2006 SEATA Athletic Training Student Symposium

CLINICAL CASE REPORT PRESENTATIONS

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Overview:

An open invitation was provided to all athletic training students to submit clinical case report abstracts for presentation at the 21st Annual SEATA Athletic Training Student Symposium. All abstracts were evaluated under a blind-review process by three published authors who selected the top four abstracts for presentation.

The winner of the 1st place abstract will also be asked to prepare case study manuscript that will be published in *Athletic Therapy Today*.

1st Place - Outstanding Clinical Case Report

Core Strengthening and Flexibility Training in a Rower Diagnosed with a Chronic Inflammatory Disorder: A Case Report
Merson, D, Laursen, RM, Sharpe, S: Boston University, Boston, MA.

2nd Place (tie)

Posterior Shoulder Injury In A 19-Year Old College Student
Holleman RM, Kirkpatrick MC, Manners JA: Western Carolina University, Cullowhee, NC; and Carolina West Sports Medicine, Sylva, NC

Bilateral Pitting Edema in a Collegiate Soccer Player
Mirabito VR, Bonanno, S, Norkus SA; Quinnipiac University, Hamden, CT

3rd Place

A Case Of A Congenital Neurological Condition In A Collegiate Baseball Player
Roach, AL, Manners, JA, Scifers, JR: Western Carolina University, Cullowhee, NC

CORE STRENGTHENING AND FLEXIBILITY TRAINING IN A ROWER DIAGNOSED WITH A CHRONIC INFLAMMATORY DISORDER: A CASE REPORT.

Merson, D, Laursen, RM, Sharpe, S: Boston University, Boston, MA.

Personal Data/Pertinent Medical History:
A 17-year old female high school senior rower complained of left knee pain, back pain, and bilateral hip pain, which was more severe in her right hip. The knee and back pain began two weeks prior to evaluation and the hip pain had been present for a year and a half. The hip pain initially presented when running but was absent when rowing. Over time the pain progressed to a 6/10 on the visual analog scale (VAS) when rowing. The knee pain fluctuated between a 2-3/10 on the VAS during activities of daily living. In her pursuit for a diagnosis and pain alleviation, she was seen by multiple physicians.

Physical Signs and Symptoms:
Postural assessment revealed a forward head, kyphotic shoulder posture, and diminished lordotic curve. Active range of motion was pain free at the hips and knees, although active lumbar flexion and extension was limited while standing due to pain. Passive left knee flexion was limited by 10 degrees with a firm end-feel, passive left knee extension was limited by 5 degrees with a firm end-feel, passive right hip flexion was limited by 15 degrees with a firm end-feel, and right passive hip adduction was limited by 5 degrees with a firm end-feel. All other motions were within normal limits. Further physical examination revealed: positive Thomas test for hip flexor tightness and positive Ober's test for iliotibial band tightness. Gait assessment revealed a Trendelenburg gait. Strength examination and a lower quarter neurological screen were within normal limits. Distal lower extremity pulses showed no sign of inhibition.

Differential Diagnosis:
Differential diagnosis included the following: juvenile rheumatoid arthritis, spondylolysis, presence of a tumor, lupus, and undifferentiated spondyloarthropathy.

Results of Diagnostic Imaging/Laboratory Tests:
An MRI revealed bilateral hip joint effusion and no identifiable pathology of the lower back. Radiographs indicated no evidence of periosteal bone formation.

Clinical Course:
A seven-week rehabilitation program was begun with the following goals: decreasing pain, improving flexibility, improving core strength, and return to rowing. The patient was treated for pain with Sulfasalazine and cryotherapy post exercise to reduce pain and inflammation. Lower extremity and low back flexibility training was performed before and after all rehabilitation exercise routines. Patient education included in-depth instruction regarding proper postural form during activities of daily living and proper technique for various stretches to isolate the muscle groups of the lower leg. The patient was limited in her running endurance training during the first three weeks of rehabilitation, and then was allowed to gradually run longer distances. During the fourth week, a core-strengthening program was initiated which consisted of: pelvic/core awareness exercises, bridges, prone extension exercises, with progressive variations that challenged her and allowed her to maintain interest. The core-strengthening program was performed six times per week along with a dynamic warm-up that stressed flexibility exercises previously introduced. At the end of the program, the patient was able to participate in rowing at a very comfortable level and was highly satisfied with how much the program increased her functional ability.

Deviation from the Expected:
A diagnosis of undifferentiated spondyloathropathy is extremely rare as the occurrence rate is less than .2% of back pain patients within the United States. Although these patients routinely suffer from chronic symptoms even with intervention, this case involved a positive outcome following rehabilitation. Improved function could be attributed to enhanced biomechanics and core stabilization as a result of this intervention.

BILATERAL PITTING EDEMA IN A COLLEGIATE SOCCER PLAYER

Mirabito VR, Bonanno, S, Norkus SA; Quinnipiac University, Hamden, CT

Personal Data:
The athlete was an 18 year old male Division I soccer player. After a preseason practice, the athlete presented to the athletic trainer with the chief complaint of swollen ankles. The athlete's past medical history listed a varicocele repair and osteomyelitis.

Physical Signs and Symptoms:
The athlete was found to have pitting edema bilaterally, encircling the malleoli and extending into the feet. The athlete did not recall any mechanism of injury and stated he did not feel ill. He did appear mildly jaundiced at the time of presentation. A physical examination including palpation of the leg and range of motion assessment were unremarkable. Tests for ligamentous injury, as well as Homan's Sign, were negative.

Differential Diagnosis:
Bilateral ankle sprains, viral illness, allergic reaction, gout, systemic disease, thrombophlebitis.

Results of Diagnostic/ Laboratory Tests:
The athlete was referred to the team physician where diagnostic tests indicated low platelet and hemoglobin levels, elevated hematocrit and total bilirubin, and liver function tests 15-20x normal. The athlete was referred and examined by a hematologist at 2 weeks S/P initial presentation and removed from all physical activity. At this time the pitting edema had resolved. Diagnostic tests conducted at this time concurred with previous results. Additional tests included a negative mononucleosis screen, peripheral blood smear revealing no blasts or early forms of leukemia, non-reactive Hepatitis A and B screens and abnormal protein levels. The athlete was then referred to a gastroenterologist. New tests during the 5^{th} week confirmed previous results. An abdominal ultrasound was performed during week 6 and found increased echogenicity along the portal triad and spleen, indicating enlargement of these structures. A follow-up blood test revealed positive findings of antinuclear antibodies as well as elevated anti-smooth muscle antibody levels.

Clinical Course:
At 8 weeks S/P initial onset, a diagnosis of Chronic Autoimmune Hepatitis was determined. The athlete began a course of Prednisone, Imuran, Calcium, Vitamin D and Folic Acid. At 16 weeks, the athlete was given consent to begin physical activity, excluding collision sports. At 19 weeks, an upper endoscopy to rule out varices and portal hypertension was performed. The procedure was unremarkable for both. Over the next 5 weeks, the athlete's liver function tests (LFT) never dropped below 2 times normal, indicating he was not responding to traditional treatment. The gastroenterologist suggested a liver biopsy to identify the extent of liver damage and confirm the diagnosis. At 24 weeks, a biopsy identified disruption of the normal hepatic architecture, with minimal to mild predominantly mononuclear inflammatory infiltrate. There was no significant inflammation of hepatic nodules or stainable iron or copper. There was evidence of micronodular cirrhosis, but regenerative changes were found. The athlete's pharmacotherapy was adjusted, decreasing the Prednisone due to a decrease in inflammation and increasing the Imuran due to the extent of liver damage. At 31 weeks, a second ultrasound was performed, with results similar to the first ultrasound and an even greater increase in the coarseness of the echotexture indicating hepatitis. At 32 weeks, the blood tests were normal, except for LFTs that had stabilized around 2 times normal. The athlete was cleared to return to soccer, but not collision sports. The final diagnosis was cirrhosis of the liver resulting from Chronic Autoimmune Hepatitis.

Deviation from the Expected:
Autoimmune diseases affect approximately 8% of the population, 78% of whom are women. In 1996 it was reported that chronic autoimmune hepatitis accounted for 1 in every 235,294 people in the US; 50% of whom are over 40 years at diagnosis. Knowledge of general medical conditions is imperative for the certified athletic trainer. This athlete presented with signs and symptoms common to any number of conditions and did not fit the typical demographic of a patient with autoimmune hepatitis. Clinicians should be aware of signs and symptoms of autoimmune diseases, and be willing to look beyond the obvious during assessment.

POSTERIOR SHOULDER INJURY IN A 19-YEAR OLD COLLEGE STUDENT

Holleman RM, Kirkpatrick MC, Manners JA: Western Carolina University, Cullowhee, NC; and Carolina West Sports Medicine, Sylva, NC

Personal Data/Pertinent Medical History: The patient is a sedentary 19 year-old male college student who reported to the local Emergency Department with complaints of left shoulder pain secondary to a grand mal seizure. The patient's roommate reported witnessing the patient having a seizure and denied trauma to the involved shoulder. The patient's past medical history taken during the initial evaluation revealed adequately controlled epilepsy with medications. Current medications include Zonegran for epilepsy. The emergency department also prescribed Codeine and Hydrocodone as needed for pain. At the time of the seizure, the patient had been experimentally reducing his dosage of Zonegran.

Physical Signs and Symptoms:
During the initial evaluation, the patient reported left shoulder range of motion limitation and pain over the lateral border of the scapula. Visual inspection of the patient's posture revealed bilateral rounded and internally rotated shoulders and a right convex 23-degree thoracic scoliotic curve with a right rib hump. Palpation of the left shoulder revealed point tenderness over the lateral border of the scapula. Palpation also revealed soft tissue restrictions of bilateral upper trapezius, scalenes, rhomboids, middle trapezius, left teres minor and major, and left infraspinatus. Range of motion testing demonstrated abduction limited to 90 degrees and external rotation limited 30 degrees, both secondary to pain. Manual Muscle Testing was deferred secondary to pain. All neurological tests were within normal limits.

Differential Diagnosis:
Differential diagnosis included ruling out a rotator cuff strain and a muscular contusion.

Results of Diagnostic Imaging /Laboratory Tests:
Plain radiographs taken at the emergency department revealed a fracture to the lateral border of the left scapula secondary to strong muscular contractions during the seizure. The patient was then referred to an orthopedist who ordered an MRI which confirmed a scapular border fracture.

Clinical Course:
Following the diagnosis of a scapular border fracture, the patient was referred for outpatient rehabilitation. The patient underwent a course of conservative treatment that included modalities for pain and inflammation control, as well as range of motion exercises to return shoulder abduction and external rotation to within normal limits. Strengthening was deferred until the fracture was healed. Six weeks post-injury, the patient was cleared to begin strengthening. He was placed on a basic shoulder and rotator cuff strengthening program. At this time the patient was also cleared by the physician for full activity. One week following the initiation of strengthening, he was discharged from rehabilitation and placed on a home exercise program of shoulder / rotator cuff strengthening to help prevent a similar injury from occurring in the future. It was also recommended that the patient begin a work out program at least 2-3 times per week to assist in increasing muscular strength of the upper extremity for activities of daily living. At this time, the patient was also placed back on his full dosage of Zonegran.

Deviation from the Expected:
Of all fractures that occur in the body only one percent occur to the scapula. Scapular fractures typically occur to the body or spine of the scapula and are usually due to a blunt trauma or force. This case presents with an extremely unique mechanism of injury as well as an uncommon fracture site.

A CASE OF A CONGENITAL NEUROLOGICAL CONDITION IN A COLLEGIATE BASEBALL PLAYER

Roach, AL, Manners, JA, Scifers, JR: Western Carolina University, Cullowhee, NC

Personal Data/Pertinent Medical History:
The athlete in this case is a nineteen year- old, Caucasian male, Division I collegiate baseball pitcher and outfielder. During January of 2005, this athlete reported to the Athletic Training Room for stretching before baseball practice. At this time, anisicoria was discovered. Past medical history for head trauma was unremarkable. The athlete was previously diagnosed with congenital Horner's Syndrome as an infant.

Physical Signs and Symptoms:
Evaluation revealed his left pupil to be fixed and constricted. Cranial nerve evaluation was within normal limits except for the oculomotor nerve (CNIII). The athlete reported facial anhidrosis and anisicoria since birth. Additionally, this athlete demonstrated pupillary miosis, heterochromia of the left iris, mild ptosis and upside-down ptosis of the lower lid. Normal signs and symptoms of Horner's Syndrome include ptosis, pupillary miosis, facial anhidrosis, apparent enophthalmos, increased amplitude of accommodation, heterochromia of the irides (if onset is before age 2 or the condition is congenital), paradoxical contralateral eyelid retraction, transient decrease in intraocular pressure, and changes in tear viscosity.

Differential Diagnosis:
Differential diagnosis included ruling out concussion, severe brain trauma, a brain tumor and cranial nerve trauma.

Results of Diagnostic Imaging/ Laboratory Tests:
No diagnostic tests were completed on this athlete. Typically, laboratory tests, as well as an MRI or CT Scan may be completed to help identify the underlying cause of the Horner's Syndrome. The only way to truly diagnose Horner's Syndrome is through pharmacological testing. A 4%-10% Cocaine Solution is dropped into the eyes to determine if Horner's Syndrome is present. A positive test results in pupillary dilation. Twenty-four to forty-eight hours later, a 1% Hydroxyamphetamine Solution is dropped into the eyes to determine whether the lesion is Preganglionic or Postganglionic. Pupillary reactions are assessed 30-60 minutes following application of the eye drops.

Clinical Course:
There are three different forms of Horner's Syndrome. The first form of Horner's Syndrome is congenital which is typically due to a brachial plexus injury during birth. The second is Preganglionic Horner's Syndrome which can be caused by trauma, aortic or carotid dissection, tuberculosis or by a Pancoast tumor. The third form of Horner's Syndrome is Postganglionic, which is also caused by trauma, a cluster migraine headache, neck surgery or thyroid surgery. Generally, treatment depends on the patient's cause of Horner's Syndrome. In many cases there is no treatment that improves or reverses the condition. Treatment in acquired cases is directed toward eradicating the disease that is producing the syndrome.

Deviation from the expected:
Literature and research demonstrate that Congenital Horner's Syndrome is the least common of the three ways the syndrome presents. This case is especially important to athletic trainers because it emphasizes the importance of knowing your athlete's past medical history. If this condition had not been discovered prior to a head injury, the pupil discrepancy would have indicated a false sign of severe head trauma, therefore, a significant sign/symptom would not be accurate. Additionally, this athlete was told as a child that he would never play sports due to his injury. Not only is this athlete defying this prediction, he is performing at an all-star level, leading his team in virtually all offensive categories. The athlete demonstrates excellent depth perception for only having one pupil that functions normally.