The Athletic Pelvis

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What are we going to do?

- We will review a case which brings to mind the differential diagnosis for groin pain in athletes.
- We will discuss the definitions of each diagnosis and the most significant historical and clinical examination findings.
- We will discuss the appropriate use of imaging studies to aid in the diagnosis.
- In the lab we will discuss the use of osteopathic manual medicine relating to the lumbar spine and pelvis.
Case I

- A 33 year old female presents with a 3 month history of left sided anterior hip pain.

- She has never been an athlete, but 6 months ago began riding a bicycle to help her lose weight.
  - She is 5'4”, 185#. She has lost 35lbs.
  - Prior to this, she was not “athletically inclined.”
  - She started at about 3 miles, but now typically rides more than 100 miles per week. Her long rides are up to 50 miles.

- The pain came on gradually, but has worsened to the point where she often must limit her rides.
Initially the pain started after about 10 miles of riding, but now begins within the first mile and she can only go 5-7 before having to stop.

It is sometimes present with prolonged sitting, sometimes hurts with cough or sneeze.

She does not have any back pain; she does not have any radicular pain.

Does not wake her at night.

She is very angry because she is afraid she will start gaining weight again.
Case I: examination

- Lumbar spine, SIJ and neurological exam are normal
- Abdomen: normal except obese and question of femoral hernia.
- Hip exam:
  - Passive ROM intact, but passive flexion (140°) is painful.
  - Resisted Flexion/extension, abduction/adduction, internal/external rotation all 5/5 and without pain.
- Palpation: tender along superior pubic ramus, none over psoas, trochanteric or gluteal bursae
Groin pain in athletes

- Can be very difficult to diagnose due to very large differential:
  - T12, L1, L2, L3, S3, S4 dermatomes cross this area.
- Multiple abdominal pathologies:
  - Appendicitis, diverticulitis
  - Aortic/iliac aneurysm
  - UTI, urolithiasis
  - Ovarian cyst, ectopic pregnancy, salpingitis, prostatitis, testicular torsion, epididymitis
Local musculoskeletal causes

- Can be divided into three potential subdivisions:
  - *Abdominal wall*
    - Rectus abdominus tendonitis
    - Groin hernia
      - Inguinal
      - Femoral
    - Sports hernia
    - Ilioinguinal neuralgia
  - *Pelvis*
    - SIJ strain
    - Iliolumbar strain
    - Pubic ramus stress fracture
    - Osteitis pubis

- Cont’
  - *Hip Joint*
    - Capsular lesions
      - AVN, OA, labrum
    - Loose body
    - Psoas bursitis
    - Femoral neck/proximal femur stress fracture
    - Avulsion fractures
      - ASIS, AIIS, lesser trochanter (kids)
  - Tendonitis
    - Adductors
    - Psoas
    - Sartorius
    - Rectus femoris
So let’s look at some possibilities...
Differential: 
*Femoral neck stress fracture*

Who do we see this in?  
What are the symptoms?  
What do we find on examination?  
How would we treat it?
Femoral neck stress fracture

Treatment:
If no actual fracture line: non-weight bearing for likely 4 weeks.
If fracture line:
Compression side, <50%: non-weight bearing 8+ weeks
Often will be out 6-12 months for both of above!

Compression side >50%: ORIF
Distraction side: ORIF

ATHLETE MUST UNDERSTAND THAT THIS CAN BE A LIFE ALTERING EVENT!!!!
Differential: *Pubic ramus stress fracture*

Who do we see this in?
What are the symptoms?
What do we find on examination?
How would we treat it?
Pubic ramus stress fracture

Treatment is typically non-weight bearing until able to walk without pain.

Even if full fracture forms, do not need surgery because this is nontraumatic injury.

Healing is typically in six months, but may not have full return to activity for a year (I have seen this go out to two years).
Differential:

Acetabular labral tears

- Who do we see this in?
- What are the symptoms?
- What do we find on examination?
- How would we treat it?
Acetabular labral tear

- I have found many respond well to combination of OMM and PT.
- Surgical correction may be necessary, but very surgeon dependent.
Differential: *Osteitis pubis*

Who do we see this in?

What are the symptoms?

What do we find on examination?

How would we treat it?
Osteitis pubis

Should be self-limited condition with relative rest. May respond to OMM and/or PT.

Responds very well to 1-2 steroid injections, but may need sclerosant injection.

Surgery is reserved only for the most recalcitrant cases.
Differential: 
*Sports Hernia*

What the heck is a “sports hernia” anyway!?
Sports Hernia

Tear of posterior wall of inguinal canal (TrA or conjoint tendon)

or

Tear of external oblique aponeurosis causing dilation of external inguinal ring.

Differentiated from a true hernia in that there is no extrusion of abdominal material through the abdominal wall.
Sports hernia

- Most common in sports requiring dynamic lateral movement: soccer, rugby, hockey, football.

- Unilateral groin pain during activities, but if chronic may occur during daily activities.
  - Typically insidious in onset but may be related to acute event.
  - Sudden movements often exacerbate the pain.

- Requires good palpation of inguinal ring, inguinal canal, pubic tubercle and mid-inguinal region.

- Ultrasound may help in diagnosis.

- Treatment is usually surgical.
Differential: *Ilioinguinal nerve entrapment*

Who do we see this in?
What are the symptoms?
What do we find on examination?
How would we treat it?
Differential:
Groin hernia

- We all know what these are, but they are often overlooked.
- Three types: direct, indirect and femoral.
- Pain is often related to activities that increase intra-abdominal pressure or call for repeated Valsalva.
  - Initially pain may occur only during activity, but over time may begin to occur with even simple trunk or hip activities.
Direct inguinal hernia

Comes through the posterior wall of the inguinal canal lateral to the border of the rectus abdominus.

Usually secondary to weakness in fascia of TrA.

These may be symptomless except for noticing the bulge.
Indirect inguinal hernia

Failure of processus vaginalis to close, thus originating at the internal inguinal ring.

Likely secondary to weakness or tear of the posterior wall of the inguinal canal more lateral than a direct hernia, in the presence of potentially patent processus vaginalis.
Femoral hernia

This is what our patient actually had. The story for the diagnosis is quite interesting....

D Acquired femoral hernia
Right female inguinal region with the skin and superficial body fascia removed, anterior view.
Concluding thoughts

- The diagnosis of groin pain in athletes can be quite daunting.

- However, with a careful consideration throughout the history and physical examination, a likely diagnosis can be arrived at, and treatment instituted.

- The thing to remember is that if the patient is not responding, it should first call into question not the treatment, but the diagnosis.
Thank you

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