Acetabular Labral Tear as a Result of Femoroacetabular Impingement in a Collegiate Baseball Player

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Abstract

A collegiate athlete presented with chronic right hip pain. A hip-scouring test produced pain during hip flexion, internal rotation and adduction. Diagnostic imaging demonstrated a right hip labral tear with femoroacetabular impingement (FAI). This case review demonstrates the signs, symptoms and intervention associated with hip labral tears caused by FAI.

Introduction

Although previously thought to be a relatively uncommon injury, acetabular labral tears are becoming diagnosed with increasing frequency because of improvements in MRI and arthroscopic techniques.1 Five etiologies of hip labral tears have been proposed: trauma, femoroacetabular impingement (FAI), capsular laxity/hip hypermobility, dysplasia and degeneration.1,8 Recently, FAI has been diagnosed more frequently in patients with diagnosed anterior hip labral tears.1,4 The focus of this case review is on labrum tears with associated FAI.

The acetabular labrum serves as a shock absorber, joint lubricator and pressure distributor to the hip joint. The acetabular labrum also resists lateral and vertical movements of the femoral head within the acetabulum.1,3 A compromised acetabular labrum won’t properly shape, deep or retroverted and contacts a normal acetabulum.3

Case Background

A 20-year-old male collegiate baseball player (catcher) presented to the athletic trainer with deep pain that had progressively worsened over the past two years. Swinging a baseball bat, sprinting and standing from a squatting position were the activities that caused sharp pains and hindered performance the most.

Symptoms included:

- clicking and catching sensations that occurred intermittently
- significant pain during hip flexion, hip internal rotation and adduction during a hip-scouring test
- groin pain
- Tenderness over hip flexor musculature

Types of Femoroacetabular Impingement

Cam-Type: the femoral head is abnormally shaped and contacts a normal acetabulum.
- May cause shearing and compressive forces on the acetabular labrum.
- Ecchymosis, synovial fluid, and pain with internal rotation and adduction are characteristic symptoms.

Pincer-Type: the acetabular rim is abnormally shaped, deep or retroverted and contacts a normal shaped femoral head.
- May cause shearing and degeneration of the labral tear.

Mixed-Cam/Pincer Type: the presence of bony abnormalities on both the femoral head and acetabulum.

Diagnosis

- Exquisite pain during hip internal rotation and adduction at 90° hip flexion concerned the hip specialist of a labral pathology. Therefore, diagnostic images were ordered.
- Radiographs revealed the presence of right hip FAI.

An MRI arthrogram with a ropivacaine diagnostic injection revealed cartilage irregularities around the superior/inferior pubic rami and the superior/inferior pubic rami.

The presence of an acetabular labral tear was confirmed along with the presence of osteitis pubis.

Clinical Intervention

- The athlete opted for surgical intervention over conservative management and a corticosteroid injection.
- The athlete was admitted for right hip arthroscopy and labral repair by resection.
- Acetabular bone was resected and the head of the femur was re-rounded to eliminate FAI.
- Two anchors were placed in the anterior/superior quadrant to re-fixate the labrum.
- The athlete was given a hip labral repair rehabilitative protocol upon discharge.
- The rehab protocol was set for a 12-16 week time period.

Outcomes

- The athlete completed four months of rehabilitation following the procedure, but pain began to reoccur deep in the hip and groin.
- Diagnostic imaging indicated that the athlete has degeneration of his articular cartilage that may be genetic or from the surgery.
- Quitting baseball was suggested before further damage warranted a complete hip replacement in the near future.
- The athlete decided to stop playing baseball and regain adequate functioning of his right hip joint for daily living.

Conclusion

This acetabular labral tear case as a result from FAI demonstrates a typical history, evaluation and common intervention technique when compared to similar cases.

Surgical intervention did not allow the athlete to return to play in this case, but the hip labrum and FAI was fixed by the procedure.

Imlications for Clinical Practice

This case is important for health care professionals because many of the signs and symptoms presented are consistent with current literature.1,2,5,7,8

Athletic trainers need to be aware of the common symptoms of FAI to properly manage the condition or refer to a specialist as soon as possible to help prevent acetabular labral tears.

Timeline of Events

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>Jun 2012-Jan 2013</td>
<td>The athlete reported sharp pains around the right hip flexor muscles that moved into the groin region.</td>
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<td>Jan 2013</td>
<td>An orthopedic diagnosed the athlete with groin hip flexor pain and prescribed a 3-week rehab protocol.</td>
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<td>Feb 2013-May 2013</td>
<td>The athlete reported a deep right hip pain that began to arise after returning to play over a 6-month period.</td>
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<td>Sep 2013</td>
<td>The athlete reported his history of hip pain to the baseball team’s athletic trainer, and he referred to an orthopedic physician.</td>
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<tr>
<td>Nov 2013</td>
<td>The athlete was admitted for right hip arthroscopy with femoral and acetabular osteoplasty and hip labral repair by resection. Following 6 months of rehab, the athlete reported a worsening deep pain in his right hip.</td>
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<td>Apr 2014</td>
<td>The hip specialist found degeneration of articular cartilage and suggested resting from baseball. The athlete chose to give up baseball and focus on improving quality of life.</td>
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References