Thoracolumbar Spine Conditions: Treatment and Return to Play

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Thoracolumbar Spine

- Lifetime incidence of back pain 60-90%
- 26% will report LBP in the last 3 months
- 25% of all missed work days attributed to back pain
- Direct medical costs > \$100b annually



Thoracolumbar Spine Conditions

- Disc Degeneration
- Disc Herniation
- Spinal Stenosis
- Spondylolysis
- Spondylolisthesis



Thoracolumbar Spine



History

- Proper evaluation requires a thorough history
 - o Onset
 - o Nature
 - Location
 - Relieving/Exacerbating Factors

• Red Flags

- Fever/chills
- Weight loss
- Immunosuppression/cancer history
- IV Drug use
- Bowel/bladder dysfunction



Physical Exam

• Gait

• Look for symmetry, coordination, strength

Palpation

• Paraspinals, SIJ, Facets, Greater trochanter

• Range of Motion

- Extension, flexion, rotation, side bending
 - Flexion limited in discogenic pain
 - Extension limited in facet mediated pain
- Sensorimotor
- Reflexes
- Nerve root tension



Physical Exam

Common physical exam findings

Level	Motor	Sensory	Reflex
L1	None	Inguinal crease	None
L2	Hip flexion	Anterior upper/inner thigh	None
L3	Hip flexion/adduction	Anterior/inner thigh	None
L4	Knee Extension	Lateral thigh, anterior knee, medial leg	Patellar
L5	Ankle/toe dorsiflexion, hip abduction	Lateral leg, dorsum of foot	None
S1	Ankle plantarflexion, foot eversion	Posterior leg, lateral foot	Achilles
S2	Toe plantarflexion	Plantar foot	None
S3-4	Bowel/Bladder	Perianal	Cremaster

- ~0.5% incidence
- Most common in males between 40 and 50
- 75% below T8, T11/12 most common
- Disc Degeneration present in 73% and spinal cord deflection in 29% of asymptomatic individuals



Clinical Presentation

- Usually insidious onset of axial thoracic or lumbar pain
- Possible radiating pain in a dermatomal distribution
 - × T4 − nipple line
 - × T10 − umbilicus
 - 🗴 T12 inguinal crease
- Thoracic percussion may exacerbate symptoms
- Least common is thoracic myelopathy but is readily identifiable due to symptoms
 - Lower extremity weakness, sensory dysfunction, bowel or bladder dysfunction
 - × + Romberg

Treatment

- NSAIDs
- Muscle Relaxants
- Anti-neuropathics
 - 🗴 Gabapentin, lyrica, cymbalta, topamax
- Short term narcotics
- o PT
 - Passive treatment modalities to start (heat, U/S, massage, etc)
 - As symptoms decrease extension based, core strengthening, ROM
- Intercostal vs thoracic selective nerve root block
- Surgery







- Return to Play
 - Thoracic disc herniation in NFL players (all-comers)
 - Miss more practices (72 vs 39) compared to lumbar disc herniation
 - × Miss more games (17 vs 11) compared to lumbar disc herniation

• Summary

• Complicated treatment algorithm with widely varying RTA

- Often asymptomatic
- May cause back and/or leg pain
- Most common over 50 (though population dependent)
- Risk Factors
 - Genetics, obesity, smoking, occupational such as repetitive lifting and exposure to vibration











Clinical Presentation

- Back pain, unilateral leg pain, cauda equina syndrome
- Weakness
- Sensory loss
- Radicular pain
- Gait dysfunction

• Exam

- Reflexes
- Nerve root tension signs
 - × SLR 35-75 deg
 - × Fem Stretch



• Treatment

• NSAIDs, anti-spasmodics, anti-neuropathics, narcotics

○ PT – nerve root mobilization, core stabilization

• Epidural steroid injections

• Surgery













Conservative Management

- Outcomes measures do not improve after 6 weeks with continued non-operative management in surgical candidates
- Not cost effective after 6 weeks if no improvement

• Return to Play after Surgery

- No consensus exists
- Recommendation:
 - Resolution of pre-injury symptoms and completion of a structured rehabilitation program
 - × Golf (4-12-16)



• Return to Play

• NFL players with disc herniations

- ESI allowed return to play in 89% with loss of 2.8 practices and 0.6 games
- × 82% return to play following decompression
- Career longevity
 - 36 games played after surgery
 - 20 games played if treated non-op
- MLB players more likely to return than NFL players



- A stress reaction leading to osteolysis of the pars interarticularis
- Overall prevalence of 4.2%
- 2:1 male:female
 - Female athletes at higher risk
- 85% at L5
- Risk Factors
 - Genetics
 - Extension sports gymnastics, rowers, soccer players, football lineman





Presentation

- Back pain that increases with activity
- Extension usually painful
- Hamstring tightness
- Increased lumbar lordosis
- Radicular pain (not always)



Treatment

- Activity modification
- Sports cessation
- Physical therapy
- Surgery

Conservative treatment

• 40 athletes with spondylolysis followed for 9 years

 91% good to excellent outcomes measures if without radiographic healing



Cessation of sports

- Three months no sports
- Flexion based core strengthening therapy
- o 132 athletes
 - × 42.5% were compliant with cessation
 - × 50% had excellent results if compliant
 - × 10% had excellent results if non-compliant

Surgery

- Only after 9-12 months of failed conservative treatment
- Debridement of non-union and stabilization of pars





Outcomes

- 31 competitive athletes undergoing interlaminar screw repair
 - × 90% reported significantly decreased pain
 - × 76% returned to competitive sport
- o 47 military members
 - ▼ 53% reported satisfaction
- RTP after surgery is possible if asymptomatic, demonstrated fusion, and fully rehabilitated prior to play

















Questions?

