CASE REPORT

Patti Syvertson, DAT, AT • Crystal Springs Uplands School; Russell Baker, DAT, AT, and Alan Nasypany, EdD, AT • University of Idaho

Avulsion Fracture of the Anterior Superior Iliac Spine and the Iliac Crest: A Mindfulness Approach to Rehabilitation

Apophyseal avulsion fractures of the iliac crest and anterior superior iliac spine (ASIS) are rare and debilitating injuries accounting for 1.4% of injuries to the hip and pelvis. As participation in competitive sport increases, avulsion injuries are becoming more common in adolescents (14–25 years of age). Adolescents engaged in high-level sporting activities, such as gymnastics, soccer, and sprinting, are demonstrating an increase prevalence of avulsion injuries.

Treatment of an iliac crest apophysis avulsion fracture is based on the severity of the fracture. Currently, surgery is recommended for patients who are at risk for nonunion, have apophyseal avulsion fractures greater than 3 cm, have neurological symptoms or bony fragments, or for patients who want an accelerated recovery. Postsurgical return to sport ranges from one to three months.

Conversely, conservative care is the more common treatment approach, with standard recovery time ranging from one to six months depending on the severity of the injury.

In the past several decades, there has been an increase in complementary approaches used for varieties of physical and psychological conditions. Mindfulness has become a more common adjunct therapy among health care professionals. Originating from Buddhists’ meditative practices, Jon Kabat-Zinn coined the term “mindfulness” in 1979. Mindfulness has become more palatable to a wider range of populations as committed mindfulness practice is no longer affiliated with religious or cultural belief systems.

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The following case report presents a 16-year-old male sprinter who suffered a severe apophyseal avulsion fracture at the ASIS and iliac crest after being diagnosed with apophysitis. The patient and his family chose a conservative management approach. The purpose of this case report is to present a rare injury that was treated with a unique

Key Points

- Anterior superior iliac spine and iliac crest avulsion fractures are becoming more common in adolescent athletes.
- Healing timelines for apophyseal avulsion fractures in adolescents varies based on the size of the fracture and the treatment choice.
- A committed mindfulness practice may help decrease recovery time for musculoskeletal injuries.
rehabilitation protocol coupled with a mindfulness practice, which resulted in an accelerated return to sport.

**Case History**

A 16-year-old male sprinter presented to his athletic trainer (AT) with left anterior hip pain. The patient had no previous history of hip pain or pathology before the onset of pain. His main complaint was an increase in pain to a 4 out of 10 on the Numerical Pain Rating Scale (NRS) when he sprinted at maximal effort. The patient initially experienced the pain five days earlier and the pain had gradually become worse.

During the initial examination, observation was unremarkable as gross deformity, swelling, ecchymosis, hip asymmetry, and antalgic gait were not noted. Palpation produced slight discomfort where the external oblique inserted onto the anterior half of the iliac crest. Passive and active hip and lumbar spine range of motion were within normal limits bilaterally; however, the patient reported a slight increase in pain (1 out of 10 on the NRS) with lateral flexion and trunk rotation to the contralateral side. Hip manual muscle testing revealed equal strength bilaterally in all planes of movement. Provocation testing, flexion, abduction, external rotation, and internal rotation with overpressure were negative. Neurological dysfunction was not observed. While the patient’s symptoms appeared mild, the AT knew the patient’s propensity to downplay or ignore symptoms. The AT discussed with the patient a working diagnosis of an external oblique strain or iliac crest apophysitis. The patient was instructed to rest, ice, and return to the athletic training clinic the next day; the patient chose not to return for further evaluation.

Five days after the initial evaluation, the patient returned to athletic activity without medical clearance. While warming up for a track competition, the patient began to experience hip pain. Despite the pain, he chose to participate in the 4 × 100 m relay event without informing the medical staff or his coach of his symptoms. Driving out of the block at the start of his race, the patient heard a “pop” and felt a “tearing” sensation in his left hip. The patient reported excruciating pain around the anterior aspect of his hip. After being transported to the emergency department (ED), radiographs of the left hip were negative for a fracture. The ED physician diagnosed the patient with a “muscle pull.”

The patient continued to complain of an “indescribable” amount of pain. Due to the pain level reported, the ED physician admitted the patient to the hospital. After several discussions with the patient’s AT, the family decided to transport the patient to a university hospital closer to their home for a second opinion. A second set of radiographs ordered revealed a 2-cm avulsion of the ASIS and a 3-cm avulsion on the anterolateral apophysis of the iliac crest (Figure 1). Due to the severity of the injury, the orthopedic specialist (MD) provided two treatment options to the patient’s family: (1) surgery to repair the fracture or (2) conservative management. The MD explained that conservative management would require the patient to remain nonweight bearing (NWB) for a minimum of six weeks and would prohibit participation in running activities for eight months. While the MD recommended surgery, the patient’s family chose the conservative approach.

At the patient’s 10-day postinjury visit, radiographic examination revealed minimal increase in callus formation (Figure 2). Palpation revealed a downwardly extended and more inferiorly prominent ASIS. Visible

![Figure 1](https://via.placeholder.com/150)

**Figure 1** Postinjury day 1: Avulsion fracture of the anterior superior iliac spine and iliac crest.

![Figure 2](https://via.placeholder.com/150)

**Figure 2** Postinjury day 10: Avulsion fracture of the anterior superior iliac spine and iliac crest.