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Ahmed Abbas, Mark Cook, Liong Hiew Fu, Alistair Lewthwaite, Colin Shirley, Yusuf A. Rajabally

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A case of POEMS mimicking a "Guillain-Barré like" syndrome

Ahmed Abbas,[a] Mark Cook,[b] Fu Liong Hiew,[c] Alistair Lewthwaite,[c,d] Colin Shirley,[a] Yusuf A. Rajabally.[a,c,e]

Departments of Neurophysiology (a), Haematology (b) and Neurology (c), Queen Elizabeth Hospital, University Hospitals of Birmingham, Birmingham, U.K.

Department of Neurology, Russells Hall Hospital, Dudley, U.K. (d)

Aston Brain Centre, Aston University, Birmingham, U.K (e).

LETTER TO THE EDITOR

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Abbreviations: Acute-onset Chronic Inflammatory Demyelinating Polyneuropathy: A-CIDP, CIDP: Chronic Inflammatory Demyelinating Polyneuropathy; CSF: Cerebrospinal Fluid; GBS: Guillain-Barré syndrome; IVIg: Intravenous Immunoglobulin; MRC: Medical Research Council; MRI: Magnetic Resonance Imaging; POEMS: Polyneuropathy, Organomegaly, Endocrinopathy, M-protein, Skin changes; VEGF:Vascular Endothelial Growth Factor

Correspondence to:

Yusuf A. Rajabally
Aston Brain Centre
Aston University
Aston Triangle
Birmingham B4 7ET
United Kingdom.
e-mail: y.rajabally@aston.ac.uk
Telephone: +44-1213716848

LETTER TO THE EDITOR

Dear Editor,

POEMS syndrome (polyneuropathy, organomegaly, endocrinopathy, M-protein and skin changes) comprises a rare paraneoplastic entity secondary to an underlying plasma cell disorder. [1] The polyneuropathy is central to the syndrome and together with a monoclonal plasma cell disorder, is mandatory for the diagnosis. [1,2] Mixed axonal and demyelinating features are classically described alongside a clinically slowly progressive neuropathic course [3,4]. We describe an unusual case of newly diagnosed POEMS presenting acutely as a polyneuropathy resembling a "Guillain-Barré like" syndrome (GBS).

A 51 year-old man developed right lower limb numbness and foot drop, progressing over 3 weeks in severity and distribution to similarly involve the left lower limb, leading to loss of ambulation. He also complained of erectile dysfunction. On examination, there was symmetrical lower limb weakness with ankle dorsiflexion of MRC (Medical Research Council) grade 2, plantar flexion grade 3, knee flexion grade 3, knee extension grade 4 and hip flexion grade 3. He was generally areflexic and had distal lower limb vibratory and proprioceptive loss. In addition there was flaky dry skin with erythematous patches, ankle oedema and mild bilateral optic disc swelling.

Electrodiagnostic studies performed 3 weeks after symptom onset (Table 1) revealed diminished sensory amplitudes and absent motor responses in the lower limbs. Bilateral median and ulnar motor responses were slowed in the forearms with prolonged F-wave latencies. Needle electromyography identified active denervation in both Tibialis Anterior muscles. Cerebrospinal fluid was acellular but had elevated protein of 2.30 g/L (ref: 0.15-0.45). MRI of the brain and whole spine were unremarkable. The patient was presumed to have GBS, although a lack of cranial nerve affectation, respiratory or upper limb motor symptoms at 3 weeks also raised the possibility of acute-onset Chronic Inflammatory Demyelinating Polyneuropathy (A-CIDP). He was treated with Intravenous Immunoglobulin (IVIg) which led to a significant clinical response, with normalisation in strength of hip flexors, knee flexors and extensors, but no improvement in distal lower limb strength.

Further investigation with computed tomography scanning demonstrated splenomegaly and multiple prominent abdominopelvic lymph nodes. Serum immunofixation highlighted a monoclonal immunoglobulin A lambda paraprotein and subsequent endocrine screening revealed borderline high prolactin and low testosterone levels. Serum Vascular Endothelial Growth Factor (VEGF) levels were tested and returned significantly raised at 4589.67 pg/ml (ref: <771). Finally, a bone marrow trephine biopsy demonstrated typical appearances of megakaryocytic hyperplasia, plasma cell rimming around lymphoid aggregates and neoplastic plasma cells accounting for 7-8% of nucleated count, establishing the diagnosis of POEMS.

He was commenced on a chemotherapy regime of Cyclophosphamide, Thalidomide and Dexamethasone with the aim of subsequent bone marrow transplantation. Upon last review, 3 months following his IVIg infusion and during his third cycle of chemotherapy, there continues to be gradual neurological improvement with the patient managing to walk 50 yards with a frame.

Peripheral neuropathy in POEMS usually starts with distal sensory symptoms and motor deficits, which may ascend to affect proximal as well as distal muscles in a similar manner to Chronic Inflammatory Demyelinating Polyneuropathy (CIDP). [3,4] Indeed, frequent misdiagnosis of CIDP has led to several electrophysiological comparisons between these disorders; POEMS typically having more axonal loss, and greater slowing of intermediate nerve segments, with less frequent temporal dispersion/conduction block. [5,6] The distinction between these two entities is of practical importance in terms of prognostication and also treatment; with POEMS requiring radiotherapy, chemotherapy or stem cell transplantation as opposed to IVIg, steroids or plasma exchange.[1]

Acute neurological presentations of POEMS neuropathy appear to be rare, although sporadic cases have been reported in the literature. [7-10] Isose et al describe a 34 year old lady who developed weakness and sensory disturbances in the lower limbs progressing to loss of independent ambulation within 2 weeks. [10] Electrodiagnostic studies revealed axonal and demyelinating features and her CSF protein was raised. Other features in her clinical presentation also eventually led to a diagnosis of POEMS. Their case prompted a retrospective review of the progression of neuropathy in 30 consecutive patients they had diagnosed with POEMS. Amongst the 22 patients that were unable to walk independently,

loss of ambulation occurred within a median period of 9.5 months (range 0.5-51 months); much more typical of the neuropathy encountered in POEMS.

Our case is notable in describing an acute peripheral neuropathic presentation of POEMS also responding to IVIg treatment, more akin to GBS or A-CIDP than typical CIDP. However, unusual features including the distal greater than proximal lower limb weakness, profound lower limb motor axonal loss and persistent post-IVIg lower limb distal motor deficit despite normalization of proximal motor power are somewhat uncharacteristic for GBS or A-CIDP. It could therefore be suggested that our patient had an underlying POEMS phenotype neuropathy and now presented with a superimposed acute neuropathy. However, his complete lack of symptoms prior to acute presentation and the existence of other similar reported cases in previously asymptomatic patients argues that a de novo rapidly progressing "GBS-like" neuropathy, as a rare presentation of POEMS, is more likely. POEMS should therefore not be excluded solely on the basis of an acute polyneuropathy or IVIg-response, especially in the setting of other possible clinical, laboratory or imaging characteristics of the syndrome.

Table 1 – Nerve conduction studies performed 3 weeks after symptom onset.

Motor nerve conduction				
Nerve (Recording site)	Stimulation site	Amplitude (mV)	Distal latency (ms)	Conduction velocity (m/s)
L Median (APB)	Wrist	18.5	4.0	
	Elbow	18.0		41
	Axilla	15.4		52
R Median (APB)	Wrist	13.3	3.7	
	Elbow	12.1		41
	Axilla	11.2		50
L Ulnar (ADM)	Wrist	18.1	3.5	
	Below elbow	16.4		39
	Above elbow	16.1		64
R Ulnar (ADM)	Wrist	15.1	3.1	
	Below elbow	13.5		43
	Above elbow	12.6		51
	Axilla	13.2		46
L Peroneal (EDB)	Ankle	A	-	-
R Peroneal (EDB)	Ankle	A	-	-
L Tibial (AH)	Ankle	A	-	-
R Tibial (AH)	Ankle	A	-	-
Late (F-wave) Responses				
Nerve (Recording site)	Stimulation site	Minimal onset latency (ms)		
L Ulnar (ADM)	Wrist	42.9		
R Ulnar (ADM)	Wrist	42.5		
R Median (APB)	Wrist	41.1		
Sensory Nerve Conduction				
Nerve (Recording site)	Stimulation site	Amplitude (μV)	Distal latency (ms)	Conduction velocity (m/s)
R Median (wrist)	Digit 2	5.8	3.3	43
R Ulnar (wrist)	Digit 5	4.7	2.7	41
R Sural (ankle)	Lower leg	3.3	2.6	36
R Superficial peroneal (ankle)	Lower leg	1.7	2.5	38

L, left; R, right; APB, abductor pollicis brevis; ADM, abductor digiti minimi, EDB, extensor digitorum brevis; AH, abductor hallucis; A, absent

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HIGLIGHTS.

A case of POEMS presenting as a rapid "GBS-like" neuropathy with IVIg response.

Neuropathy is a central part of POEMS syndrome but is typically slowly progressive.

POEMS should not be excluded solely on the basis of acute neuropathy or IVIg response.