Core Injury
A SPORTS HERNIA MISNOMER

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May 1st, 2019
NO DISCLOSURES
AGENDA

Define Groin pain
Develop Working Dx
Advanced Workup
Treatment Options
A Case Study
Sports hernia

Gilmore’s Groin

Athletic Pubalgia

Pubic Inguinal pain syn (PIPS)

Mechanical Groin Overload
HPI

- Typically Male
- Progressive onset or Acute
- Deep seated groin pain.
- Relieved with rest
- Returns with aggravating activity
HPI

- Running, Kicking, Cutting, Twisting, Explosive
- Common Sports – Soccer, Hockey, Football, LAX
- Exam should be precise and specific
- R/O inguinal/femoral hernia

DOHA CONSENSUS

• Groin pain in athletes
  • Defined entities for Groin pain
    • Adductor-related
    • Pubic-related
    • Iliopsoas-related
    • Inguinal-related
  • Hip related groin pain
  • Other related groin pain

ADDUCTOR-RELATED

• Adductor tenderness
• Pain on resisted adduction
• Pain on adductor stretch
• Dx
  • Adductor tendinosis
  • Adductor injury/tear (partial/complete)
  • Aponeurosis injury/tear
PUBIC-RELATED

• Pubic Rami Tenderness
• Pain with adductor squeeze
  • Causes pain across an unstable pubic joint
• Pain on resisted crunch
• Dx
  • Osteitis Pubis (trauma/inflammatory/overuse)
  • Rectus injury/tear
  • Aponeurosis injury/tear
ILIOPSOAS RELATED

- Hip flexor tenderness
- Pain with resisted hip flexion
- Pain with hip flexor stretch
- Snapping with motion
- Dx
  - Hip flexor tendinitis
  - Iliopsoas bursitis
  - Snapping hip
INGUINAL RELATED

• Inguinal canal tenderness
• No palpable hernia
• Pain with Valsalva/cough/sneeze
• Dx –
  • Posterior abdominal wall weakness
  • Superficial inguinal ring dilatation
  • Inguinal ligament tear
  • Conjoined tendon tear
HIP RELATED

• Hx – catching, locking
• No specific tenderness
• Positive FADIR
• Positive Dynamic Int Rotation
• Positive FABER
• Positive Scour
• Dx
  • Femoroacetabular impingement
  • Labral tear
  • Stress fracture
OTHER RELATED

- Inguinal/femoral hernia
- Posthernioplasty pain
- Lumbar Referred
- Nerve entrapment
  - Iliohypogastric
  - Ilioguinal
  - Genitofemoral
  - Obturator
- Apophsitis
  - ASIS (Sartorius/TFL)
  - AIIS (Rectus Femoris)
  - Pubic
OTHER RELATED

• Adductor Insertion Avulsion Syn.
• Stress Fracture
  • Femur neck
  • Pubic
  • Acetabulum
• Hip Joint
  • OA
  • SCFE/Perthes
  • AVN
• Intra-abdominal
• Gynecological/Urologic
• Cancer/tumors
DIAGNOSTICS - US


DIAGNOSTICS - US

Significant tendinosis with small partial detachment

Calcific tendinosis
DIAGNOSTICS - INJ.

Pubic Intra-articular injection

Rectus injection

Diagnosis - INJ

Intra-articular hip joint
DIAGNOSTICS – INJ

Hip Flexor

Iliopsoas muscle
Iliopsoas tendon
Acetabulum

ROCHESTER REGIONAL HEALTH
DIAGNOSTICS – XRAY/MRI

Significant Osteitis Pubis in Marathon Runner

Rectus abdominis–adductor longus attachment injury = **Superior Cleft Sign**

Short adductor (gracilis, adductor brevis, and pectineus muscles) attachment injury – **Secondary Cleft Sign**

DIAGNOSTICS - FAI

FAI – Cam/Pincer Deformity

32 Boxer
- High Grade Partial Thickness Cartilage loss
- Labral Tear
- Cam osseous changes
DIAGNOSTICS - REVIEW

• PEARLS
  • Need good exam!
    • Palpation and resistance testing were highest predictive values for MRI findings
  • X-Ray, US, Diagnostic Injections
  • Need appropriate MRI!

"Ladies and Gentlemen - A new record for the two-handed snatch, press and hernia."
TREATMENT - OMT

- Correct pelvic mechanics
  - Innominate rotation/flare
  - Sacral dys
  - Lumbar dys
  - Pubic dys
- Strain/counterstrain/FDR
  - Lumbar paraspinals
  - Piriformis
  - IT Band
  - Iliopsoas
  - Rectus/adductor

An osteopath is only a human engineer, who should understand all the laws governing his engine and thereby master disease.

Andrew Taylor Still
TREATMENT - PT

• Physical Therapy Focus
  • Mobility first!
  • Core strength, endurance, coordination and extensibility deficiencies
  • Imbalances at the hip and abdominal muscles
  • Dynamically stabilizing the pelvic ring.
  • Eccentric Adductor strengthening
<table>
<thead>
<tr>
<th>In-Season</th>
<th>Week</th>
<th>Post-Season</th>
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<tbody>
<tr>
<td>• Rest (injected) structures</td>
<td>Week 1-2</td>
<td>• Rest (injected) structures</td>
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<tr>
<td>• Range of motion lumbar and bilateral hip joints</td>
<td>Week 3</td>
<td>• Range of motion lumbar and bilateral hip joints</td>
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<tr>
<td>• Gluteal muscle and anterior pelvis stabilization:</td>
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<tr>
<td>o Hip Hikes</td>
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<tr>
<td>o Abdominal bracing in hook lying</td>
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<tr>
<td>o Front and side planks</td>
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<tr>
<td>o Quadruped alternating upper and lower extremity on compliant and non-compliant surfaces</td>
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<tr>
<td>• Stationary bike without resistance</td>
<td>Week 4</td>
<td>• Stationary bike without resistance</td>
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<tr>
<td>• Continue week 3 exercises</td>
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<tr>
<td>• Flexion only straight leg raises; progress to multiplane</td>
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<tr>
<td>• Supine hip extension with knee at 0 and 90 degrees</td>
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<tr>
<td>• Single leg balance exercises</td>
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<tr>
<td>• Bridging</td>
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<tr>
<td>• Wall squats at 45 - 90 degrees</td>
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<tr>
<td>• Resistance walking, pushing, pulling</td>
<td>Week 5</td>
<td>• Continue weeks 3-4 exercises</td>
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<tr>
<td>• Return to running/jumping program (single plane)</td>
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<td>• Continue weeks 3-4 exercises</td>
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<tr>
<td>• Box jumps</td>
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<tr>
<td>• Tilt board, agility ladder and BOSU drills</td>
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<tr>
<td>• Progress core stabilization exercises</td>
<td>Week 6</td>
<td>• Continue weeks 3-4 exercises</td>
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<tr>
<td>• Increase resistive exercise as tolerated</td>
<td></td>
<td>• Continue weeks 3-4 exercises</td>
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<tr>
<td>• Initiate sport specific exercise program</td>
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TREATMENT - INJ

• Cortisone injections
• Percutaneous tendon needling/debridement
• Orthobiologics
  • Platelet Rich Plasma (PRP)
  • Bone Marrow Concentrate (BMC)
TREATMENT - INJ

- 45 Patients
- 80mg Depo
- 2cc Marcaine
- Fluoro guided symphyseal and site of MRI findings injection
- 89% had improvement
- 60% of those had sustained improvement at 6 months
TREATMENT - SURG

• Surgical
  • Open repair of the rectus abdominus, external oblique, transversus abdominus, or transversalis fascia;
  • Repairs with mesh reinforcement;
  • Laparoscopic repairs;
  • Miniopen repairs;
  • Broad pelvic floor repairs with or without adductor releases.
  • Adductor repair/tenotomy
  • Nerve Entrapment Release/Denervation
  • Hip labral repair/FAI
CASE

- S - 21 YO Male, Div 1 Baseball Player
  - Injury March 2016 – Progressive L sided groin pain
- O – L sided Adductor
  - MRI – Superior cleft sign on L, Osteitis Pubis
- A – L AL tear/L RA tear/Osteitis Pubis
- P –
  - PT and PRP 8/2016
  - Played 2017 with improved symptoms/not resolved
  - Surgery 8/2017 – Repair L AL/L RA
  - 6-8 Week Recovery and progressed to Full RTP symptom free through 2018 Season!
THANK YOU!


