Clinical Case Presentation: Bilateral Staged Pectoralis Major Tendon Transfer for Serratus Anterior Insufficiency

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Background: Injury to the Serratus Anterior muscle causes significant functional impairment including pain, scapular winging, weakness, and inability to raise the arm. Serratus Anterior insufficiency can occur due to trauma, nerve injury, virus, overuse, and Parsonage-Turner syndrome

Purpose: Most impairments of the Serratus Anterior muscle resolve in 6 months to a year. However, when significant functional impairment persists for more then a year, surgical options should be considered. A variety of surgical options have been described. One such option is the transfer of the Pectoralis Major muscle for relief of pain and shoulder dysfunction.

Case Description: This case describes a 22 year old female from Kuwait who developed pain and severe shoulder impairment bilaterally after removal of an abscess from her back. The patient sought care in several different countries including Germany, Czech Republic, and was later diagnosed with a form of myopathy in London. The patient then saw a neurologist and orthopedic surgeon at The Hospital for Special Surgery in New York. She was diagnosed with a form of mild muscular dystrophy. The decision was made to perform staged Pectoralis Major transfers 16 weeks apart. The patient underwent extensive physical therapy at Hospital for Special Surgery following each procedure. This case will describe the physical therapy intervention, progression, and results

Outcomes: The surgery and subsequent physical therapy resulted in significantly improved pain and function of both arms. Patient had significant improvements in range of motion and strength and was very pleased with the outcome

Discussion: Serratus anterior insufficiency can profoundly affect the function and quality of life for an individual due to the inability to functionally use the arm. Without the ability to stabilize or upwardly rotate the scapula, dyskinetic scapulohumeral rhythm results, causing pain and impaired shoulder function. This case demonstrates a patient with bilateral involvement, which results in exponentially more impairment, and presents unique challenges for the clinician in terms of the rehabilitation. The case also demonstrates that when conservative management fails to alleviate the problem, pectoralis major transfer is a viable surgical option. Post surgical rehabilitation is critical to the success of the surgery. This case will demonstrate an effective functional progression that clinicians can use, and will present techniques which will address the unique challenges/limitations faced when rehabilitating a patient with Pectoralis Major transfer for Serratus Anterior Insufficiency in general and bilaterally, as in this particular case. Criteria for advancement will be presented. This model will help other therapists facing a patient who has had this procedure or a similar procedure with a framework for therapeutic management.