

Patellar Tendinopathy

See also Osgood Schlatter Dz

Background

1. Tendonitis of tendon connection from patella to tibia
2. "Jumper's knee"
 - Results from excessive forces through extensor mechanism of anterior knee
 - Caused by sprinting, jumping, sudden acceleration and deceleration
 - Osgood-Schlatter disease in adolescents
 - Patellar tendinitis combined with inflammation of apophysis of tibial tubercle

Pathophysiology

1. Probably degenerative component from microscopic tears of tendon
2. Most common in basketball, volleyball, soccer, dance
 - 40-50% of high level basketball players
 - Risk factors include sports with excessive sprinting, jumping, sudden acceleration and deceleration

Diagnostics

1. History
 - Anterior knee pain
 - Insidious onset
 - Associated with exercise-especially jumping/landing
 - Symptoms worse with sitting, squatting, kneeling, climbing stairs
2. Physical exam
 - Point tenderness at superior pole of patellar tendon
 - Pain with hyperextension of knee
 - **Wet leather sign**
 - When palpated examiner notes crepitus and sponginess like wet leather
3. Diagnostic testing
 - Clinical assessment
 - Imaging typically not necessary
 - Clinical diagnostic findings:
 - Pain over patellar tendon
 - Palpation reveals tenderness/pain over superior pole of patellar tendon
 - Pain with resisted quadriceps extension

Differential Diagnosis

1. Patellofemoral pain syndrome
2. Patellar subluxation or dislocation
3. Osgood Schlatter disease in athletes
4. Prepatellar bursitis

Therapeutics

1. Acute treatment
 - Relative rest, limit jumping, running on stairs or hills
 - Ice, especially after activity
 - NSAIDs for short term symptom relief (SOR:B)⁷

2. Further management

- Exercise program
 - Stretch and strengthen quadriceps and hamstrings
 - Typically have poor ankle dorsiflexion so stretches indicated for ankle/Achilles
- Focus on eccentric strengthening
 - Decreases pain
 - Prevents further symptoms (SOR:B)⁷
- Physical therapy
- Modalities
 - Ice
 - Ultrasound is of uncertain benefit (SOR:B)^{7,8}
 - Deep tissue transverse massage may reduce pain⁷
 - Corticosteroid iontophoresis is effective for treatment of pain and improved function⁷
 - Extracorporeal Shockwave therapy improves symptoms (SOR:B)^{6,7}
- Use of infrapatellar straps or patellar tendon taping may help decrease forces across patella during activity and relieve symptoms
- Steroid and local anesthetic injections not commonly used
 - Steroid injections can be associated with degenerative changes in tendon
 - May predispose to tendon rupture
 - Tendon rupture very serious complication
 - Requires reconstructive surgery
 - Often poor functional outcome

Prevention

1. Evaluate body mechanics/jumping technique that predispose to injury
 - Players should land on their forefoot (front part of foot) with hips and knees flexed
 - Correct risk factors
 - No repeated jumping drills without proper body mechanics
 - No rapid increase in amount or intensity of jumping
 - Correct strength or anatomical imbalance caused by prior injuries
2. Exercise and conditioning programs
 - Preseason conditioning program should include:
 - Aerobic fitness
 - Lower body strength and flexibility training
 - Focus on maximizing quadriceps and hamstring muscle strength/ flexibility to prevent patellar injury
 - Gradual increase in repetitive eccentric quadriceps contraction
 - Can prepare the tendon to withstand repetitive loading during competition
 - Proper pre and post game warm ups may help reduce injury
3. Playing surface should be appropriate for sport
4. Proper footwear should be worn

Return to play

1. With early treatment

- May be 8-12 weeks before an athlete fully able to resume physical activity
- 2. If untreated or patellar tendon is re-injured
 - Healing time may be 4-6 months or longer
 - Due to formation of scar tissue
- 3. Rehabilitation program should be designed by an athletic trainer or physical therapist to:
 - Decrease symptoms
 - Improve flexibility
 - Increase strength

Patient Education

1. Sports Medicine Advisor 2002.1: Patellar Tendonitis (Jumper's Knee)
 - http://www.med.umich.edu/1libr/sma/sma_jumpersk_sma.htm

References

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(Info retriever – Info poem review – SOR 2b- ESWT improves chronic patella tendonitis)
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