Posterior back/Shoulder Pain in a College Football Athlete

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Abstract

Background: For this level 3 case report, a 21 y/o male D2 football wide receiver. Athlete has no prior medical history of shoulder or back injuries. Athlete reported to the athletic trainer complaining of right shoulder pain and upper back pain at the end of the previous football game. The athlete stated they heard a pop and felt a posterior dislocation when pushing off the ground getting up being the first time it happened. The athlete denied no deformities, abnormalities, swelling, inflammation, or signs of trauma. Athlete has point tenderness over the greater tubercle, anterior/posterior deltoid, supraspinatus, and transverse humeral ligament. Athlete has full ROM with flexion, abduction, internal/external rotation but reports pain toward end ROM for external rotation and flexion. (-) apprehension test, (+) relocation test, (+) empty can test, (+) AC distraction test, (+) Hawkins Kennedy, (+) speed’s test, (-) Clunk test (-) AC shear test. Differential Diagnosis: Shoulder impingement syndrome, rotator cuff tendonitis, Biceps tendonitis, instability of the capsule. Initial Treatment: Athlete began conservative treatment with athletic training staff. It was determined that the athlete had glenohumeral instability and possible rotator cuff strain. Symptom management in the rotator cuff and general shoulder area utilized ice and NSAIDS. Goal of treatment was to strengthen the shoulder capsule along with pain management. Ongoing therapeutic exercises that are bodyweight based were utilized to strengthen the shoulder joint along with preventing any further stress to the area of concern. Specifically, protraction and horizontal pushing exercises using a forward lean with bodyweight as resistance was used to progress the athlete back to full shoulder strength. Athlete returned to full practices and was able to continue the season without further injuries or shoulder instability. Uniqueness: The number of football related shoulder injuries every year is significantly high. Some of the most common injuries occur in the form of rotator cuff pathologies, AC joint injuries, and glenohumeral instability. There is a high frequency in the amount of shoulder injuries that occur from contact sports, player to player contact, or player to surface contact. The high frequency of shoulder injuries among football athletes highlights the importance of proper management and appropriate treatment of shoulder injuries. This specific case highlights glenohumeral joint instability among football players and the immediate intervention and strengthening of the joint can prevent a worse injury or further pathologies. The purpose of this case report is to explain the response of bodyweight based therapeutic exercises was utilized and consistent prehab exercises were used to strengthen overall shoulder stability to help to prevent any further injuries from occurring in the athlete’s future. Conclusions: This case highlights the diagnosis and treatment of an athlete suffering from glenohumeral instability and Rotator Cuff tendonopathy. This case further highlights the importance of proper intervention in athletes instead of over utilizing symptom management pieces. Proper and immediate intervention of glenohumeral instability and Rotator Cuff tendonopathy, along with early intervention, can successfully help rehabilitate and prevent further injuries related to the shoulder joint.

Introduction

Shoulder injuries are among some of the most common injuries affecting athletes in many sports. Specifically, football athletes have a history of shoulder injuries. The quarterback specifically has shown to have a higher prevalence. Many shoulder injuries can consist of a number of pathologies, not all require surgical or drastic intervention. However, pathologies such as shoulder impingement may lead to potential rotator cuff and glenohumeral instability injuries. The following information will explain the mechanism of injury, clinical assessment, and plan of rehab for this athlete’s shoulder injury.

Purpose

The purpose of this case report was to introduce a 21 year-old division I football player who sustained a shoulder injury. Even though the findings were unremarkable in terms of tendon strength, quality, and ROM, the athlete presents with an overuse injury in which the terms of intervention were insufficient. The overall purpose of this case report was to provide information and a better understanding of how overuse injury occurs when the best course of intervention is to prevent further injuries from occurring.

Anatomy

Understanding the anatomy of the shoulder in relation to rotator cuff tendonopathy of the supraspinatus tendon is essential in understanding the injury and why it occurs. The four rotator cuff muscles consist of the infraspinatus, teres minor, supraspinatus, and subscapularis. If the humeral head of the shoulder joint is made up of four joints including the scapulothoracic joint, acromioclavicular joint, sternoclavicular joint, and glenohumeral joint. The rotator cuff works to keep the head of the humerus to the upper arm within the glenoid fossa of the scapula along with external rotation and stability of the glenohumeral joint. The long head of the biceps also plays a role as the highway to the shoulder where it crosses the bicipital groove to insert in the superior portion of the labrum. The delicate balance between these 5 muscles stabilizes the humeral head and allow for motion across the coronal, sagittal, and transverse planes of motion. As one particular muscle becomes weaker or stronger the others become weaker and cause instability within the shoulder joint. The repetitive motion created from throwing a football creates overuse of the firing muscle where the tendon becomes inflamed that may be due to a change in routine or a substantial increase in activity.

Case Report

Patient: This Division I football player is a 21 year-old wide receiver with rotator cuff tendonopathy and shoulder instability. This injury was due to overuse of the rotator cuff muscles and had an insidious onset. The following information will explain the mechanism of injury, clinical findings, diagnosis, treatments, and outcomes to provide additional information to this athlete’s injury.

Mechanism of Injury: Rotator cuff tendonopathy and shoulder instability shoulder injuries that occur from noncontact, player to player contact, or player to surface contact. The high frequency of shoulder injuries among football athletes highlights the importance of proper management and appropriate treatment of shoulder injuries. This specific case highlights glenohumeral joint instability among football players and the immediate intervention and strengthening of the joint can prevent a worse injury or further pathologies. The purpose of this case report is to explain the response of bodyweight based therapeutic exercises was utilized and consistent prehab exercises were used to strengthen overall shoulder stability to help to prevent any further injuries from occurring in the athlete’s future. Conclusions: This case highlights the diagnosis and treatment of an athlete suffering from glenohumeral instability and Rotator Cuff tendonopathy. This case further highlights the importance of proper intervention in athletes instead of over utilizing symptom management pieces. Proper and immediate intervention of glenohumeral instability and Rotator Cuff tendonopathy, along with early intervention, can successfully help rehabilitate and prevent further injuries related to the shoulder joint.

Rehabilitation and Results

Following the decision to use bodyweight exercises rather than traditional shoulder strengthening exercises, the athlete successfully completed all three phases with notable outcomes of accomplished goals in all three phases. The athlete was able to complete the first two phases within the first two weeks and no set backs were noted. Athlete progressed to phase three with the goals of returning to full muscular strength, range of motion, pain free, and increased shoulder stability. Athlete successfully completed all three phases with notable outcomes of accomplished goals in all three phases. The athlete continued a condensed prehabilitative protocol for the rest of the season and did not have a reoccurrence of injury and notes significantly stronger stabilization than pre-injury. Rehabilitation was efficient and is to be believed the best possible outcome for the athlete.

References


Radiology Intelligent Assistant


Hawkin’s Kennedy, (+) speed’s test, (-) Clunk test (-) AC shear test. Special tests for the supraspinatus tendon; a positive test indicates a supraspinatus pathology that can either be a complete tear or small. Hawkins Kennedy tests for shoulder impingement which further indicates supraspinatus as the inflammation can cause rubbing on the subacromial space. Speed’s test’s for biceps tendon and positive test indicates biceps pathology.

Radiographic Findings: Radiographs include left AP and axillary lateral views dated (today) revealed no acute fractures or dislocations. Osseous and soft tissue structures within the limits. There are age appropriate amounts of glenohumeral joint arthritis with a concentric reduction. The glenoid is normal in contour. The humeral head is normal in contour. No subacromial space. Speed’s tests for biceps tendon and positive test indicates biceps pathology.

Clinical Examination: Initial evaluation revealed no deformities, abnormalities, swelling, inflammation, or signs of trauma. Athlete had point tenderness over the greater tubercle, anterior/posterior deltoid, supraspinatus, subscapularis, and transverse humeral ligament. Athlete has full ROM with flexion, abduction, internal/external rotation. (-) apprehension test, (+) empty can test, (-) AC distraction test, (-) Sulcus sign, (+) Hawkins Kennedy, (+) speed’s test, (-) Clunk test (-) AC shear test. Special tests for the supraspinatus tendon; a positive test indicates a supraspinatus pathology that can either be a complete tear or small. Hawkins Kennedy tests for shoulder impingement which further indicates supraspinatus as the inflammation can cause rubbing on the subacromial space. Speed’s test’s for biceps tendon and positive test indicates biceps pathology.

Discussion and Summary

Shoulder injuries are a common occurrence among college athletes. Specifically Rotator cuff pathologies such as tendinitis or tendonopathy may not be a debilitating injury but over time can develop into an acute injury and have lasting consequences. With proper intervention and preventative care, overuse injuries can be decreased and managed. The shoulder joint is a complex mechanism that relies on multiple muscles to hold in alignment. Imbalances can occur that leads to increased abnormal stresses and abnormalities, overuse of the firing muscle can cause failure of the structure. Physical examinations to determine biomechanics, frequency of play, and cross structural analysis can reveal small deficits in athletes causing minor pain and discomfort during play.

The injury process was accurately assessed. The uniqueness of this athlete was multiple shoulder pathologies that could have led to failure of structures within the shoulder over the course of the season. From the initial onset to full functional return to play the athlete followed the assigned rehabilitation protocol. With the proper management and diagnosis of the injury, rehabilitation was efficient and is to be believed the best possible outcome for the athlete.