

Acute Groin Pain

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Interesting Case History – 16 year-old Male Football Player

'Franklin' is a healthy 16 year old male of slight build and an avid soccer player. During a recent game whilst accelerating to a sprint in back play, he felt a large 'pop' sensation in his left anterior hip and had to be carried from the field. He presented to the clinic 2 days later still in severe pain, limping heavily and unable to flex his hip.

Further questioning revealed he had hip flexor and quadriceps soreness in the week leading up to the last game which was still present upon the start of play the following week. This was the first sprint he had attempted in over a week as he had been protecting his hip at training. The injury happened in the first 5 minutes of the game which suggests an inadequate warm up contributing to the injury, and poor preparation for return to sport.

Clinical assessment revealed the following,

- Palpation tenderness over AIIS, ASIS and anterior 1/3 of iliac crest.
- Hip flexor tendons intact
- No bruising or swelling
- No active hip flexion, with the limitation being due to pain and weakness.
- Passive hip flexion was half range, limited by pain.

Franklin was referred for X-ray, which confirmed our suspicion of bony avulsion at the rectus femoris apophysis. He was sent to his GP to arrange an orthopaedic opinion.

Background

The literature states that the mechanism for apophyseal avulsion injuries is usually a "forceful eccentric pull of the musculotendinous unit, which distracts and separates the apophysis from the main bulk of the bone" (1). Such injuries are more common in males than females, and while the majority of avulsion injuries are treated conservatively, surgical fixation is necessary in some cases (1).



Fig 1: Rectus femoris avulsion at the AIIS

There is some conjecture as to when to opt for surgical over conservative management, however most of the evidence suggests a separation of greater than 2 or 3 cm warrants surgical review. There has been two cases published with adolescent elite athletes who underwent surgery despite minimal separation and returned to sport at 3 and 4 weeks after the injury occurred (2)

For avulsion injuries around the pelvis, the ischial tuberosity (hamstring origin) is the most common site, with injuries at the ASIS (sartorius or TFL), AIIS (rectus femoris), lesser trochanter (iliopsoas) and

iliac crest (gluteus medius) less frequent but not uncommon sites of injury.



Fig 2: Gluteus medius avulsion



Fig 3: Hamstring avulsion from ischial tuberosity

Management suggested by McKinney et al, employs a 5 stage program for all hip & pelvic avulsion type injuries (1). Phase 1 consists of rest, cryotherapy and analgesic use for 7 days following the injury. Phase 2 begins on the 8th day where gentle active and passive range of motion begins. After 75% of range is restored the patient may commence the next stage where resistance exercises are introduced. Phase 4 consists of stretching and strengthening programs, with an emphasis on sport specific mechanics at the end of this stage. Phase 5 is return to sport, taking around 8 and possibly up to 12 weeks.

Franklin's avulsion was less than 2cm, and he is currently doing very well with his conservative programme. We are looking at getting him back to soccer for the back-end of the season.

References:

1. McKinney, B et al (2009). Apophyseal avulsion fractures of the hip and pelvis, *Orthopedics*, 32, 1.
2. Veselko M, & Smrkolj V (1994). Avulsion of the anterior-superior iliac spine athletes: case reports. *Journal of Trauma*; 36,3, 444-446.

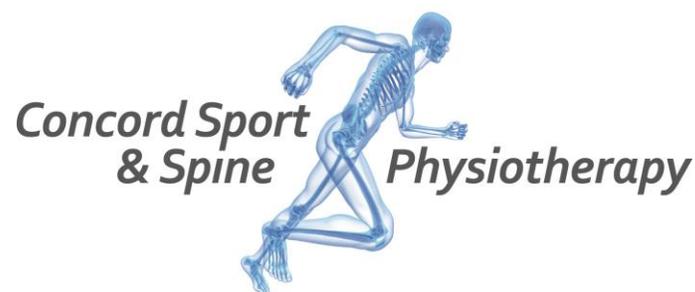
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