Research Paper Review

Groin pain after replacement of the hip: Aetiology, evaluation & treatment

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Henderson RA & Lachiewicz PF

Reviewed by Dr. Jeff Muir DC (Research Review Service)

ABSTRACT

Persistent groin pain after seemingly successful total hip replacement (THR) appears to have become more common. Recent studies have indicated a high incidence after metal-on-polyethylene and metal-on-metal conventional THR and it has been documented in up to 18% of patients after metal-on-metal resurfacing. There are many causes, including acetabular loosening, stress fracture, and iliopsoas tendonitis and impingement. The evaluation of this problem requires a careful history and examination, plain radiographs and an algorithmic approach to special diagnostic imaging and tests. Non-operative treatment is not usually successful. Specific operative treatment depending on the cause of the pain usually involves revision of the acetabular component, iliopsoas tenotomy or other procedures, and is usually successful. Here, an appropriate algorithm is described.

ANALYSIS

Author's Affiliations

Duke University Medical Center, North Carolina, USA

Background Information

As the population ages, total hip replacements (THR) will become more common. As a result, manual medicine providers will certainly see these patients with increasing frequency. Apart from our attempts to prevent patients from needing THR in the first place, we may also be tasked with dealing with

musculoskeletal consequences of the procedure itself. Once of these consequences is groin pain, the prevalence of which varies between 0.4% and 18.3% after conventional THR (1). Some early residual post-operative pain is to be expected after any operation involving the hip; this article therefore focuses on groin pain occurring three months or more after surgery.

SUMMARY

Recent studies have indicated a high incidence of groin pain after metal-on-polyethylene and metal-on-metal conventional THR and it has been documented in up to 18% of patients after metal-on-metal resurfacing. Metal-on-metal articulation in THR has the higher prevalence of groin pain as a complication. The increased prevalence of groin pain with metal-on-metal THR seems striking, and there may be new causes such as fracture of the femoral neck and neck impingement with resurfacing, as well as synovitis due to metal ion hypersensitivity or adverse local tissue reaction.

Etiology of Post-THR Groin Pain

Extrinsic causes of post-THR groin pain include pain due to local neurological or vascular pathology, inguinal hernia, metastatic cancer, and dissecting retroperitoneal pathology, as well as distant causes including spinal pathology and radiculopathy.

Intrinsic causes include infection, aseptic loosening of the acetabular component, iliopsoas tendinopathy, impingement, synovitis due to metal or polyethylene debris, pelvic osteolysis and occult acetabular or pelvic fracture. Low-grade infection should always be considered when patients present with groin pain after conventional or metal-on-metal THR or metal-on-metal resurfacing.

Iliopsoas impingement or tendinopathy is an increasingly frequent cause of groin pain after both conventional and metal-on-metal THR. Tendinopathy or impingement may result from a prominent or malpositioned acetabular component, retained cement, excessively long screws, an acetabular cage, a prominent femoral component collar, an oversized acetabular component or a femoral head which is larger than the native head. There are also circumstances in which intractable iliopsoas tendinopathy occurs without a structural problem being identified. Anecdotally, there are more descriptions of iliopsoas impingement with uncemented acetabular components than with cemented components.

Acetabular fracture is another possible, albeit less common, cause of groin pain. Acetabular fracture may occur after revision or primary THR, with an elliptical component or the aggressive press-fitting (? 4 mm over-sizing) of a hemispherical component.

Evaluation

History:

- Date/type of implantation;
- onset and course of pain - acute pain with fall can be indicative of fracture or loosening;
- progressive pain aggravated by weight-bearing;
- mechanical symptoms (“clunking” or catching) - may indicate metal synovitis;
- history of iliopsoas tendon isues?

Examination:

- Swelling/warmth indicate possible infection;
- limp and painful ROM are non-specific and could indicate infection, loosening, iliopsoas tendon

issues or fracture, although many patients with iliopsoas tendonitis do not report pain on walking;

- resisted seated hip flexion that exacerbates groin pain occurs with acetabular component loosening, iliopsoas tendinopathy and impingement.

Post-examination, investigations should focus on the most common causes of groin pain: infection, aseptic loosening and occult peri-prosthetic fracture. Imaging is another important aspect of evaluation, although if symptoms consistent with infection are present, the patient should be referred for blood tests and re-evaluation by the surgeon.

CLINICAL APPLICATION

Treatment

- Treatment of groin pain due to infection involves either a one- or two-stage re-implantation procedure, in conjunction with intravenous antibiotic therapy, managed in conjunction with a bacteriologist.
- Treatment for aseptic acetabular loosening is revision.
- Treatment of stress fracture after THR or resurfacing should be determined on a patient-specific basis. Osteolysis associated with the stress fracture may be an indication for revision surgery.

Initial treatment of iliopsoas tendinopathy should be conservative, including rest, anti-inflammatory medications and physiotherapy. Many authors have indicated, however, that this is not uniformly successful and may only lead to temporary, partial, or even no pain relief. A recent review by Lachiewicz and Kauk (2) examining the results of many studies estimated the success of nonsurgical treatment for iliopsoas tendinopathy at only 39%. For patients who require surgical management of iliopsoas symptoms, successful options include tendon release or resection, removal of protruding cement or screws, and acetabular revision alone or in combination with iliopsoas resection. Iliopsoas tendon issues, therefore, may be caused by operative errors and thus will not respond well to conservative treatment.

The possible presence of operative errors is not to suggest that conservative treatment should not be considered. As with any condition that may be treated alternatively by conservative treatment or surgery, the non-surgical approach is generally the preferred approach and should be undertaken first. If conservative treatment does not provide resolution, the patient should be referred back to the surgeon for re-examination. That being said, manual therapists in all disciplines should be aware of the relatively significant percentage of cases that will not respond to conservative care, based simply on the causal mechanisms, and refer non-responsive patients to their family physician or surgeon in a timely fashion, should conservative care not be successful.

STUDY METHODS

This paper is presented as an “Instructional Review”. The authors present the information as a review article, although they do not elaborate on their search criteria or search methods. There is an acknowledgement referring to an assistant who performed the majority of the literature review, but no other information regarding the literature search.

STUDY STRENGTHS / WEAKNESSES

This article provides a relatively comprehensive review of the prevalence, causes, evaluation and treatment of groin pain associated with total hip replacement. There are; however, several mentions of the senior author's preferential approach to certain clinical situations. While this may be valuable in a teaching environment, anecdotal and/or personal opinion is of much less value in a literature review. Also, there is little information provided as to the search criteria or literature search in general. This information would be helpful for comparing this review to future reviews.

Additional References

1. Bin Nasser A, Beaulé PE, O'Neill M, Kim PR, Fazekas A. Incidence of groin pain after metal-on-metal hip resurfacing. Clin Orthop 2010; 468: 392–399.
2. Lachiewicz PF, Kauk JR. Anterior iliopsoas impingement and tendinitis after total hip arthroplasty. J Am Acad Orthop Surg 2009; 17:337–344.