Sinding-Larsen Johansson Disease

Sinding-Larsen Johansson disease, first described in 1921, is one of the osteochondroses. It can be a cause of anterior knee pain. It is usually seen in boys aged 12-14; in girls it occurs less often and at a younger age. Pain is usually related to activity and is typically over the inferior pole of the patella. There is a separate article giving an overview of the Osteochondroses.

Pathophysiology

Osteochondroses all involve a defect in ossification. The mechanism in Sinding-Larsen Johansson disease is thought to be persistent repetitive traction by the patella tendon on the lower pole of the patella.\(^1\) It is essentially a chronic stress injury with overuse of the patella-patellar tendon junction. Similar symptoms have been reported to occur proximally, at the junction of the quadriceps tendon and the patella.\(^2\) At the distal end of the patellar tendon, Osgood-Schlatter disease may produce similar exercise-related pain.

Presentation

- Activity-related anterior knee pain.
- On examination there is tenderness at the inferior pole of the patella.

Differential diagnosis

- Avulsion fractures of the patella.
- Stress fracture of the patella.
- Bipartite patella (type I).
- Osgood-Schlatter disease.
- Jumper’s knee is considered in young adults when tendinosis occurs at the tendon-bone interface at the lower pole of the patella after the skeleton has matured; Sinding-Larsen Johansson disease is the adolescent equivalent of jumper’s knee.\(^3\)

Investigations

- Knee X-ray: may be normal but can show calcification in the patellar tendon at the lower pole of the patella. This heals leaving an elongation of the patella that is often found in footballers.\(^3\)
- Ultrasound is the examination of choice when imaging is required.\(^4\) It can depict all manifestations of the syndrome, including swelling of the cartilage, tendon thickening, fragmentation of the lower pole of the patella and bursitis.\(^1\)
- MRI scan may show bone marrow oedema in the patella.\(^5\)

Management

- In the acute painful phase, therapy is mainly rest and reducing activity to a level at which symptoms become manageable. This usually means abstaining from sports activity for at least 1–2 months, particularly football and running. Swimming and other sports which exert less pressure on the quadriceps femoris muscle may be tolerated. Physiotherapy, including quadriceps strengthening exercises, may be needed.
- Surgery is not usually needed.

Prognosis

- As the skeleton matures, symptoms usually improve and, in this way, it is regarded as a self-limiting process. However, symptoms may be present for at least a year.
- A case report has presented a case of a pathological patellar fracture through the site of an old Sinding-Larsen Johansson lesion.\(^6\)

Further reading & references
