

Post Varicella Axonal Polyneuropathy: An Unusual Complication

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Abstract: 32-year-old female presented with two months history of gradually progressive symmetric distal quadriparesis associated with atrophy of both hands and tingling sensations. Patient was having past history of varicella 2 weeks preceding the illness. On neurological examination patient was having wasting of small muscles of both hands, diminished power in distal group of muscles in all four limbs, DTRs were normal with normal tone and intact sensation along with bilateral plantar flexor response. Routine investigations were normal including LFT and RFT. IgG antibody titre to VZ virus was positive. There was no significant spinal cord compression on MRI cervical spine and MRI brachial plexus was normal. Nerve conduction study was suggestive of axonal polyneuropathy. After receiving oral acyclovir and IV methylprednisolone there was gradual improvement of symptoms. Although axonal polyneuropathy is an uncommon complication of herpes zoster it should be considered in a case of quadriparesis.

Keywords: varicella zoster, axonal polyneuropathy, dorsal root ganglion, anterior horn cells, segmental myelitis

1. Introduction

Chicken pox is a common viral infection with various neurological complications such as cerebellar ataxia, encephalitis, transverse myelitis, aseptic meningitis, Guillain-Barre syndrome, meningoencephalitis, optic neuritis, post-herpetic neuralgia, herpes zoster ophthalmicus, delayed hemiparesis, peripheral motor neuropathy, facial palsies etc. [1, 2] However, these are rare and are seen in only 0.01%–0.03% cases. [3] Limb paralysis following herpes zoster has been reported infrequently in India.

2. Case Report

A 32-year-old female presented with gradually progressive symmetric weakness of four limbs (distal more than proximal) associated with tingling and numbness sensations with thinning of both hand in the past two months. She had suffered from fever with rash and was diagnosed as varicella zoster 2 weeks preceding the onset of weakness. On examination, her pulse was 108/min, blood pressure-118/70 mm of Hg, respiratory rate 16/min and SpO₂ was 98%. On nervous system examination, there was wasting of bilateral hand muscles with normal tone. Power in distal group of

muscle of all four limbs was 3/5. The deep tendon reflexes of both upper limb and lower limb were normal with bilateral plantar flexor response. Sensory system examination was normal.



Figure: Atrophy of thenar and hypothenar muscles

Table 1: Routine blood investigations showing normal studies

Hb (g %)	13.2	ESR (mm)	11
TLC (cells/cumm)	8600	Serum total bilirubin (mg%)	1.5
TPC (lacs/cumm)	2.5	AST	48
RBS (mg/dl)	119	ALT	38
Serum (Mmol/L)		Serum	
Sodium	136	Urea (mg %)	15
Potassium	3.6	Creatinine (mg%)	0.9
Calcium	0.9		
HIV, HBV, HCV	Negative	HbA1c	4.8
Chest Xray	NAD	(VZV)-IgG antibody titers	440 U/ml (positive)
ECG	NAD	TSH (mIU/L)	2.5

MRI Cervical spine showed cervical spondylosis at C5-C6 level without significant cord compression.

Nerve conduction studies showed decreased amplitude of action potential of involved nerves, normal latency with mildly reduced conduction velocity suggestive of significant axonal involvement.

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Table 2: Nerve conduction study of all four limbs

Motor nerve conduction study								
Site	Latency (ms)		Duration (ms)		Amplitude (mV)		NCV (m/s)	
	R	L	R	L	R	L	R	L
Wrist median N.	2.92	3.02	16.46	15.21	7.5	3.4		
Elbow median N.	6.77	6.98	19.90	14.48	7.6	3.2	51.95	49.24
Wrist Ulnar N.	1.77	1.67	9.38	15.83	2.7	5.2		
Elbow Ulnar N.	6.04	5.83	10.94	12.71	2.0	5.1	49.18	54.09
Ankle PTN	3.23	4.27	7.92	7.40	0.5	1.3		
Ankle CPN	3.02	4.38	11.35	8.44	1.1	2.4	52.19	45.06
Knee FN.	9.27	10.63	11.25	12.29	1.0	1.8	51.20	51.28

Provisional Diagnosis

Electrophysiological findings along with presence of IgG to VZ virus supported the diagnosis of Post-varicella axonal polyneuropathy.

Further course in hospital

The patient was given tablet acyclovir and intravenous corticosteroids for 5 days. With this, she showed significant improvement in symptoms and there was gradual improvement after discharge.

3. Discussion

Post-herpetic neuralgia is the most common complication following a varicella infection which is due to reactivation of the latent infection. This complication usually involves the dorsal root ganglion. It may further progress to involve the anterior horn through motor nerve root giving rise to weakness. [4] It may also be due to segmental myelitis or secondary degeneration of affected motor nerve root, by inflammation. [5] The latency period between the onset of vesicular eruption and the development of limb weakness may vary from 1 day to 4 months. In our case, limb paralysis developed 2–3 weeks after the onset of skin lesions of zoster.

4. Conclusion

Physician should be aware of this condition and should consider varicella zoster infection while evaluating a case of acute onset motor weakness, as it is a reversible and treatable cause.

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