OSGOOD - SCHLATTER DISEASE - A COMMON PROBLEM IN YOUNG ATHLETES

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(Original scientific paper)

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Abstract

Osgood Schlatter disease (OSD) is a disorder of enchondral ossification, and should be differentiated from heterotopic ossification in the patellar ligament. This disease is a very common cause of the knee pain in children between the ages of 8 and 15 years old. The aim is to present the Osgood Schlatter disease and treatment of sports adolescents. The study included 135 patients, all initially treated by various conservative modalities, was carried out. Exactly 124 patients became thus symptom-free and regained normal function. 11 of the 135 treated patients returned several years later complaining persistent swelling, discomfort in this area of the tibial tuberosity, and minimized the participation in sportive activities. The symptoms and functional impairment arising in the former condition require treatment. In these retrospective study, 43 patients were followed with cardiac examinations like ECG and echocardiography. In conclusion we can say that conservative therapy is the best choice for treatment of Osgood Schlatter disease.

Key words: Osgood - Schlatter disease, sport injuries, knee.

Introduction

Osgood Schlatters disease is a traction phenomenon resulting from repetitive quadriceps contraction through the patellar tendon at its insertion upon the skeletally immature tibial tubercle (figure 1). This disease should be distinguished from overuse of the patella-pattellar tendon junction, which is referred to as Sinding-Larsen- Johansson syndrome (the adolescent equivalent of jumper’s knee). Osgood Schlatter disease usually occurs in preadolescence involved in sports (football, gymnastics, soccer, basketball, ballet) during a time when the tibial tubercle is susceptible to strain. During running, gymnastics, and other sports requiring repeated contractions of the quadriceps, an extra-articular osteochondral stress fracture or microavulsion occurs. The proximal area of the patellar tendon insertion separates, resulting in elevation of the tibial tuberosity (Ducher G, Cook J, Spurrier D, Coombs P, Ptasznik R, Black J, et al., 2010). Risk factors for this disease include age between 8 and 15 years, male sex, rapid skeletal growth and repetitive jumping sports. Osgood Schlatter disease affectet approximately 21% of athletic adolescents surveyed, as compared with a frequency of 4.5% in age-matched nonathletic controls (Kujala UM, Kvist M, Heinonen O., 1985). Symptoms of Osgood Schlatter disease typically consist of pain at the tibial tuberosity or bony bit at the top of the skin. The tibial tuberosity may become swollen or inflamed and may even become more prominent than normal. Tenderness and pain is worse during and after exercise. The athlete is likely to experience pain when contracting the quadriceps muscles or performing squat type exercises (Ducher G, Cook J, Lammers G, Coombs P, Ptasznik R, Black J, et al., 2010). In view of the divergence of opinions as to the indicated type of management of Osgood schlatter disease, some orthopaedic surgeons omitting any treatment, others recommending conservative methods, others emphasizing the necessity of surgical treatment, and still others claiming that the results do not differ whether no treatment or conservative treatment or surgical treatment (Pommering TL, Kluchurosky L, 2007).
Patients and methods

The study was worked out at the University Orthopaedic Surgery Clinic, Faculty of Medicine in Skopje. During the years 2004 to 2014, 135 patients-athletes (119 boys and 16 girls) between ages of 8-15 years were observed for symptoms directly referable to the tibial tuberosity and its surrounding structures. The patients complained of spontaneous pain localized at the anterior aspect of the knee below the knee cap, and invariable aggravation of the pain on kneeling, after prolonged walking, or by strenuous activities in sport and gymnastics. In such episodes of aggravation the knee joint could not be fully used. Due to the variations of development of the tibial tuberosity, the symptoms and clinical findings had to substantiate the X-Ray and MRI evidence in order to diagnose Osgood Schlatter disease. All 135 patients were treated with conservative treatment: rest, cold therapy to the knee, stretching, sports massage techniques for the quadriceps muscles, patella knee strap-support the knee, NSAID, plaster cast for three weeks if pain was severe. Also, at the University Cardiology Clinic and University Clinic for Children’s hospital 43 patients were followed with cardiac examinations like ECG and echocardiography. While 21 patients were registered mitral valve prolapsed. In all 43 patients had no pathological ECG changes.

Results

Follow-up examinations were also carried out in the 124 patients treated by the previously reported conservative methods. These patients had resumed normal daily activities six months after completion of the various modalities of conservative treatment, and had attained freedom from pain within a year. They demonstrated full ability to participate in vigorous activities at work and sport. Thus they did not return further for examination, except for 11 patients who returned 2-3 years later and complained of enlargement of the area of the tibial tuberosity. This area was sensitive, more often tender on palpation, and an accessory bursitis had developed in front of the tibial tuberosity, which contributed to the regional swelling. Forceful extension of the knee joint was associate with discomfort in the area of the tibial tuberosity, and minimized the participation in sportive activities.

Discussion

Osgood Schlatter disease was named after two physicians in 1903, Dr. Robert Osgood and Dr. Carl Schlatter (Kujala UM, Kvist M, Heinonen O, 1985). Osgood Schlatters disease should clear up when the young athlete stops growing and the tendons become stronger, however, it can occasionally persist into adulthood. Risk factors for OSD are: male sex (male-to-female ratio of 3:1), younger individuals with age 8-15 years, kids with rapid skeletal growth and sports with repetitive jumping. The most important thing is management of the athletes training program so they can do as much exercise as pain will allow, which may mean focusing on quality rather than quantity. The following may help with symptoms as they flare up but it may just be a case of waiting until the athlete stops growing so fast and the tendons and bones become stronger. Several studies refer that OSD affected usually athletic adolescents (Gholve PA, Scher DM, Khakharia S, Widmann RF, Green DW, 2007).

In the study by Krause et al, 90% of patients treated with conservative care were relieved of all of their symptoms approximately 1 year following symptom onset, (Krause BL, Williams JP, Catterall A, 1990). In our study, like in many others, we have conservative treatment of all respondents with excellent result. Only in few cases discomfort persist for 2-3 years until the tibia growth plate closes.
The prognosis in Morbus Osgood-Schlatter is excellent. OSD usually resolves by the time the patient is aged 18 years, when the tibial tubercle apophysis ossifies. In approximately 10% of patients, however, the symptoms continue unabated into adulthood despite all conservative measures. This may be from residual enlargement of the tuberosity or from ossicle formation in the patellar tendon (Gholve PA, Scher DM, Khakharia S, Widmann RF, Green DW, 2007).

More orthopaedic surgeons feel that Osgood Schlatter disease can be treated by conservative methods, other point out that surgical treatment is needed in some cases, (Pihlajamäki HK, Mattila VM, Parviainen M, Kiuru MJ, Visuri TI, 2009), (Eun SS, Lee SA, Kumar R, Sul EJ, Lee SH, Ahn JH, et al, 2015).

Conclusion

Osgood Schlatter disease is a disorder of osiffication in the cartilaginous preformation of the tibial tuberosity, usually associated with clinical symptoms and impaired use of the leg. Of 135 conservatively treated patients, 124 patients became symptom-free and regained normal use of the leg, while 11 patients remained with pain and impairment.

A big part of managing the condition is educating the patient, parents and coaches about the condition and the importance of not over training. It is important to manage the young athletes training program so they only do what pain will allow.

References


