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Case Report

An unusual cause of unilateral shoulder weakness: Parsonage–Turner syndrome—A case report

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ABSTRACT

Parsonage- Turner Syndrome (PTS) is characterized by an initial episode of intense pain followed by muscle weakness, atrophy, and sensory abnormalities within the peripheral nervous system. A painless variant known as Neuralgic Amyotrophy may present bilaterally (~30%) and exhibit recurrent patterns. While the upper brachial plexus is typically affected, PTS can also impact the lumbosacral plexus or manifest as an isolated peripheral mononeuropathy. The condition's origins remain unclear but appear to involve genetic predisposition, immunologic events, and mechanical factors. Approximately 30 to 70% of PTS cases are triggered by events like infection, vaccination, pregnancy, or surgery. Describing a case of a 21-year-old male, our outpatient clinic encountered prolonged acute shoulder pain and motor weakness, leading to a PTS diagnosis after a year of persistent symptoms. The patient complained of left-sided neck pain radiating to the deltoid muscle, axilla, and shoulder blade during the visit. Electrodiagnostic studies confirmed denervation limited to the left deltoid muscle, excluding cervical radiculopathy.

1. Introduction

Parsonage Turner syndrome, initially described in 1887 and clinically defined by Parsonage and Turner in 1948,[1] is characterized by episodes of neuropathic pain and patchy paresis in the upper extremities. Neuralgic amyotrophy, also known as acute brachial neuritis, involves a complex pathophysiological mechanism influenced by genetic, autoimmune, and external factors.[2] The disorder typically presents with severe atraumatic pain in the shoulder girdle, followed by a reduction in pain within 1-3 weeks and subsequent weakness in at least one shoulder muscle.[3] Brachial neuropathy comes in idiopathic and hereditary forms, with hereditary cases being less common.[4,5] Recognition of neuralgic amyotrophy by physicians is often delayed, with an average delay of 3-9 months, and misdiagnoses such as cervical radiculopathy or rotator cuff disease are common.[6] The upper brachial plexus is frequently affected, leading to both motor and sensory nerve symptoms.[1,2] Women experience symptoms along the distribution of the middle and lower brachial plexus more frequently (23%) than men (11%).[7] Muscles commonly affected include serratus anterior, spinati, triceps, deltoid, and biceps. Unilateral cases often involve the right side (54%).[4] Nerve biopsies in these patients reveal evidence of ischemic changes, indicating an immune pathogenesis.[8] We present a clinical case of a young male patient with challenging diagnostic features, including disabling shoulder pain, progressive motor weakness in shoulder girdle muscles, and autonomic impairment of the upper limb.

2. Case Report

A 21-year-old individual with no notable medical history visited our outpatient clinic, reporting predominant left-

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sided neck pain characterized as 'achy, stabbing, and burning.' The pain extended into the axilla and left shoulder, accompanied by developing weakness in the shoulder girdle muscles and disruptions in sleep patterns. Initial treatment involved NSAIDs, and a follow-up appointment was scheduled. During the second visit, the patient persisted in describing a dull, widespread pain across the shoulder girdle and exhibited evident muscle atrophy in the left deltoid muscle.

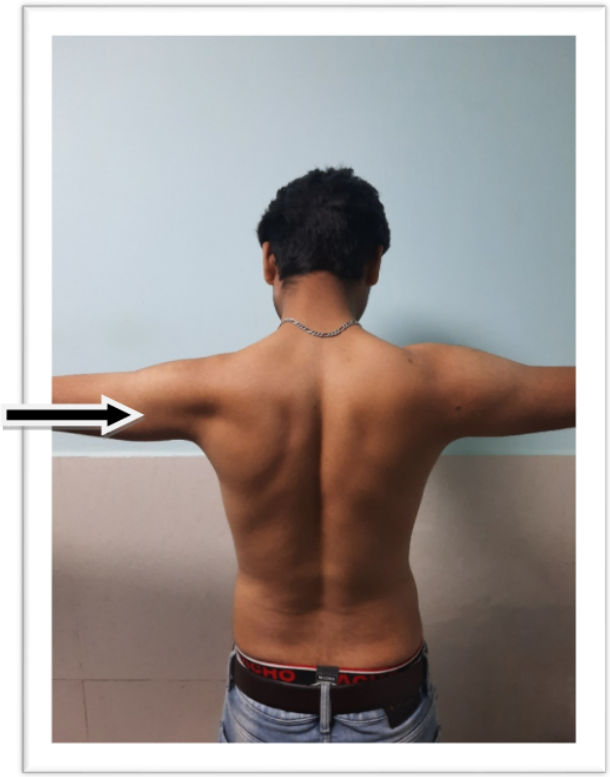


Figure 1: Showing deltoid atrophy of the left side

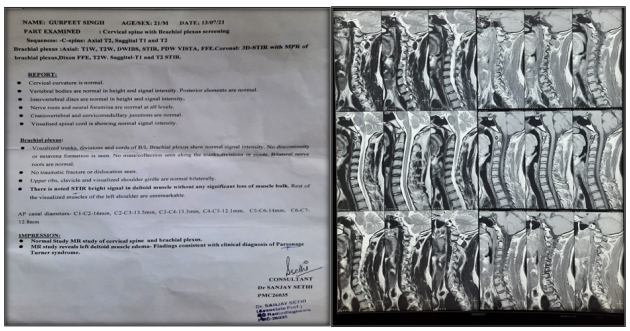
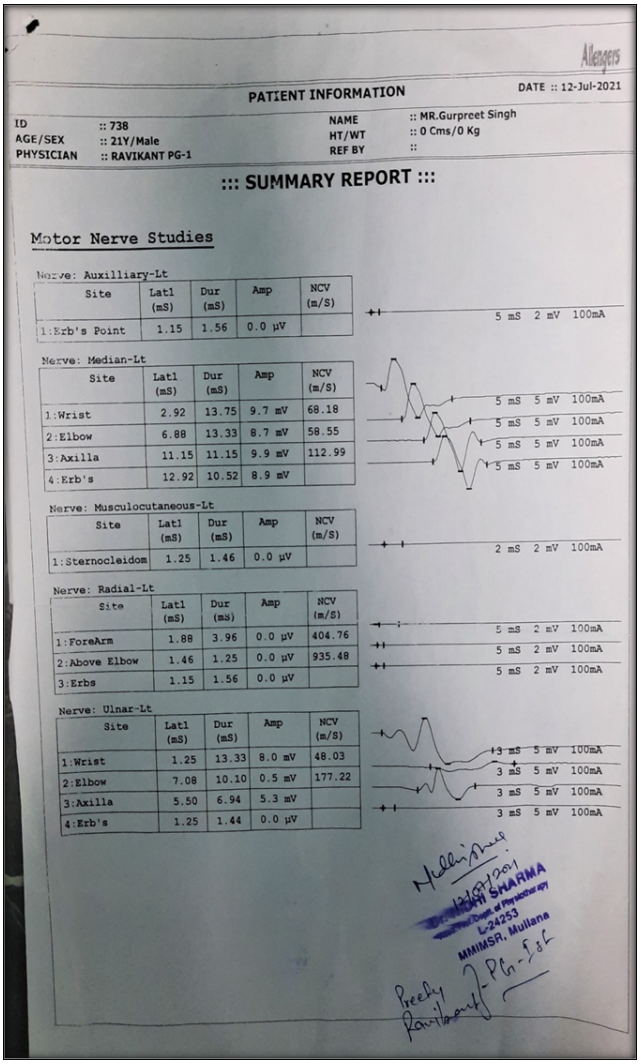


Figure 2: MRI of the left shoulder showing STIR bright signal in deltoid muscle suggestive of left deltoid muscle edema

An electromyography (EMG) and magnetic resonance imaging (MRI) were conducted 12 weeks after symptom onset. The MRI of the left shoulder revealed STIR bright signal in the deltoid muscle, indicating edema. The diagnosis of PTS was established, and conservative treatment was recommended, incorporating aggressive pain management and intensive outpatient physical therapy.



PATIENT INFORMATION — DATE :: 12-Jul-2021

ID :: 738 | NAME :: MR.Gurpreet Singh
AGE/SEX :: 21Y/Male | HT/WT :: 0 Cms/0 Kg
PHYSICIAN :: RAVIKANT PG-1 | REF BY ::

::: SUMMARY REPORT :::

Motor Nerve Studies

Nerve: Auxilliary-Lt

Site	Lat1 (mS)	Dur (mS)	Amp	NCV (m/S)
1:Erb's Point	1.15	1.56	0.0 µV	

Nerve: Median-Lt

Site	Lat1 (mS)	Dur (mS)	Amp	NCV (m/S)
1:Wrist	2.92	13.75	9.7 mV	68.18
2:Elbow	6.88	13.33	8.7 mV	58.55
3:Axilla	11.15	11.15	9.9 mV	112.99
4:Erb's	12.92	10.52	8.9 mV	

Nerve: Musculocutaneous-Lt

Site	Lat1 (mS)	Dur (mS)	Amp	NCV (m/S)
1:Sternocleidom	1.25	1.46	0.0 µV	

Nerve: Radial-Lt

Site	Lat1 (mS)	Dur (mS)	Amp	NCV (m/S)
1:ForeArm	1.88	3.96	0.0 µV	404.76
2:Above Elbow	1.46	1.25	0.0 µV	935.48
3:Erbs	1.15	1.56	0.0 µV	

Nerve: Ulnar-Lt

Site	Lat1 (mS)	Dur (mS)	Amp	NCV (m/S)
1:Wrist	1.25	13.33	8.0 mV	48.03
2:Elbow	7.08	10.10	0.5 mV	177.22
3:Axilla	5.50	6.94	5.3 mV	
4:Erb's	1.25	1.44	0.0 µV	

Figure 3: Nerve conduction study of the left upper limb showing weak axillary nerve amplitude

3. Discussion

Parsonage-Turner Syndrome, also known as neuralgic amyotrophy, acute brachial neuritis, or brachial neuropathy,[9] has an incidence of 1.64 cases per 100,000 person-years[4] and is more common in men than women.[2] Cases have been reported in individuals aged 12 weeks to 75 years, with the peak onset between the 3rd and 7th decades. The syndrome is associated with recent infections, vaccinations, post-surgical plexopathy, strenuous exercise, and pregnancy.[4] Symptoms include abrupt neurogenic pain

in the shoulder and arm, followed by muscle weakness, atrophy, and sensory loss.[1,10] The severe pain involves the neck, shoulder, and arm region,[2] lasting up to one month in most cases. Paresis can take up to 14 days to develop,[2] with 66% of cases being unilateral and 34% bilateral. In unilateral cases, 54% involve the right side.[4] Similarities with adhesive capsulitis include severe, night-worsening pain, an idiopathic nature, nonspecific inflammation, and spontaneous resolution with good long-term recovery.[11,12] However, glenohumeral motion is preserved in PTS, distinguishing it from adhesive capsulitis. Prognosis for neuralgic amyotrophy is generally favorable, with 89% of patients having full functional recovery at three years.[13] Pain management involves NSAIDs and opiates, while short-term steroid use may alleviate pain and expedite recovery.[1,6] Physiotherapy addresses musculoskeletal pain caused by altered biomechanics, focusing on posture and joint mobility. Strength training is discouraged due to muscle denervation. While most patients fully recover over time, some may experience chronic pain and functional deficits,[7] with 60% of upper plexus lesions potentially recovering within 12 months.[4]

4. Conclusion

Diagnosing neuralgic amyotrophy can be challenging, often being mistaken for neck or shoulder issues.[2] Clinical suspicion is crucial, with attention to history and examination findings such as scapula winging or scapula alta.[4] The chronological development of signs and symptoms is vital for an accurate diagnosis.[1] Currently, no definitive tests confirm Parsonage-Turner syndrome, but CT, MRI, and EMG may be used to rule out other conditions.[2,7] The role of nerve conduction studies (NCS) remains uncertain.[14] EMG is employed to assess brachial plexus demyelination.[1] Despite efforts, the treatment for Parsonage-Turner syndrome remains unknown.[14]

5. Patient Consent

A duly informed and written consent has been taken from the patient.

6. Source of Funding

None.

7. Conflict of Interest

There is no conflict of interest regarding the submitted article.

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