Athletic Pubalgia / Sports Hernia and Associated Intra and Extra-articular Hip Pathology: Piecing the Puzzle Together

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- **Athletic Pubalgia / Sports Hernia**
  - **Background and Definition**
    - Exertional Lower abdominal pain in athletes
    - Source of significant disability and time lost from athletics
    - Typically insidious onset of symptoms
    - Historically male predominance
    - Seeing increasing number of females
    - Multiple structures implicated and variable presentation
      - Internal / External oblique / transversalis fascia
      - Lower Rectus Abdominus / Conjoined tendon
      - Proximal Adductor longus / Brevis / Magnus, Pectineus, Gracilis
      - Deficient posterior inguinal floor / dilated superficial inguinal ring

- **Figure 7:** Rectus Abdominus / Adductor Aponeurosis rupture

- **Physical Examination**
  - TTP over internal / external obliques
  - TTP over the conjoined tendon / rectus abdominus
  - TTP pubic symphysis / tubercle
  - TTP proximal adductors / pectineus / gracilis
  - Pain resisted hip adduction
  - Pain resisted sit-ups / crunches
  - Evaluate for intra-articular hip disorders (ROM / Impingement tests)

- **Diagnostic Injections**
  - Injections followed by P.E. or Exercise Challenge
  - Symphyseal Injections
    - Dye tracking up rectus / down the adductors
- **Intra-articular Injections**
  - Psoas bursal injections
  - Adductor tendon sheath / pubic cleft injections

- **Imaging clues**
  - Plain Radiographs
    - Hip pathomorphology (FAI)
    - Osteitis Pubis (lysis, sclerosis, cystic changes)
  - MRI
    - Underlying hip pathomorphology
      - FAI, dysplasia, labrochondral pathology
    - Rectus abdominus adductor apponeurotic tearing
    - Adductor tears / tendinopathy
    - Osteitis pubis
    - Specific athletic pubalgia MRI protocols
    - MRI can be unremarkable

- **Conservative Treatment**
  - Variable success in the literature
  - Activity modification (not always practical for elite athletes)
  - Avoid deep hip flexion / heavy weight squats, cleans, lunges in weight room
  - Focus on core stability and decreasing anterior pelvic tilt mechanics
    - Focus on Gluteal muscles initially and later on lower abdominals
  - Occasionally symphyseal / pubic cleft / psoas bursal corticosteroid injections

- **Surgical Treatment**
  - If unable to participate or compete consider in season surgery
  - If able to compete but limiting surgery after the season
  - Multiple surgical procedures described with >90% return to sports in most
    - Broad pelvic floor repairs
    - External oblique / transversalis fascial repairs
- Posterior inguinal floor repairs
- Mesh repairs
- Open / mini open / endoscopic techniques describes
- +- concomitant adductor / pectineus releases
- +- neurolysis / neurectomy
  - Outcomes studies with validated measures limited (RT sports)

- Association of Intra-articular and Extra-articular Pathology
- Piecing together a Puzzle / Subset of Elite Athletes
- Intra-articular pathology
  - NFL study
    - Association of labral tear, rectus abdominus tear, adductor strain
    - Sports Hip Triad
  - Femoroacetabular Impingement (FAI)
    - Cam and pincer-type
    - Labral-chondral injury
    - Disability in athletes
    - Associated ROM deficits (Flexion / IR / Abduction)
    - 90% of NFL prospects with X-rays had FAI
  - Osteitis Pubis
    - Symphyseal lysis / cystic changes / sclerosis

- Figure 9: MRI reveals increased signal c/w osteitis pubis

- > 50% of NFL prospects with X-rays have osteitis pubis
- Relationship to hip ROM deficits (? FAI)
  - Australian rules football studies
- Chronic Adductor Pain / Pathology
  - 34 athletes with long standing adductor pain
  - 94% had radiographic FAI
- Association of FAI and Athletic Pubalgia / Sports Hernia
  - 37 hips in elite athletes (32 current or former professional / national level / collegiate level)
  - All had athletic pubalgia and symptomatic intra-articular pathology
  - 95% FAI
  - 70% osteitis pubis
  - Athletic pubalgia repair only = 25% return to sports without limitations
• Hip arthroscopy only = 50% return to sports without limitations
• Concurrent or eventual surgical management of both Athletic Pubalgia and Intra-articular hip pathology = 89% return to sports without limitations
  • 13 hips same setting hip arthroscopy and Athletic Pubalgia repair

- Current Theory (Subset of Elite Athletes)
  o FAI leads to ROM limitations (FF/IR)
  o ROM limitations lead to increased stress / demand on extra-articular structures
  o This increased stress on extra-articular structures can lead to:
    § Athletic pubalgia / Sports Hernia
    § Proximal Adductor / Pectineus / Gracilis injury
    § Osteitis pubis

- Conclusion
  o Athletic Pubalgia / Sports Hernia is a real entity in Athletes
  o Can be associated in some cases with intra-articular hip pathology
  o General Surgeons and Orthopaedic surgeons need to work closely together
  o Management of hip pathology if present may allow for healing of extra-articular hip pathology
  o Concurrent or eventual staged management of intra-articular and extra-articular hip pathology when necessary leads to a predictable return to sports in most

Selected References: