Osgood-Schlatter Syndrome

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- In 1903 Osgood and Schlatter: Traumatically induced apophyseal injury to the tibial tubercle in adolescents.
- In boys between 10 and 15 years of age and in girls between 8 and 13 years of age and frequently is bilateral.
- Boys are affected more often than girls. Bilateral involvement is found in 20 to 30% of patients.
- Worsened with activities such as running or jumping
- Show an enlarged, fragmented, and irregular tibial tuberosity
- In rare instances, conservative therapy is insufficient and a 2- to 3-week trial of crutches is required.
- Complete recovery without residual pain or weakness is the rule.
- However, if the patient reaches skeletal maturity and is still symptomatic, consideration should be given to surgical removal of the tibial tubercle or the bony ossicle overlying the tibial tubercle

Natural History of OGSS

70% No limitation of activity

60% still could not kneel without discomfort.

2 groups of patients were identified: those who presented with radiologic fragmentation and had either separated ossicles and those who presented with soft tissue swelling without radiologic fragmentation and were asymptomatic [Journal of Pediatric Orthopaedics. 10(1):65-68]

The rate of occurrence of surgical treatment of unresolved Osgood-Schlatter disease
In the great majority of young adults, the functional outcome of surgical treatment of unresolved Osgood-Schlatter disease is excellent or good, the residual pain intensity is low, and postoperative complications or subsequent reoperations are rare. [J Bone Joint Surg Am. 2010 Sep;92 Suppl 1 Pt 2:258-64.]

Osgood Schlatter syndrome. Curr Opin Pediatr. 2007 Feb;19(1):44-50.

- Osgood Schlatter syndrome is a traction apophysitis of the tibial tubercle due to repetitive strain on the secondary ossification center of the tibial tuberosity.
- Radiographic changes include irregularity of apophysis with separation from the tibial tuberosity in early stages and fragmentation in the later stages.
- About 90% of patients respond well to nonoperative treatment that includes rest, icing, activity modification and rehabilitation exercises.
- In rare cases surgical excision of the ossicle and/or free cartilaginous material may give good results in skeletally mature patients, who remain symptomatic despite conservative measures.
- **In 90%:** a self-limiting course, and usually complete recovery is expected with closure of the tibial growth plate.

SYNOVIAL PLICAE

- During fetal development, the knee is separated into three compartments by synovial membranes. At about 4 to 5 months of development, the partitions resolve to form a single cavity. Incomplete or partial resorption results in incomplete synovial shelves or plicae.
- The synovial plicae of the knee are commonly described as suprapatellar, mediopatellar, infrapatellar, and lateral.
- Medial patellar plicae have been reported in 5% to 70% of individuals and suprapatellar plicae in approximately 17%. Infrapatellar plicae usually are reported to be the most common.
- In 168 arthroscopic knee examinations of patients with anterior knee pain, however, Calpur et al. found 168 mediopatellar plicae, 16 (9.5%) infrapatellar plicae, eight (4.7%) suprapatellar plicae, and 30 (18%) lateral plicae.
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- Any condition that produces chronic irritation, trauma, or scarring may result in thickening of the plicae and the production of signs and symptoms suggesting internal derangement of the knee. Poorly placed medial arthrotomy incisions could damage the medial plica sufficiently to cause scarring and subsequent symptoms. Bumping the flexed knee on a hard object may traumatize a plica and inflame and thicken it sufficiently to cause symptoms
- With the patient seated on the edge of the examining table and the leg dangling, palpation along the medial side of the patella as the patient flexes and extends the knee often localizes the abnormal plica as it flips over the medial femoral condyle and may produce a momentary “stuttering” of the patella.
- Abnormal plica is diagnosed best by arthroscopic examination of the knee.

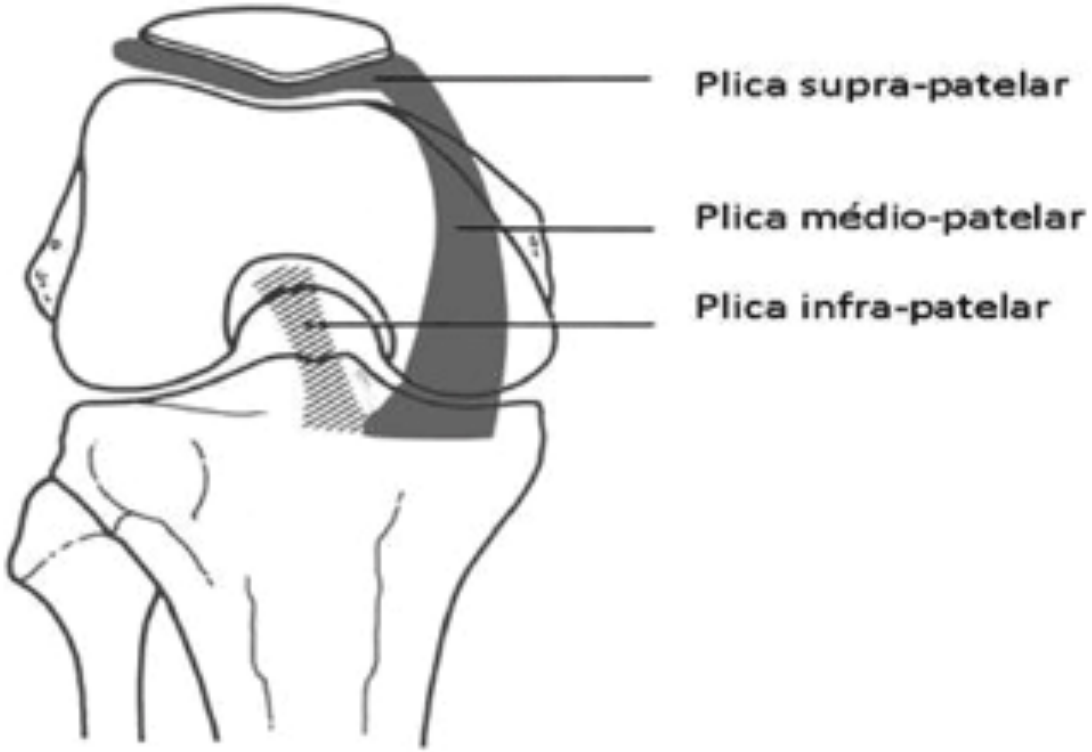


Figure 1 – Diagram of the three types of synovial plicae

CRPS

Management of complex regional pain syndrome

- The only prospective study examining this in some detail reported a prevalence of 21% at one, 13% at three and 12.7% at six months after operation.
- Psychological predictors such as pain, anxiety and depression were also assessed.
- Recognition of complex regional pain syndrome relies on the identification of diffuse skin, joint and muscle pain, sensory disturbances and neuropathic pain. Trophic changes and motor disturbances such as weakness, spasm, and tremor may also ensue.
- Unlike local mechanical causes of a painful TKR, signs and symptoms spread far beyond the knee and the quality of pain at rest should alert the clinician. Patients often complain of seemingly bizarre symptoms and mislocalisation of stimuli with difficulty moving a mechanically sound TKR.
- New insights into neural pathways, facilitated by advances in neuro-imaging, have focused attention on aetiologies dependent on central sensory motor processing and its integration with peripheral and sympathetic mechanisms.

- In general, sympathetic blocks are not effective and should therefore be reserved for the very few patients who present with clinical symptoms dominated by sympatheticallymediated
- pain.
- The prognosis in complex regional pain syndrome is variable, and 50% of patients develop chronic symptoms.

- It is imperative that complex regional pain syndrome is recognised early and that multidisciplinary teams which include pain specialists, rheumatologists, physical and occupational therapists and psychologists experienced in managing this condition, become involved with these patients once suspicion has been raised.

Instability

- Because of the abnormal stresses placed on the knee and the soft-tissue envelope. It is important to ascertain the true nature of instability because those with quadriceps weakness, flexion contracture or patellofemoral maltracking and

- Instability in the early post-operative period may be due to uncorrected pre-operative ligamentous imbalance, improper intra-operative ligamentous balancing, mismatch of the flexion-extension gap, iatrogenic injury to the ligaments during surgery or pre-existing neuromuscular pathology.

- However, late instability can secondary to malalignment leading to progressive stretching of the ligaments, occur , wear of polyethylene, loosening of the component and collapse.

- Deformities of the hip or foot and any extra-articular deformity should be identified and corrected. Instability secondary to recurvatum is a complex problem to address, particularly if the underlying cause is quadriceps weakness or paralysis.
- The use of rotating-hinge knee replacements with hyperextension stops is an option

Stiffness

- Vary widely between 3% and 60%.

- 1. associated with a poor pre-operative range of movement,
- 2. previous knee surgery,
- 3. infection,
- 4. technical errors (component malpositioning, oversizing of components, ‘overstuffing’ of the patellofemoral joint, ligament imbalancing, elevation of the joint line),
- 5. complex regional pain syndrome, or severe post-operative pain preventing appropriate rehabilitation.
- Post-operative control of pain after TKR is of paramount importance. Uncontrolled pain often leads to a reduced range of movement and adhesions in the suprapatellar pouch. It is suggested that with proper control of pain, the incidence of manipulation for stiffness may be decreased from 9% to less than 1%

- The options for treatment for the stiff knee include intense physiotherapy, manipulation of the knee under anaesthesia (MUA), arthroscopic or open arthrolysis and finally a revision procedure.

- However, Esler et al62 suggested that MUA up to four months after TKR can result in a sustained improvement in flexion. In our opinion the key indications for a MUA is a failure to regain the pre-operative range of movement at six weeks post-operatively

- Arthroscopic release may have a role at three to six months after TKR in a moderately stiff knee which is otherwise well-aligned and well-balanced in a well-motivated patient. Associated release of the posterior cruciate ligament (PCL) in particular can be successful in a stiff knee with a cruciate-retaining TKR. Arthroscopic release in very stiff knees runs the risk of breakage of the arthroscopic instruments and therefore in such cases open arthrolysis may be a better option.

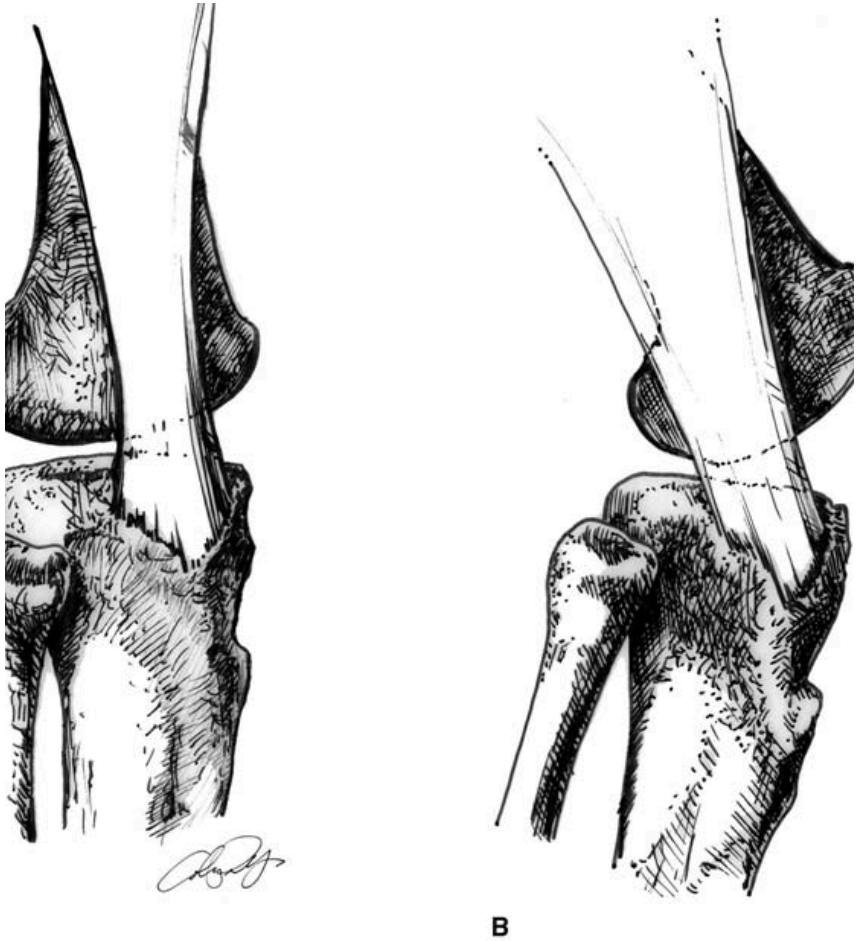
ITB syndrome JAAOS 2011, Vol 19, No 12:729

- Iliotibial band syndrome is a common overuse injury typically seen
- in runners, cyclists, and military recruits. [10%]

- Affected patients report lateral knee pain associated with repetitive motion activities.

- Several etiologies have been proposed for iliotibial band syndrome,
- including friction of the iliotibial band against the lateral femoral
- epicondyle, compression of the fat and connective tissue deep to
- the iliotibial band, and chronic inflammation of the iliotibial band
- bursa.

- The mainstay of treatment is nonsurgical; however, in persistent or chronic cases, surgical management is indicated.



- the function of the iliotibial band (ITB) depends on the position of the knee.
- **A,** With the knee in extension, the ITB lies anterior to the lateral femoral epicondyle and serves as an active knee
- extensor.
- **B,** At 20° to 30° of flexion, the ITB assumes a posterior position relative to the lateral femoral epicondyle and becomes an active knee flexor

- In the classic description of ITBS, repetitive knee flexion and extension cause a friction-type syndrome
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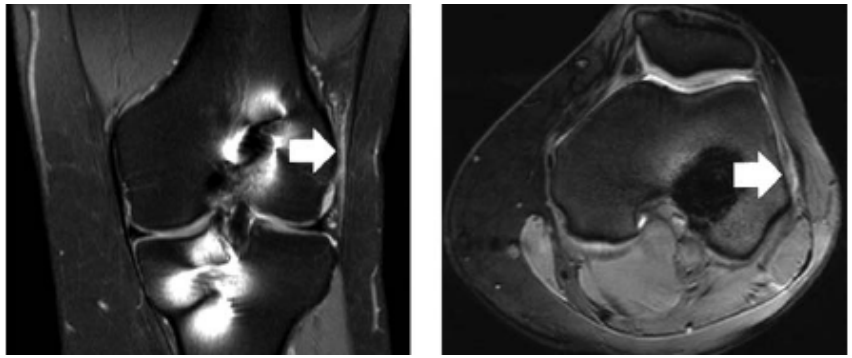
- High incidence of symptomatic ITBS in distance runners, Orchard et al19 proposed that the condition arises from the ITB sliding through an “impingement zone” in the knee. This impingement zone occurs near 30° of flexion, approximating the angle of the knee at the time of foot strike or the early stance phase of running, which may explain why persons with ITBS experience the **most pain immediately following foot strike.**

- Runners who run **uphill, downhill, and at slower paces tend to decrease their angle** of knee flexion at foot strike, thereby spending more time in the impingement zone and, thus, experiencing worse ITBS symptoms.

- Histologic examination of the tissue between the ITB and the lateral aspect of the femur identified highly vascularized and innervated adipose tissue, leading Fairclough et al15,26 to conclude that ITBS is more likely a “fascia lata compression syndrome” than a repetitive
- friction issue.

- The Noble test is performed with the patient lying supine; beginning with the affected knee flexed at 90°, the leg is extended with direct pressure over the lateral femoral epicondyle, with reproducible pain near 30° of knee flexion.

- MRI: a high-intensity signal, representing a fluid-filled collection, over the lateral epicondyle deep to the ITB, as well as a marked thickening of the distal ITB



- NSAID
- Rest
- Correct training
- Specific training exercises
- Education
- ITB z lengthening

Arthroscopy complications *Am J Sports Med* 2012 40: 1402

- 314,578 patients
- 0.4% developed Pyogenic arthritis,
- 0.8% DVT
- 0.3% developed a PE.
- Overall, men had a statistically significant higher relative risk of infection and
- women had a statistically significant higher relative risk of DVT and PE.
- Postoperative complications, including PA, DVTs, and PEs, are rare in patients 65 years old.
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