult. Simple excision of the fragment led to an excellent result and can be recommended.

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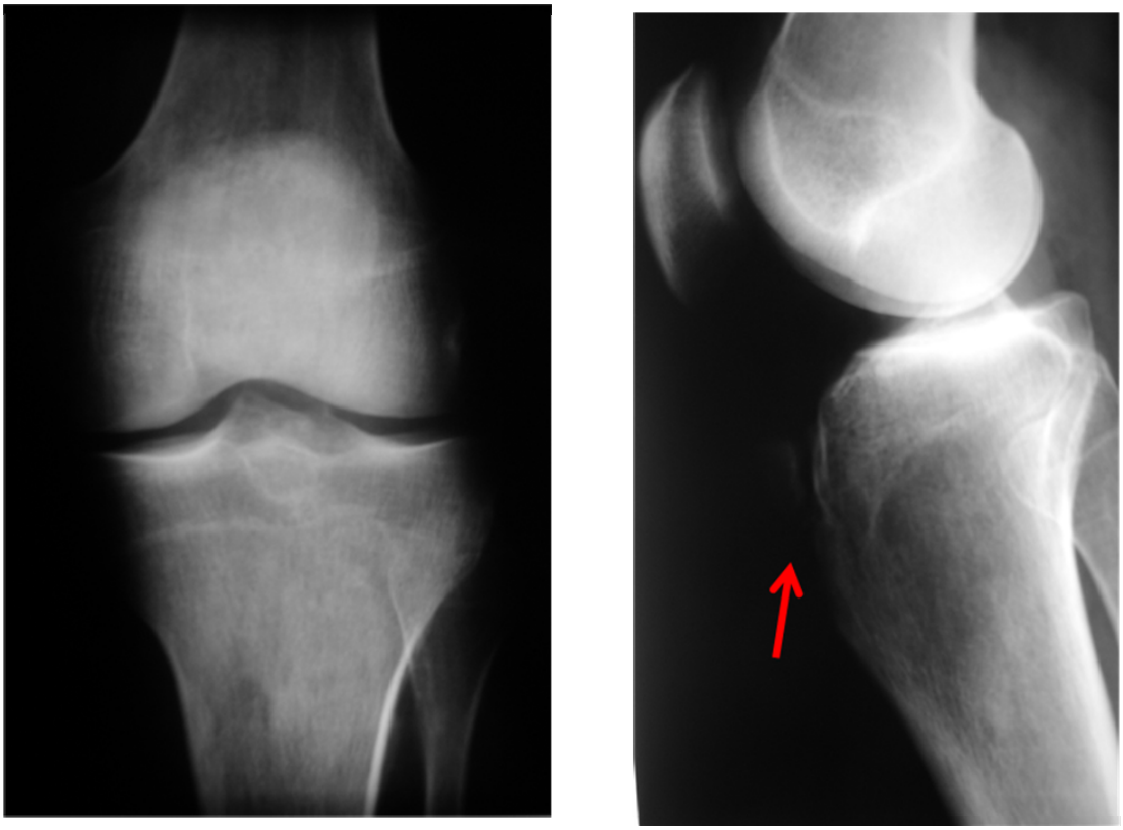
151 Figures



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153 Figure 1: X- ray of the left knee ap (a) and lateral view (b) shows an avulsion of the

154 tibial tubercle following Osgood- Schlatters' disease (red arrow)

1

Figure 2: MRI of the left knee reveals an avulsion of the tibial tubercle following Osgood- Schlatters' disease with surrounding liquid

Figure 3:

Lateral X-ray of the left knee shows the status after excision of the unresolved Osgood-Schlatter.