

Differential Diagnosis of Hip

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I have been lecturing in the field of Sports Medicine for eight years. During this time I have come to recognise that many physical therapists commonly treat where the patient presents with 'pain' rather than considering if this is the actual 'cause' of the problem or if it is merely a 'symptom', especially with regard to patients who present with groin pain.

I would consider pain in the groin as one of the problematic areas for a specific diagnosis, even though we are only

hypothesising what the actual tissue is that is causing the pain. This is because we generally refer for a scan later on, once a treatment plan has been administered, and then if we were unsuccessful with our treatment we would then consider an alternative plan of action.

The following three case studies are of actual clients that have attended my clinic. The reader is encouraged to consider some of the 'key' factors for each patient. There are clues as to what is going on in both the subjective history and medical history, then consider what you perceive is the likely cause of the client's pain.

Before we look at the case studies, lets consider certain medical conditions that will give symptoms to the groin.

1) Muscular:

Rectus femoris, Psoas, Rectus abdominus, Sartorius, Adductor longus, Pectineus, Tensor fascia latae

2) Skeletal:

Femoral neck/ shaft fracture, pubic bone, joints (hip joint, sacro-iliac, pubis-symphysis, lumbar spine)

3) Other soft tissues:

Joint capsule, bursa, ilio-femoral ligament, nerves, blood vessels, lymph nodes, hernias, genitalia (ovary, testicle etc.)

4) Previous medical conditions:

Perthes disease, slipped epiphysis.

The list above is not by any means exhaustive, but I would like to emphasise to the reader that there is a multitude of causative factors that will present as groin pain.

The following case studies all had pain localised to the groin, specifically near to the femoral triangle.

(Picture: John Gibbons carrying out the Thomas Test on a client.)

CASE STUDY I

A very fit 21-year old female athlete presents with left-sided groin pain. Her symptoms have progressively increased over the last 3 months but she denies any history of trauma/strains. She is part of the University's athletic squad and competes in the 5000m. This patient runs approximately 40-50 miles a week on various terrains. There is no previous history of groin or hip pain, but there is some history of lower back pain, even though this is not present at the moment. The only aggravating factor is running, but cycling and swimming is a little uncomfortable. The patient describes pain deep in the groin, which refers into the adductors. She also mentions a 'band' like sensation around her thigh.

On Examination:

- Lumbar spine/sacroiliac joint when tested proved negative
- Hip active range of motion (AROM) was negative.
- Passive movements (PROM) of internal/external rotation and flexion was slightly uncomfortable
- Faber's test produced a slight apprehension by the patient
- Muscle length/strength tests - no perceived weakness or shortness of the muscles tested
- Palpation was inconclusive for localized pain.

Discussion:

If you consider the potential causes of the athlete's pain prior to the objective examination, then a realistic hypothesis would be formulated. However, due to the negativity of the clinical findings during the examination it seems that you might have to creatively guess a hypothesis so that you are able to explain something to the patient. There is a clue in the subjective history: the patient has pain on commencement of running and has to stop eventually due to the pain. This tells me that the likelihood of a stress fracture to the neck/shaft of the femur is a possible diagnosis. I told the patient what I felt was the cause of her symptoms and the appropriate action to take.

This story continues as that evening, the patient's mother (who is a GP) could not understand why I thought it was a stress fracture and decided to seek an alternative therapist - who said it was simply a muscle imbalance and proceeded to treat her. Three months later I saw this client again and she was still not running. However, her mother had decided to eventually organise a scan, which proved that a stress fracture was present. This patient is now running and has achieved a personal best (and her mother frequently visits my clinic also!)

and Groin Pain

Sports Medicine at the University of Oxford and St Mary's University

CASE STUDY 2

A 38-year old housewife presents with a 9-month history of right-sided groin pain. This patient was referred to me by her GP for a second opinion. The patient has been treated by many manual therapists who keep referring this patient back to the GP for recommendations of surgery for an acetabular labrum tear. Her history is possibly related to an acetabular tear. She mentions a 'sharp' pain to her groin about 10-15 times a day. Her initial pain came on the next day after a short cycling trip with her child, although she denies any pain at the time. Every time she cycles, especially with her child, it seems to exacerbate her symptoms. Some days it is good but other days it is very difficult even to get up the stairs or weight bear. There is no stiffness in the morning but sometimes it is painful taking the initial footsteps out of bed. No medical history to note.

On Examination:

- Lumbar spine/ sacro iliac negative
- Active ROM negative
- Passive ROM positive but more apprehensive on internal rotation/ flexion/ adduction (Quadrant test)
- Resisted ROM (a little uncomfortable on resist flexion to groin if movement was allowed but negative on isometric testing)
- Faber's test positive as increases symptoms and with a restricted ROM.
- Thomas test positive for shortness of psoas - stretch of the psoas in this position increased symptoms but negative on resisted movement.

Discussion:

I decided that the tissue(s) that was (were) causing this patient's symptoms was the bursa located under the psoas muscle. The reason I considered the bursa and not the psoas muscle itself was the fact that it was all-negative on resisted testing, however I did feel that the psoas was in a state of protective spasm due to the bursitis. With this specific patient I did ask her all the systemic questions, as I would with all my patients about the likelihood of a referral pattern that could be related to her presenting symptoms, e.g. gastrointestinal, genitourinary and gynaecological, etc. I proceeded to treat the hip with mobilisations / traction, positional release of psoas, strength exercises and muscle energy stretching techniques focused around the pelvis and hip. Within four treatments this patient has been able to do all her daily routines, including cycling pain free.

CASE STUDY 3

A 34-year old female presents with pain just medial to the tendon of the right rectus femoris. This has been present for about 18 months with no reduction of her symptoms. She has been treated by many manual therapists who have diagnosed a sartorius strain, muscle imbalances (did not mention what imbalance). The patient only has pain on the concentric phase of squatting and when walking - but only with the right leg at the end of the mid-stance of gait (hip extension). However, she is able to run for an hour pain free. The patient mentions a limp and feels she is compensating for this by altering her gait pattern. The patient also mentions a right lateral knee pain on occasion, especially on squatting.

Discussion:

On examination the only tests that proved positive were the Faber's and passive internal hip rotation, which exacerbated her symptoms. All muscle testing length was negative but tightness was felt to her groin and adductors on the Thomas test. All resistive tests were negative and graded normal on isometric and isotonic concentric movements. To hypothesise this patient's pain I felt was relatively straight forward. I considered the ilio-femoral ligament or joint capsule to be the tissue that was causing her the pain. The problem was that the previous treatments had all focused on her presenting symptoms with ultrasound, massage and stretching. However, other functional tests of the Gluteus Medius (Gmed) and Maximus (Gmax) proved weak on testing statically and functionally. This proved to be an interesting area to follow because if these muscles are potentially weak then the hip/ knee will have a tendency to internally rotate during the eccentric phase of squatting. Subsequently this could cause a compressive force to the hip joint, hence exacerbating the ligament/ capsule. With this patient I decided to simply re-educate the Gmed and Gmax with specific exercises to help control the rotation at the hip joint and also an exercise to stretch the internal rotators (adductors). I advised the patient to perform these exercises twice daily for the next week. Each time the patient came back for follow-up, the symptoms had reduced.

Conclusion

It can be seen from all three case studies that each of the patients' presenting symptoms were localised to the groin. However, each patient's subjective history was very different, especially with the diagnosis and eventual prognosis. If we listen to what the patient is telling us with regards to their symptoms, and we have a thorough understanding of functional anatomy, then a full examination should be relatively straight forward. Just bear in mind what 'other' structures have to be ruled out before a conclusive hypothesis is achieved, e.g. lumbar spine, sacroiliac, systemic causes, etc. It is my thesis that one could have a checklist of potential causes of hip and groin pain and once these related structures have been tested, then one should be left with a realistic hypothesis for the patient's presenting symptoms.