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**Dates:** Received: 03 December, 2016; Accepted: 27  
December, 2016; Published: 30 December, 2016

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## Case Report

The patient was a 26-year-old man who was referred to a physical therapist by an orthopedic surgeon for the management of recurrent bilateral patellar dislocations. The patient reported a high rate of dislocation events in the right knee and the last episode, one month before, involved both the patellas.

The patient was a mechanic and the high activity level at the work place involved especially kneel positions.

At the initial evaluation, the patient complained about moderate pain on the anterior surface of the right knee and fear of new events of dislocation.

Visual inspection revealed a bilateral valgus knee (Figure 1) and, during walking, an inability to bear weight on the right leg. Assessment of the ankle region reveal a pronated position of both ankles. No other restriction or limitation were noted.

The Q-angle was 21° in the right limb and 20° in the left limb. Abnormal end-feels and pain were noted during passive flexion of the right knee. Patellar apprehension test was found positive. An abnormal position of both patellas was noted during knee palpation.

Given the patient's history and the physical examination findings, medical imaging was requested. Sagittal radiographs of the knees revealed bilateral patella alta with an Insall-Salvati ratio of 1.63 for the right knee (Figure 2A) and of 1.52 for the left knee (Figure 2B). MRI investigation showed an Insall-Salvati ratio of 1.99 for the right knee (Figure 3A) and of 1.65 for the left knee (Figure 3B). Insall-Salvati ratio is a frequently used radiological method to evaluate patellar position. It is computed by tracing, on a sagittal x-ray or MRI, the patellar length (PL), greatest pole to pole length of the patella, and the

## Case Report

# Patella Alta in a Patient with Recurrent Patellar Dislocation

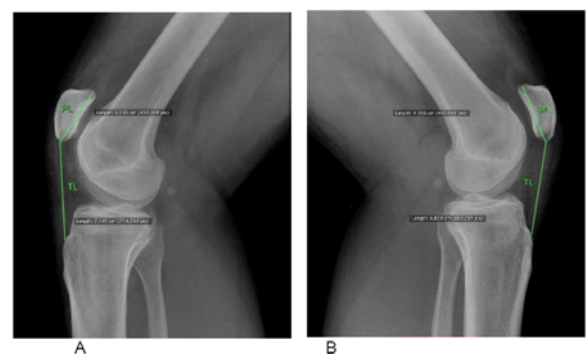
patellar tendon length (TL) from the lower pole of the patella to the insertion on the tibia.

Patella alta is radiologically defined by an Insall-Salvati ratio greater than 1.2. Although a recent MRI investigation proposed a normal range between 0.74 and 1.50 [1].

Patella alta has been shown to be a strong predictor of recurrent instability in patients with episodic patellar dislocation following conservative treatment [2].



**Figure 1:** Visual inspection of the patient in a weight bearing posture.



**Figure 2:** (A) Sagittal radiograph of the right knee with an Insall-Salvati ratio (TL/PL) of 1.63. (B) Sagittal radiograph of the left knee with an Insall-Salvati ratio (TL/PL) of 1.52. Insall-Salvati ratio was computed by tracing the patellar length (PL), greatest pole to pole length of the patella, and the patellar tendon length (TL) from the lower pole of the patella to the insertion on the tibia.



**Figure 3:** (A) Sagittal T1-weighted magnetic resonance image (MRI) of the right knee with an Insall-Salvati ratio (TL/PL) of 1.99. (B) Sagittal T1-weighted magnetic resonance image (MRI) of the left knee with an Insall-Salvati ratio (TL/PL) of 1.65.

Patella alta has also been associated with chondromalacia on the articular surface of the patella [3] and anterior knee pain [4]. In addition a prevalence of patella alta was seen in patients with patellar osteoarthritis [5].

Diagnosis and prognosis has been discussed with the patient. Conservative treatment including strengthening of the quadriceps, patella mobilization and taping has been planned.

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