



## Case Report

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# Acute Shoulder Pain with Atrophy in A Middle-Aged Male

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## Introduction

A 46-year-old male with a remote history of left shoulder dislocation presented to our primary care sports medicine clinic with 3 days of posterior and lateral left shoulder pain with all activities. The patient denied any trauma or falls and stated that he was awoken by pain at night. On the day of presentation to clinic the patient also began noticing numbness of his left thumb. Physical examination of the shoulder was notable for limited internal rotation range of motion only (which was his baseline given prior shoulder dislocation) and mild tenderness of the parascapular muscles. He had grossly intact rotator cuff strength and his special testing including painful arc, Neer's, Hawkins, and apprehension were all negative. His neck exam was notable for an equivocal Spurling's test, but was otherwise normal including full range of motion, intact upper extremity strength, and 2+ biceps, triceps, and brachioradialis reflexes. An x-ray of the shoulder was obtained and revealed only mild acromioclavicular arthritis. The patient was deemed to have nerve impingement of the left C5 vs C6 nerve root likely from a herniated disc and was prescribed a Medrol dose pack, tizanidine, and home exercises.

He returned one week later with persistent and slightly worsening pain with examination showing significant left trapezius and levator scapulae muscle tenderness and tautness but intact muscle strength. The patient underwent trigger point injections at this visit and was referred to physical therapy with follow up scheduled in 6 weeks. At his follow up visit, the patient had complete resolution of pain and maintained his baseline range of motion, however he had developed significant weakness. He described difficulty with holding pans and doing anything physically

demanding because of weakness and easy fatigability of his left upper extremity. At this visit, the patient recalled one week prior to his initial presentation that he received the influenza vaccine. Physical examination revealed atrophy of left infraspinatus and supraspinatus along with weakness during empty can and resisted external rotation. Based on the patient's history and physical exam, which of the following is the most likely diagnosis?

- A Parsonage Turner Syndrome/Neuralgic Amyotrophy
- B Cervical radiculopathy
- C Rotator cuff tear
- D Axillary nerve injury from prior shoulder dislocation
- E Adhesive capsulitis

The answer is A. Parsonage Turner Syndrome (PTS). Also known as neuralgic amyotrophy, PTS is a syndrome characterized by an abrupt onset of unilateral shoulder pain that can progress to neuromuscular changes including weakness, reflex changes, and sensory changes [1]. While etiology is not entirely understood, potential predisposing factors include immunizations, trauma, infections, or surgery [2]. Oftentimes pain can be severe and last several weeks, followed by weakness and subsequent atrophy of the muscles associated with the affected nerve. The most commonly affected areas are the brachial plexus as well as the suprascapular, long thoracic, superficial radial, anterior interosseous, and axillary nerves [2]. The suprascapular nerve provides innervation to the supraspinatus and infraspinatus, as was seen in this case with obvious atrophy of these particular rotator cuff muscles. The

patient's history of preceding vaccination the week prior to onset of symptoms was the key to diagnosis.

Non-heredity cases of PTS typically occur around age 40 [3], and incidence is much higher than previously found with one study showing a one-year incidence rate of 1 per 1000 patients [4]. Conservative treatment focuses on pain control with corticosteroids, NSAIDs, and narcotics, and regaining motor control and function through physical and occupational therapy [2]. Surgical intervention can be considered in severe cases with no improvement after 6 months.

Cervical radiculopathy results from compression or irritation of cervical nerve roots at one or more vertebral levels [5]. It affects lower motor neurons and presents with arm pain, weakness, and sensory loss but rarely with gross atrophy.

Rotator cuff tears typically present as progressive anterolateral shoulder pain that can radiate into the deltoid and are often associated with nighttime pain and weakness but no atrophy in the absence of an acute, traumatic full thickness tear. Although no one physical examination finding is reliably diagnostic for a rotator cuff tear, combining highly sensitive tests (Hawkins, painful arc) with highly specific tests (external lag, drop arm) can improve the accuracy of the physical examination [6].

Axillary nerve injury can occur in up to 40% of cases involving a glenohumeral shoulder dislocation [7]. However, most axillary nerve injuries recover rapidly and completely within 6 months.

Adhesive capsulitis can also present with severe pain similar to PTS. However, patients with adhesive capsulitis will develop a significant decreased range of motion while typically maintaining their rotator cuff strength [8].

## Acknowledgement

None.

## Conflict of Interest

No conflict of interest.

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