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CASE REPORT

Osgood-Schlatter Disease in Adulthood: A Case Report

Marie Adrienne Zerafa Simler, Kirill Micallef Stafrace

Osgood-Schlatter disease is a common cause of anterior knee pain in the athletic adolescent population. It commonly presents with tenderness at the patellar tendon insertion site at the tibial tuberosity, usually caused by microavulsions or existing anatomical variations at this site. Its severity is dictated by the degree of repetitive strain activities such as jumping and sprinting. Although well described in the adolescent and the young athletic population, this disease is considerably rare in adults and consequently an unusual problem faced by physicians and surgeons alike. This case report explores an unusual case of Osgood-Schlatter disease in a 29-year-old male, in which the symptomatology, pathophysiology and images are used to investigate the case. Finally, different management options are explored with the aim of aiding medical practitioners treating such patients.

Several months following attempts at failed conservative management, this gentleman was referred to the Sports Clinic at the Orthopaedic Outpatients. On examination, his left knee was swollen with a minimal effusion and an area of erythema and deformity marking the proximal anterior aspect of the tibia over the tibial tuberosity. The knee was otherwise stable for its anatomical components. The patient had decreased range of motion secondary to severe pain on flexion of the knee to more than ninety degrees. The pain was specific to the area of erythema and deformity over the left tibial tuberosity.

Laboratory investigations revealed that relevant blood analysis were within normal parameters for pathologies such as infection, gout and inflammatory musculoskeletal and rheumatological disease. Plain radiographs of both knees revealed extensive calcification and soft tissue swelling over the insertion of the patellar tendon into the tibial tuberosity (**Figure 1**). An MRI was more sensitive and specific to these radiological findings and demonstrated further soft-tissue swelling and bone marrow oedema. Infrapatellar bursitis and severe thickening and calcification of the distal patellar tendon at its insertion into the tibial tuberosity was also noted (**Figure 2**).

Finally, an ultrasound once again indicated ossified cartilage with surrounding oedema of the surrounding soft tissues and thickening of the patellar tendon. Doppler investigation of the ossified component of the patellar tendon showed neovascularization around the significant ossification at the insertion of the patellar tendon into the tibial tuberosity.

DISCUSSION

Osgood-Schlatter disease was first described in the early 1900s when the two physicians Osgood and Schlatter reported an increased incidence of adolescents complaining of pain over the tibial tuberosity in their lower limbs on increased physical exercise. This pathological process, also known as tibial osteochondrosis, has in fact become one of the most common traction apophysitis and overuse injury in the knee of adolescent athletes.[1]

Although well described, the origin of this condition and its pathological process remains very controversial. Its pathophysiology involves loss of continuity of the patellar tendon-cartilage-bone junction of the developing tibial tuberosity through an inflammatory process secondary to chronic tendinitis and calcification. The most accepted theory for this process is repetitive knee extension mechanism contraction causing microavulsions at the insertion of the patellar tendon into the tibial tuberosity.[2,3] Anatomical variants also play a role as they may predispose to increased tension over the patellar tendon. The most significant variant noted was the position of the tibial tuberosity as this dictated the tension and extension forces over the patellar tendon during quadriceps contraction.[4]

Osgood-Schlatter disease has been explored in great detail in developing adolescents and children between eight and fifteen years of age. It is known to resolve once closure of the epiphyseal growth plates has occurred. Nonetheless, although rare, it is known to occasionally persist into adulthood in active individuals as in the case demonstrated in this report.[5] In fact, 10% of children and adolescents who develop Osgood-Schlatter disease continue to experience symptoms into adulthood. This is a rare but recognised condition in young adults which is an ongoing orthopaedics issue faced by physicians and surgeons alike.[5]

The treatment offered to both adults and adolescents is initially conservative. It involves restriction or adjustment of aerobic activities causing excess force over the patellar tendon to exercises such as stretching, swimming and cycling. These activities increase hamstring and quadriceps strength and flexibility and are known to accelerate recovery.[6,7] Protective pads, ice and elevation are also

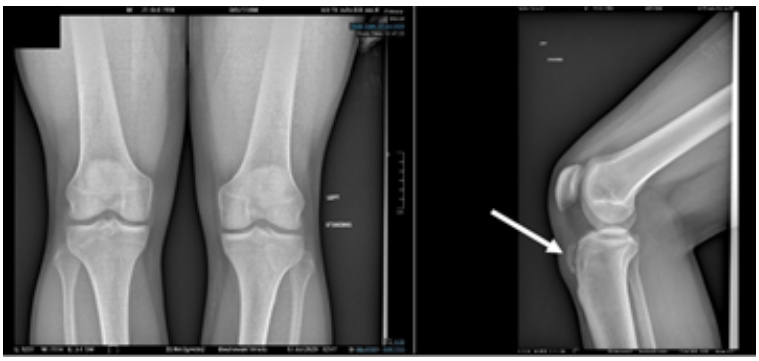

Figure 1 *X-Ray of knee*

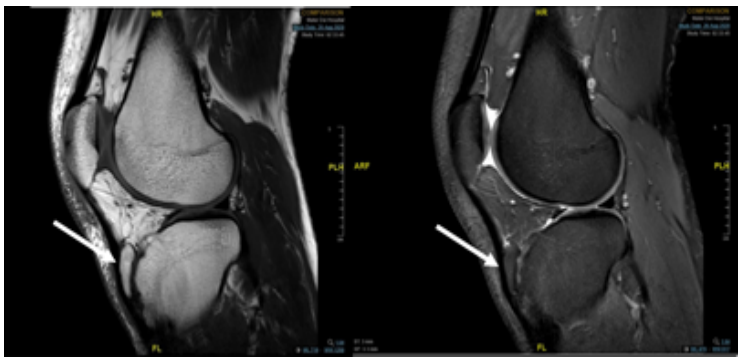

Figure 2 *MRI knee*

part of the usually prescribed conservative management. Such a regime is frequently accompanied by a short prescription of nonsteroidal anti-inflammatory drugs for bouts of increased pain.[6,7] Such management has reported good response with only refractory cases requiring further intervention.[7] Further intervention such as external shockwave therapy for the duration of over a month have proved to be successful when conservative management alone fails. External shockwave therapy is effective in reducing pain, enhancing patient-reported functional recovery, and improving performance-based functional outcomes in adults with Osgood-Schlatter disease.[8]

Corticosteroid injection into the patellar tendon is not recommended as a treatment for Osgood-Schlatter disease. This is mostly secondary to its high incidence of subcutaneous atrophy and rupture of the patellar tendon. Other injections such as hyperosmolar dextrose and autologous conditioned plasma are also available, however their efficacy alone is limited and are used as adjuncts to the conservative management options mentioned above.[9,10] Therefore, when all conservative management options fail, operative treatment is considered. Multiple procedures have been documented for the treatment of this disease, especially in adults. These include drilling of the tubercle, removal of loose fragments, autogenous bone peg insertion through the tubercle, tibial tuberosity excision and sequestration.[11]

Less invasive modalities such as arthroscopic surgery and bursoscopic excision have also shown promising results. Arthroscopic surgery was noted to be less invasive and spared the patellar tendon from incision and surgical trauma. This allegedly saves the patient from pain on kneeling unlike more invasive interventions.[12] Bursoscopic excision is even less invasive as such a procedure does not violate the infrapatellar fat pad and avoids meniscal and ligamentous iatrogenic injury. However, this approach does have a limited working space which inhibits adequate reduction of the described ossifications and abnormalities.[13,14]

CONCLUSION

In conclusion, this report notes that Osgood-Schlatter disease is a common pathology in children and adolescents. It resolves as the adolescent develops into adulthood, but may persist and cause ongoing unwanted symptoms as Osgood-Schlatter disease of the adult. As a result, adults who do not respond to conservative management may need to opt for surgical intervention for cure of this disease.

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