Primary Abscess in the Iliopsoas Muscle of a Division I Collegiate Athlete

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Primary abscess in the iliopsoas muscle is a rare condition, with an average of only 12 cases per year reported worldwide.\(^1\)\(^-\)\(^3\) Abscess in the iliopsoas muscle can be classified as either primary or secondary, which depends on the presence or absence of an underlying disease. A primary abscess forms at the seat of the infection, whereas a secondary abscess typically forms in response to a surgical procedure involving an adjacent area, such as the appendix or large bowel. Most of the documented cases of iliopsoas abscess have been identified in immunosuppressed individuals in underdeveloped countries. This infection is also commonly seen in intravenous drug users. One study reported that 86% of patients diagnosed with a primary iliopsoas abscess were intravenous drug users, and 57% were HIV positive.\(^5\) The available evidence suggests that primary iliopsoas abscess is more common in males than females.\(^4\)\(^-\)\(^5\) Although there are no definitive symptoms of a iliopsoas abscess, the individual will typically present with flank pain, low-grade fever, weight loss, malaise, and nausea.\(^1\)\(^-\)\(^3\)

An abscess can be classified as septic or sterile. Sterile abscess is caused by a nonliving irritant that is not fully absorbed by the body and does not require drainage. A septic abscess is caused by an infection that can occur anywhere in the body. Spreading of infection from the original site to anywhere in the body before an abscess forms is not uncommon.\(^2\)\(^-\)\(^6\) Staphylococcus aureus is the most commonly cited cause of infection, which is involved in 80-88% of all reported cases.\(^1\)\(^-\)\(^3\)\(^-\)\(^4\) Drainage is required if the abscess is found to be septic, followed by an individualized series of antibiotics to ensure the abscess does not redevelop. With a septic abscess, the individual is typically cleared for physical activity within two weeks postsurgery. An abscess can develop in the iliopsoas muscle when the infection has leaked from a neighboring organ, such as the appendix or large bowel, or has traveled from another point of origin within the body.\(^1\) Pus collects in the space between the psoas major muscle and the iliacus muscle. The limited volume of the space between the two muscles prevents pus from draining out of the area, which leads to abscess formation. Because abscess in the iliopsoas muscle has not been reported in athletics, failure to recognize the condition is understandable.
Case Presentation

A 23-year-old Division I football player initially complained of pain in the right hip, primarily when running. The intensity of the pain caused him to be removed from play, and he complained of increasing fatigue and weakness. He had no documented history of injury to this hip. He complained of pain in the anterior hip area, primarily along the course of the hip flexors. Because the athlete played a position that required explosive movements, his pain was intensified at the initiation of movement and continued until he stopped running, after which the pain intensity decreased. The physical examination by an athletic trainer revealed pain and weakness of the iliopsoas muscle. His pain was intensified by palpation, and muscle weakness was documented when flexion of the right hip was performed with and without light resistance.

Treatment

Because the athlete presented all the signs and symptoms of a hip flexor strain, he was immediately treated with electrical stimulation in conjunction with application of ice for 20 minutes, two to three times a day. Approximately four days after the initial complaint, the athlete demonstrated significant improvement and was cleared for full participation. He was able to run with less pain, and he demonstrated increased strength of the right hip flexors. During practice, the athlete wore a hip spica elastic wrap to support the iliopsoas muscle. Approximately four days after having returned to full participation, the pain returned at a level that was significantly worse than previously experienced.

Reexamination by the same athletic trainer revealed weakness of the right hip flexor and a substantial increase in pain, which was believed to be due to exacerbation of a hip flexor strain. Electrical stimulation was administered with alternating heat and ice for 20 minutes. Continuous 1 MHz ultrasound was administered at an intensity of 1.2 W/cm² for seven minutes. Electrical stimulation and ultrasound treatments were alternated for two to three treatment sessions per day. The athlete’s status did not improve, and he was referred to the team physician.

The team physician decided to administer a corticosteroid injection directly into the iliopsoas muscle. The athlete reported immediate pain relief. Two days after the injection, he reported a dramatic increase in pain at his right anterior hip. The pain woke him up at night and caused vomiting. The athlete experienced extreme pain when standing upright, and weight loss of 20 pounds was documented over a 10-day period. The athletic trainer sent the athlete back to the team physician for further evaluation.

The team physician ordered an MRI arthrogram, which demonstrated an abscess approximately 10 cm in diameter that was located between the iliacus and psoas muscles (Figure 1). The athlete was immediately transported to a hospital where he underwent surgical drainage of the abscess, which removed approximately 800 cc of pus (Figure 2). The abscess was cultured and found to have been caused by the staphylococcus aureus bacterium, thereby classifying it as a primary septic abscess. The site of the original infection could not be identified. The surrounding organs were all normal, and no other areas of infection were found. The athlete was released from the hospital three days after the surgery. Intravenous administration of antibiotics continued for one week, followed by oral administration of antibiotics for another two weeks.

Rehabilitation

Following hospital discharge, the athlete was allowed to perform unrestricted upper extremity workouts, but he was restricted from performance of any exer-


Exercises involving the core muscles. Lower extremity strengthening exercises were restricted to lightweight and low-intensity quadriceps sets and hamstring curls performed on an isotonic machine. Leg press and squat exercises were prohibited. Although the athlete was allowed to jog, no running or cutting was allowed. After two weeks, the athlete was recovering without complications. The team physician allowed him to initiate sit-ups and core strengthening exercises, along with stationary cycling and exercise on an elliptical trainer for cardio-respiratory conditioning.

The athlete lost a considerable amount of body weight, strength, and cardio-respiratory fitness over the five-week period that his activity was restricted. Following physician clearance for activity, he started light exercise on an elliptical trainer for 20 minutes each day, along with performance of balance and strengthening exercises. Exercises included single-leg stance on an Airex® mat while tossing a football (40 repetitions) and four-way hip motions (three sets of 15 repetitions with 5 to 10 pounds of resistance). He was progressed to treadmill running for 20–30 minutes each day, and unrestricted weightlifting exercises, but he was still restricted from participation in football practice sessions. One week later, the athlete was cleared for participation in noncontact football drills that included cutting, backpedaling, a turn-and-catch drill, and short-distance sprints. After three weeks, he was able to perform all activities without pain and was cleared for full contact without restrictions.

The athlete experienced approximately 22 pounds of weight loss in less than 14 days. Once he regained his appetite, he had little difficulty gaining the weight he had lost. A postsurgical complication was improper healing of his surgical incision (i.e., incomplete closure). The physician reopened the incision and instructed the athlete to pack the incision with gauze each day, which did not require any restriction of activity. The incision subsequently healed without further complication. (Figure 3).

Summary

Primary iliopsoas abscess is rare in the general population and is most often seen in immunosuppressed individuals. The occurrence of this condition is particularly unusual in a healthy Division I football player who had no history of intravenous drug use. The rarity of the condition precluded early recognition of its existence and presented challenges in making decisions about the athlete’s treatment and rehabilitation. The reported case of primary abscess in the iliopsoas muscle resulted from a staphylococcus aureus infection of unknown origin. Symptoms included consistent pain, point tenderness, limited range of motion, and significant weight loss. This case highlights the importance of daily assessments of any change in status. Injuries that are not following a normal healing pattern should be referred to a team physician for further evaluation.
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References


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