Immune Mediated Sensory Axonal Polyneuropathy and Elevated Prostate Specific Antigen Levels in A 74-Year-Old Man

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Abstract

Sensory neuronopathies constitute a specific subgroup of peripheral neuropathies characterized by primary and selective dorsal root ganglia neuronal destruction. In immune-mediated Sensory neuronopathies, most available data support the concept of direct inflammatory damage to dorsal root ganglia neurons mediated by CD8 T lymphocytes. Large myelinated fibers that convey sense position and vibration are predominantly damaged in Sensory neuronopathies, leads to gait ataxia and widespread arreflexia. Nerve conduction studies are the most useful tests in the evaluation of suspected Sensory neuronopathies. Nerve conduction studies classically show a sensory neuropathy without a distal worsening gradient towards the legs. Sensory nerve conduction studies reveal widespread reduction of sensory action potential amplitudes combined with normal conduction velocity. Here, we describe a clinical case of 74-year-old man, presented with both immune mediated sensory axonal polyneuropathy and elevated prostate specific antigen levels.

Keywords: Sensory neuronopathies; Guillain-Barre Syndrome; Electromyography; Prostate Specific Antigen

1. Introduction

Sensory axonal polyneuropathy is a primary axonal subtype of Guillain-Barre Syndrome (GBS), one of various forms of a wide spectrum of acquired axonal polyneuropathies(Susuki et al., 2012)GBS is considered to be an immune-mediated polyneuropathy with some variations: a classic demyelinating form, acute inflammatory demyelization polyradiculoneuropathy (AIDP), acute motor–sensory axonal neuropathy (AMSAN), acute motor axonal neuropathy (AMAN), and Miller–Fisher syndrome (Hughes et al., 2005) Characteristics of this disease are acute onset with weakness of distal extremities, areflexia (Kotzaeridou et al., 2008). We present a case of both immune mediated sensory axonal polyneuropathy and elevated prostate specific antigen levels.

2. Case report

A 74-year-old patient presented with burning paraesthesias and decreased sensation in both lower limbs since 10 years. The illness started insidiously initially as burning sensation in patient's left sole and gradually spread and recently present up to both knees. There was no history of any motor or sensory

problems in upper limb. No history suggestive of cerebellar dysfunction, cognitive impairment or sphincteric involvement. Patient is also not a known case of diabetes and no history suggestive of autonomic dysfunction, joint pain, oral ulcers, photosensitivity, skin rash and dry eyes or dry mouth. From past medical history, patient was a known case of systematic arterial hypertension and also had a history of coronary artery disease. He was diagnosed with prostate cancer and received chemotherapy and radiotherapy since 67 years.

3. Discussion

Patient was previously diagnosed with an immune mediated sensory axonal neuropathy and admitted for re-evaluation of his disease status. He was on immunomodulation with mycophenolate and reported worsening of his sensory symptoms since the previous admission. After a thorough diagnostic evaluation to exclude other underlying causes of acute polyneuropathy, the diagnosis of AMSAN-like neuropathy was made based on the clinical and electrophysiologic signs. AMSAN is considered to be a rare variant of the Guillain-Barre syndrome, and one that usually has a more serious clinical course and slower recovery than the classic demyelinating form of Guillain-Barre syndrome(Walling, 2013 and van Doorn, 2008). Electromyography (EMG) was repeated and it showed worsening sensory conductions. From nerve conduction studies, sensory axonal polyneuropathy involving both lower limbs and sensory SNAP was reduced in right sural nerve (Table 1). No response to stimulation on both superficial peroneal and left sural nerve. Positron emission tomography–computed tomography (PET-CT) showed increased uptake in the prostate gland for which a urology and radiotherapy consult was obtained and he was advised for close monitoring (Fig.2). Prostate-Specific Antigen (PSA) levels and anti-onconeural antibodies normal during follow up.

In view of his worsening symptoms, immunomodulatory therapy was intensified with initiation of Intravenous Immunoglobulin (IVIG) and increased doses of Mycophenolate. Patient's symptomatic therapy was also optimized and he was started on occupational and physiotherapy during his hospital stay. At the time of discharge patient condition was improved, the nature of his disease was explained and he was discharged with T. Mycophenolic acid 360 mg twice daily, T. Pregabalin 75 mg once daily at bed time, T. Ondansetron 20 mg once daily at bedtime, T. Aspirin 75 mg, T. Atorvastatin 10 mg once daily at night, T. Ranitidine 150 mg twice daily, T. Neurobion Forte once daily, T. Bisoprolol 2.5 mg once daily.

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Conflict of Interest

All authors have no conflict of interest.

Table 1

Motor and Sensory Nerve Conduction Studies

Motor Nerve Conduction						
Nerve and Site	**Latency**	**Amplitude**	**Conduction**	**Duration**	**Amplitude ratio**	**Area Q**
Median R						
Wrist	2.8ms	20.3 mV	m/s	5.1 ms	%	48.5
Elbow	7.7 ms	12.5 mV	55m/s	6.4 ms	61.4%	31.2
Median L						
Wrist	3.0 ms	16.3 mV	m/s	5.5 ms	%	36.6
Elbow	7.5 ms	12.9 mV	58 m/s	6.1 ms	79.3%	30.2
Ulnar Nerve R						
Wrist	2.4 ms	17.4 mV	m/s	5.0 ms	%	34.8
Above Elbow	7.9 ms	14.5 mV	53 m/s	6.0 ms	83.1%	31.7
Ulnar Nerve L						
Wrist	2.6 ms	12.3 mV	m/s	5.9 ms	%	28.1
Above elbow	7.6 ms	12.0 mV	58 m/s	6.8 ms	97.2 %	28.5
Peroneal R						
Ankle	2.4 ms	2.1 mV	m/s	8.4 ms	%	5.6
Fibula (head)	11.6 ms	1.7 mV	43 m/s	6.6 ms	79.8%	3.7
Peroneal L						
Ankle	3.4 ms	1.9 mV	m/s	5.2 ms	%	3.7
Fibula (head)	11.8 ms	1.7 mV	46 m/s	5.3 ms	90.7%	3.7
Tibial R						
Ankle	4.6 ms	9.4 mV	m/s	4.9 ms	%	12.5
Popliteal fossa	13.3 ms	6.8 mV	48 m/s	7.4 ms	72.2%	13.8
Tibial L						
Ankle	4.5 ms	11.3 mV	m/s	4.6ms	%	15.5
Popliteal fossa	14.2 ms	8.3 mV	42 m/s	6.6 ms	73.7%	14.8
Recording on T.A.						
Right	3.4 ms	7.3 mV	m/s	14.6 ms	%	41.1
Left	3.5 ms	8.3 mV	m/s	12.8 ms	%	44.6
Femoral R						
Right	4.1 ms	5.5 mV	m/s	11.2 ms	%	25.9
Left	4.1 ms	3.8 mV	m/s	13.4 ms	69.8%	22.8
Sensory Nerve Conduction						
Nerve and site	**Distal latency**	**Amplitude**	**Conduction**	**Segment**	**Latency Difference**	**Distance**
Median R						
Wrist	2.1 ms	24μV	57m/s	Index	2.1 ms	120 mm

				finger-wrist		
Median L						
Wrist	2.1 ms	20 µV	58 m/s	Index finger-wrist	2.1 ms	120 mm
Ulnar R						
Wrist	2.3 ms	17 µV	49 m/s	little finger-wrist	2.3 ms	110 mm
Ulnar L						
Wrist	2.3 ms	16 µV	48 m/s	Little finger-wrist	2.3 ms	110 mm
Sympathetic Response						
Upper limbs					PRESENT	
Lower limbs					PRESENT	

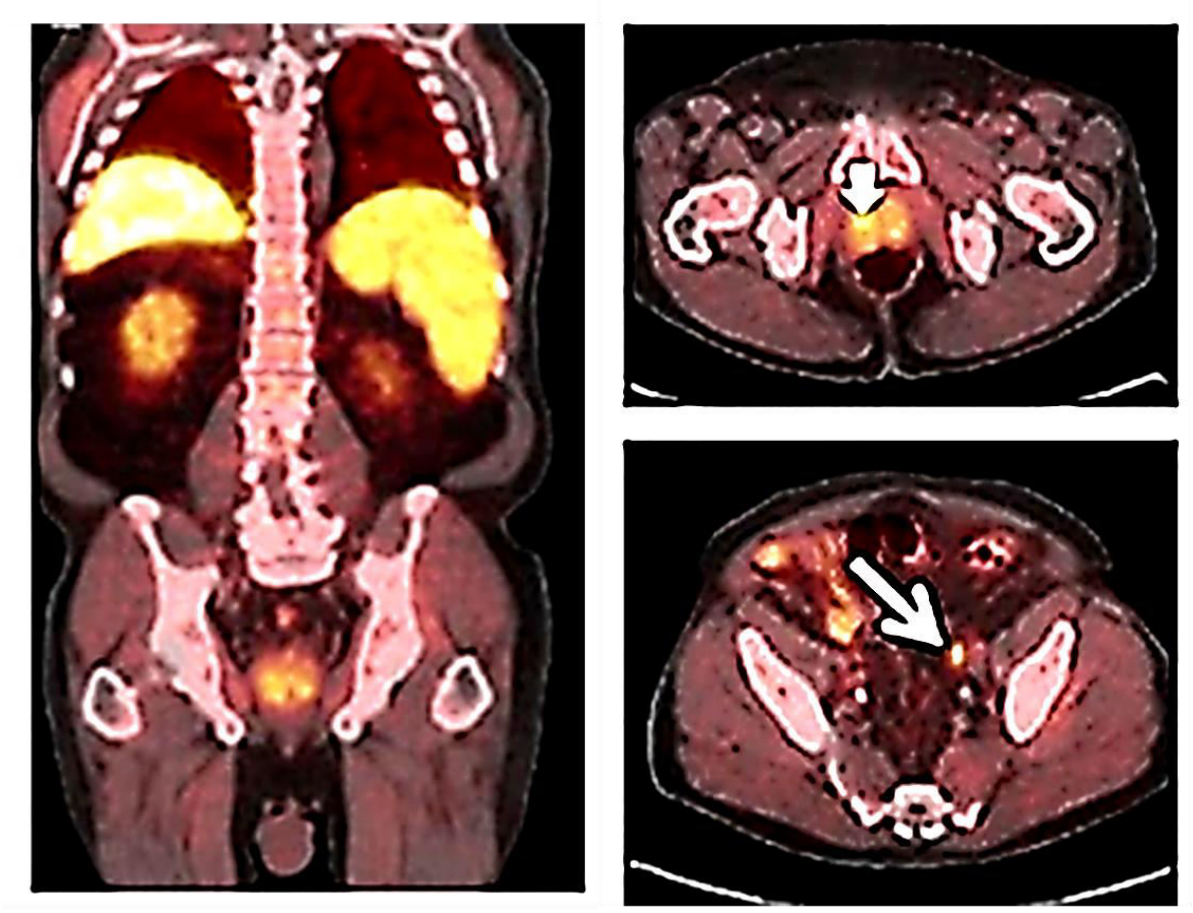

Fig. 1- PET-CT images of a patient with prostate cancer, short arrow showed maximum standardized uptake value and long arrows indicate a normal-sized left external iliac lymph node