

Abstract

Background: 20 year-old, 165cm, 65kg, female, NAIA golf athlete presented with insidious onset of pain in her left lower extremity particularly localized at the medial aspect of the knee and superior aspect of the patella. After initial evaluation, athlete was treated for suspected pes anserine bursitis. The following season, athlete was re-evaluated after complaining of persistent pain in left knee present during athletic activities with no mechanism of injury. The evaluation was unremarkable with no obvious problems. Her AROM was WNL, 4/5 knee flexion and extension, no palpable tenderness (-) Patellar tap, (-) Lachman's, (-) Valgus and Varus stress tests, (-) Anterior Drawer, (-) Posterior drawer, (-) Apply's distraction and compression, (-) Bounce home, (-) McMurrays, (-) Slocum, (-) Clarke's sign, (-) Patellar grind, (-) Houghton's plica, (-) Wilson's sign, and (-) Noble compression. (+) Duck walk for pain. One month after last evaluation, athlete reported to ATC unable to weight bear due to immediate pain following competition. Athlete noted that pain was felt as she went to swing the club. Follow-up examination was still unremarkable except (+) palpable tenderness along medial joint line. Perplexed, ATC then referred athlete to team orthopedic physician for an MRI. **Differential Diagnosis:** Medial meniscal tear, pes anserine bursitis, patellofemoral pain syndrome, lateral patella subluxation. MRI findings revealed a partial tear of medial patellar retinaculum, mild lateral subluxation of patella, chondromalacia patellae, and baker's cyst rupture. Athlete decided to obtain a second opinion and MRI with another Orthopedic before surgical confirmation. The findings disclosed that athlete "lacked" a femoral groove bilaterally, which is an abnormality and lead to her diagnosed trochlear dysplasia. **Treatment:** The surgical procedure included a left knee arthroscopy with debridement and chondroplasty performed by university team physician. **Uniqueness:** Based on the evaluations performed, there were no significant finding of diagnosis. There was no trauma related mechanism to athlete's left knee. However, it is important to consider the athlete is left hand dominant, thus increasing the torque at the left knee joint during the mechanical golf swing which may have elicited symptoms. Trochlear dysplasia has been identified as a predisposition to patellar instability, patellar subluxation and dislocation, and patellofemoral osteoarthritis. **Conclusion:** The athlete is to refrain from excessive loaded knee flexion exercise for life due to diagnosis. This case highlighted the diagnosis and treatment of the hidden trochlear dysplasia. This case provided a learning opportunity for the athletic training community to be aware of probable cause of knee instability.

Purpose

The case demonstrated the importance of developmental structural knee deformities that affect athletic performance among the Athletic Training profession. The common structural issues that the profession is well aware of which affect knee stability are genu recurvatum, valgus, valgum, patella alta, baja, as well as foot posture. Trochlear dysplasia should be considered among the athletic population.

Background

20 year-old, 165cm, 65kg, female, NAIA golf athlete presented with insidious onset of pain in her left knee particularly localized at the medial aspect of the knee and superior aspect of the patella. After initial evaluation, the AT treated athlete conservatively for suspected pes anserine tendinopathy by controlling pain and ensuring maintenance of strength of the surrounding musculature of the knee. Athlete was able to maintain participation with limited complaints. The following season, athlete was re-evaluated after complaints of persistent pain present during athletic activities with no mechanism of injury. The evaluation was unremarkable.

Differential Diagnoses

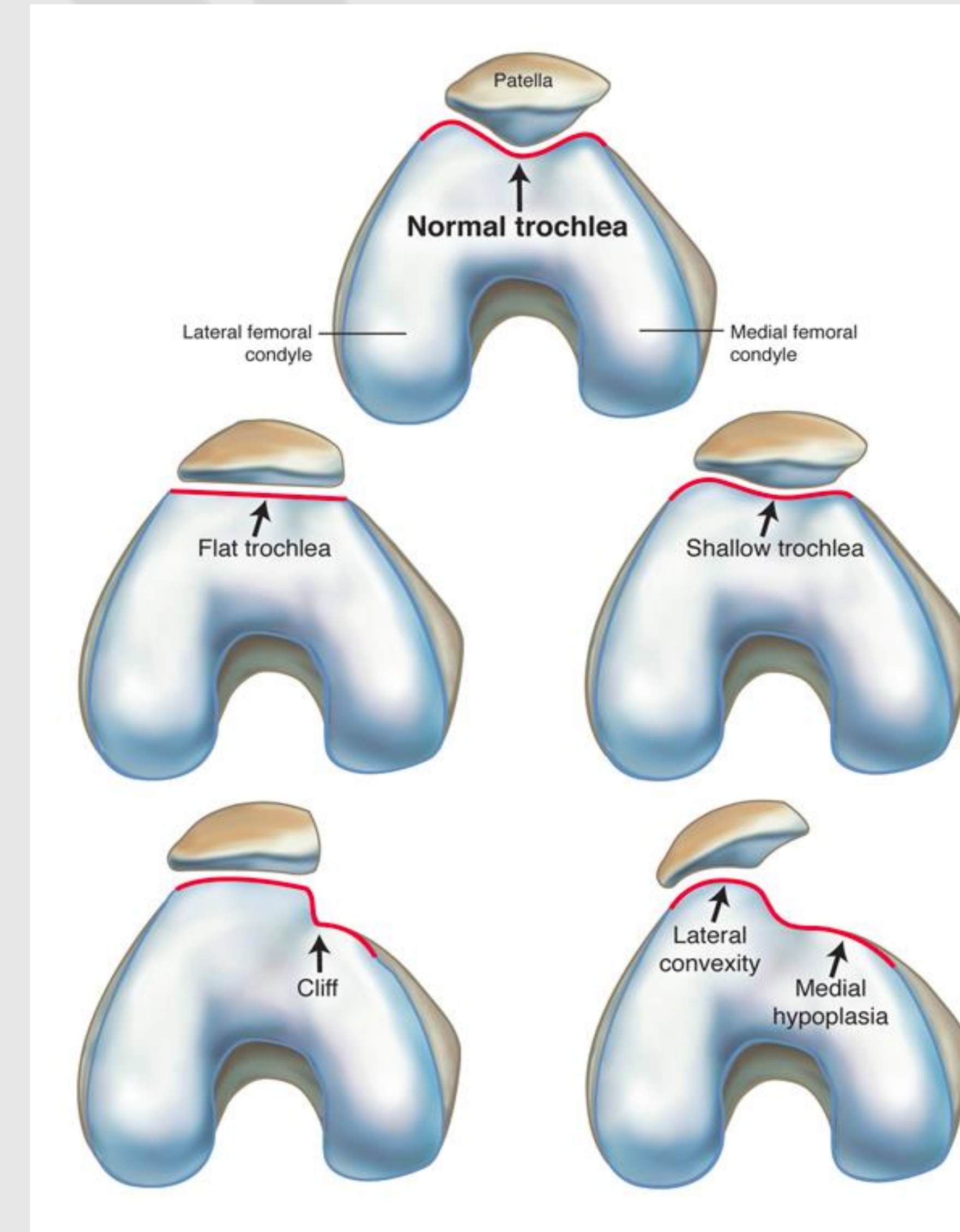
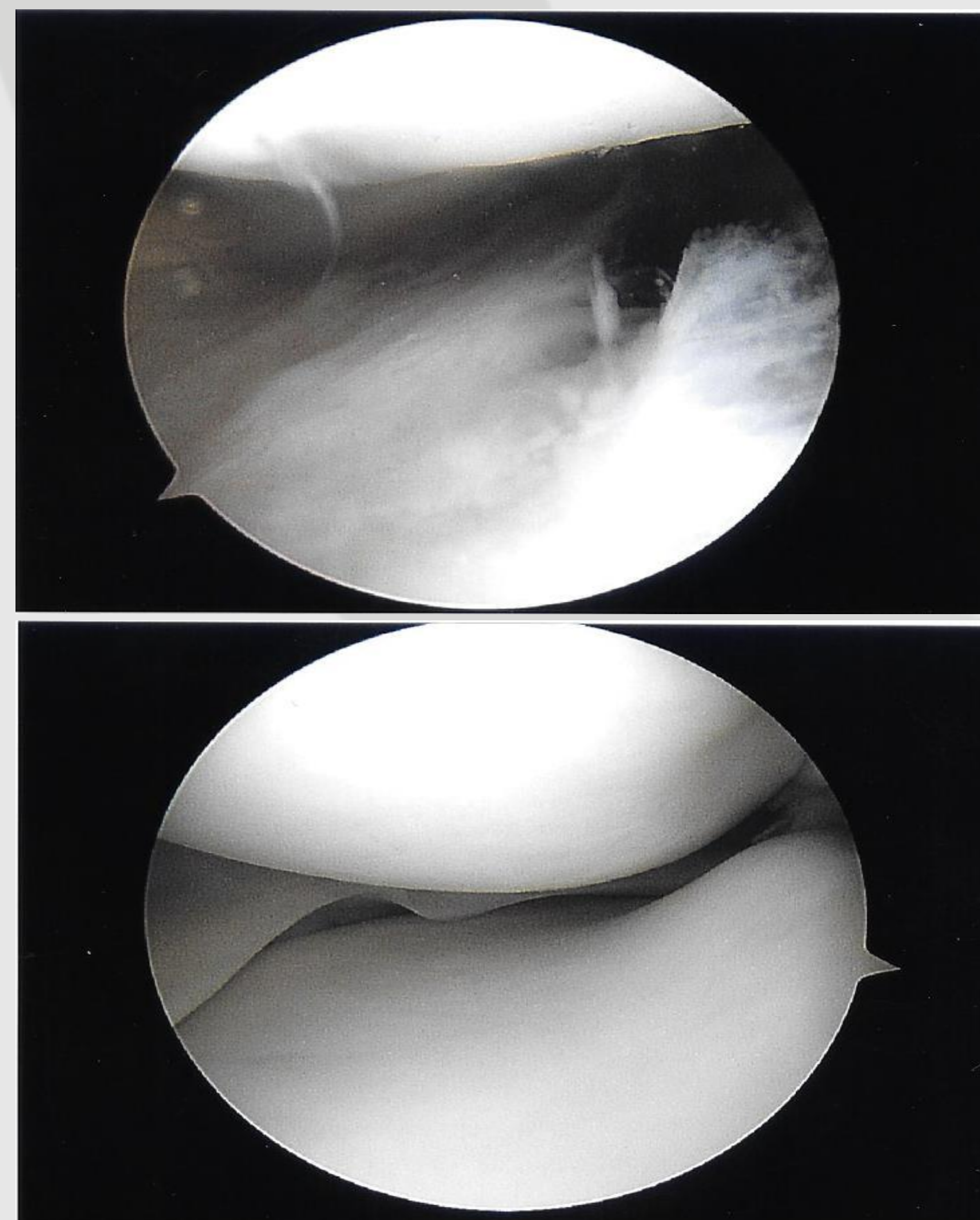
- Medial Meniscal tear
- Pes anserine bursitis/tendinopathy
- Patellofemoral pain syndrome
- Lateral patella subluxation

Clinical Evaluation

AROM was WNL, no palpable tenderness (-) Patellar tap, (-) Lachman's, (-) Valgus and Varus stress tests, (-) Anterior Drawer, (-) Posterior drawer, (-) Apply's distraction and compression, (-) Bounce home, (-) McMurrays, (-) Slocum, (-) Clarke's sign, (-) Patellar grind, (-) Houghton's plica, (-) Wilson's sign, and (-) Noble compression. (+) Duck Walk. MMT left knee extension and flexion was 4/5. ATC continued with conservative treatment as athlete continued play with modified activity.

One month later, athlete came to AT unable to weight bear with (+) palpable tenderness along the medial joint line following a competition. Perplexed, AT then referred athlete to team orthopedic surgeon the following day, who scheduled an MRI.

MRI findings revealed: partial tear of medial patellar retinaculum, mild lateral subluxation of patella, chondromalacia patellae, and baker's cyst rupture.



Treatment

Prior to surgery, athlete decided to obtain a second opinion and MRI with another orthopedic. The findings disclosed that athlete lacked a femoral groove bilaterally, which is known as femoral trochlear dysplasia. After diagnosis, athlete decided to follow through with surgery with hopes of return to play. The procedure included a left knee arthroscopy with debridement and chondroplasty. Following surgery, the post-operative treatment consisted of pain and inflammation control with progressive therapeutic exercises. Phase I included exercises to increase knee range of motion and improve strength of quadriceps and glute medius activation. Phase II focused on increasing strength/activation of hip internal and external rotators, flexors, extensors, and abductors as well with trunk stabilizers. Additionally, proprioceptive training was used to increase muscular stabilization to develop joint position sense at the patellofemoral joint. Phase III included functional training that are specific to sport with additional eccentric muscular control techniques to ensure proper sustained mechanics of co-contractors and endurance at the patellofemoral joint. To conclude on the athlete's treatment, she had been reintroduced to golf however began to experience post-surgical edema and was shut down from activity.

Implications

Based on all clinical presentation and evaluations, there was no outlying mechanism to athlete's left knee. It is important to consider however, the athlete left hand dominance increased the torque at the left knee joint during the biomechanical swing which may have elicited initial pain. According to Lewallen, McIntosh, Dahm (2013), who studied the risk factors associated with development of recurrent patellar dislocation in a pediatric and adolescent population, recurrent instability was significantly correlated with trochlear dysplasia. Patients with trochlear dysplasia had a recurrence rate of 69%.

Conclusion

This case highlighted the diagnosis and treatment of trochlear dysplasia. The athlete was restricted from participation for the rest of the season for the bilateral femoral dysplasia. Lubricant injections are discussed to be received next year to decrease friction. The athlete is to refrain from excessive loaded knee flexion exercise for life due to diagnosis. This case provides a learning opportunity for the Athletic Training community to be aware of a probable cause of knee instability and pain after conservative treatment fails to relieve symptoms.

References

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