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Case Report

A perplexing diagnosis: IgA monoclonal gammopathy with AL amyloidosis presenting as autonomic sensorimotor polyneuropathy

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Abstract

Systemic light chain amyloidosis is rarely linked to immunoglobulin A (IgA) monoclonal gammopathy, a rare plasma cell condition. The accumulation of misfolded immunoglobulin light chains causes AL amyloidosis, which impairs multiple organs. We describe a case of a male patient, age 66, who had weight loss and orthostatic hypotension. Subsequent analysis showed IgA monoclonal gammopathy with biopsy-proven AL amyloidosis, which affected the heart and nervous system. In order to avoid irreparable organ damage, this case emphasizes the difficulties in diagnosing IgA-associated AL amyloidosis and the significance of early detection.

Keywords: IgA gammopathy, Monoclonal gammopathy of undetermined significance, Amyloidosis, Immunoglobulin

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1. Introduction

Monoclonal gammopathy of undetermined significance (MGUS) is a common condition characterized by a small clonal population of bone marrow plasma cells or lymphoplasmacytic cells (less than 10%) that produce a limited amount of monoclonal protein without causing organ damage.[1] But rarely they might result in complications, like cardiac amyloidosis, light chain nephropathy, and peripheral neuropathy, which may be deadly.[2]

This eport presents a case of amyloid autonomic neuropathy due to AL amyloidosis with an IgA lambda light chain. Given that early identification of AL amyloidosis can significantly alter management and improve patient outcomes, clinicians should maintain a high index of suspicion when evaluating neuropathy in the setting of MGUS.

2. Case Presentation

A 66-year-old man presented with complaints of lightheadedness and an increased frequency of bowel movements over the past six months. The lightheadedness progressively worsened, significantly impacting his daily activities.

The diarrhea was characterized by 2-3 low-volume episodes per day, accompanied by abdominal cramps, with a tendency to worsen at night. It was not associated with blood or mucus. He also experienced significant unintentional weight loss and loss of appetite, raising further concern.

He had no history of smoking, alcohol consumption, or substance abuse. His family history was unremarkable. His past medical history was notable for Burr hole evacuation surgery performed eight months ago to drain spontaneous bilateral subdural hematomas. Following the procedure, he was diagnosed with postural hypotension at another facility and was started on fludrocortisone; however, his symptoms continued to worsen despite treatment. He had no history of diabetes mellitus, hypertension, or other systemic illnesses. On examination, the patient had mild pallor and significant postural hypotension, with a blood pressure of 90/60 mm Hg in the supine position, dropping to 60/40 mm Hg after three minutes of standing. Neurological examination revealed

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bilaterally symmetrical distal lower limb weakness along with sensory deficits. We concluded that the patient had a chronic progressive neurological disorder characterized by bilaterally symmetrical distal lower motor neuron type weakness, most likely due to large and small fiber sensorimotor polyneuropathy with autonomic dysfunction.

His blood investigations are shown in **Table 1**. HIV and VDRL tests were non-reactive.

Echocardiography revealed concentric left ventricular hypertrophy with diastolic dysfunction. (**Figure 1**) Nerve conduction studies and nerve conduction velocity revealed bilateral peroneal motor axonal neuropathy and sural sensory axonal neuropathy, supporting a diagnosis of sensorimotor polyneuropathy. (**Table 2**) Serum protein electrophoresis revealed a prominent band in the beta region, which typically corresponds to proteins such as transferrin, C3, C4, beta-2 microglobulin, fibrinogen, and IgA (**Figure 1**) (**Table 3**). Urine Bence Jones protein was negative, ruling out significant free light chain excretion. A skeletal survey revealed no osteolytic lesions or other abnormalities, except for craniotomy defects resulting from the previous burr hole evacuation. (**Figure 1**).

Plain radiograph of the skull showing craniotomy defects from the previous burr hole evacuation done for a spontaneous Subdural hemorrhage.

Based on the above findings, we proceeded with serum immunofixation electrophoresis, which revealed elevated immunoglobulin A protein and free lambda light chains (**Table 3**).

Based on the clinical presentation of autonomic and sensory dysfunction, along with the rare association of neuropathy with IgA MGUS, we proceeded with an amyloid workup to rule out amyloidosis. We performed an abdominal fat pad biopsy, which revealed fibrofatty tissue with interspersed extracellular eosinophilic material. Congo Red staining was positive, confirming the presence of amyloid deposits, consistent with a diagnosis of amyloidosis (**Figure 1**).

Abdominal fat pad biopsy showing fibrofatty tissue with interspersed extracellular eosinophilic material. Congo Red staining was positive, confirming the presence of amyloid deposits, consistent with a diagnosis of amyloidosis.

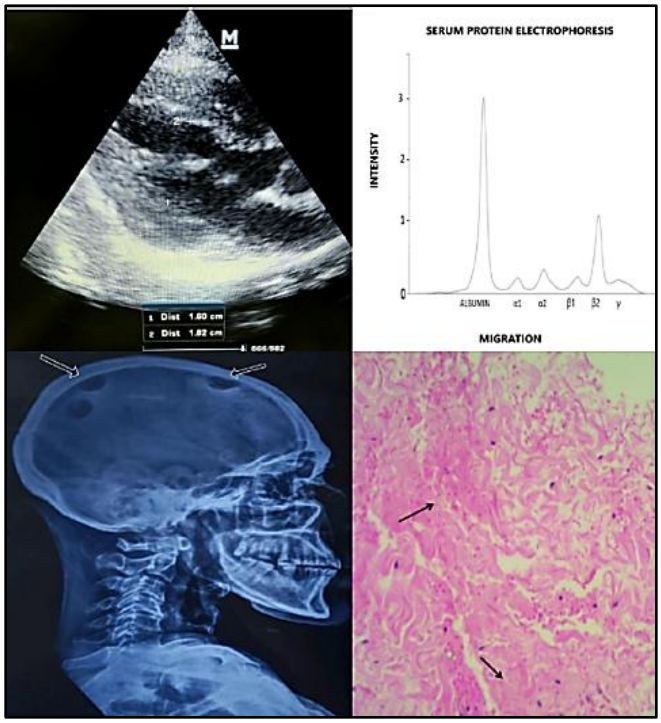

Figure 1: ECHO, Serum electrophoresis, Skull Xray, Histopathological investigations of the patient

The final diagnosis was IgA monoclonal gammopathy with primary amyloidosis (AL amyloidosis), involving the peripheral nerves, autonomic nerves, and cardiovascular system. The patient was initiated on a regimen of cyclophosphamide, bortezomib, and dexamethasone, along with symptomatic management. Unfortunately, despite treatment, he succumbed to his illness three months after diagnosis.

Table 1: Laboratory investigations

Parameters	Results	Reference Value
Total counts (cu.mm)	6920	3540-9060
Haemoglobin (g/dl)	7.8	13.3-6.2
MCV (Fl)	80.1	79-93.3
MCH (pg)	27.8	26.7-31.9
MCHC (g/dL)	34.7	32.3-35.9
Urea (mg/dL)	18	15-40
Creatinine (mg/dL)	0.9	0.5-1.3
Sodium (mEq/L)	135	136-146
Potassium (mEq/L)	4.8	3.5-5.0
Total Bilirubin (mg/dL)	0.9	0.3-1.3
Direct Bilirubin (mg/dL)	0.4	0.1-0.4
Albumin (g/dL)	3.2	3.5-5.0

SGOT (IU/L)	23	12-38
SGPT (IU/L)	12	7-41
ALP (IU/L)	70	35-130
Calcium (mg/dL)	7.7	8.6-10.0
Fasting Blood Glucose (mg/dl)	90	70-100
Postprandial Blood Glucose (mg/dl)	140	<140
HbA1c (%)	5.4	<5.7
Erythrocyte Sedimentation Rate (mm/hr)	88	<30
Vitamin B12 (pg/mL)	800	650-950
Cortisol (ug/d)	17	6.02-18.4
NTproBNP (pg/mL)	740	<125

MCV-Mean Corpuscular Volume, MCH-Mean Corpuscular Hemoglobin, MCHC-Mean Corpuscular Hemoglobin Concentration, HbA1c-Glycated Hemoglobin, NTproBNP-N terminal pro B type Natriuretic Peptide

Table 2: Nerve conduction study (NCS)

Upper Limb				
Site	**Latency (mS)**	**Duration (mS)**	**Amplitude**	**NCV (m/S)**
Right Median Nerve				
Wrist	3.02	20.52	8.1 mV	45.10
Elbow	8.13	25.42	7.2 mV	
Left Median Nerve				
Wrist	3.65	13.23	3.1 mV	63.19
Elbow	7.29	14.27	3.0 mV	
Right Ulnar Nerve				
Wrist	3.44	12.60	3.6 mV	64.94
Elbow	7.29	13.96	3.5 mV	
Left Ulnar Nerve				
Wrist	2.08	20.31	5.0 mV	52.08
Elbow	6.88	16.67	4.2 mV	
Lower Limb				
Right Peroneal Nerve				
Anterior Ankle	7.5	6	2.0 mV	32.5
Lateral Popliteal Fossa	11	8	1.5 mV	28.0
Left Peroneal Nerve				
Anterior Ankle	3.85	10.94	1.0 mV	
Lateral Popliteal Fossa	14.48	8.75	0.7mV	35.75
Right Tibial Nerve				
Medial Ankle	5.10	11.77	5.4 mV	41.71
Middle Popliteal Fossa	14.69	13.44	3.4 mV	
Left Tibial Nerve				
Medial Ankle	4.17	16.98	6.2 mV	35.91
Middle Popliteal Fossa	15.31	24.69	5.7 mV	

Suggestive of bilateral peroneal motor axonal neuropathy and sural sensory axonal neuropathy.

Table 3: Serum electrophoresis and immunofixation studies

Test Parameter	**Result**	**Reference Range**
Total Proteins	5.80 g/dL	5.7 – 8.2 g/dL
Albumin	2.92 g/dL	3.5 – 4.76 g/dL
Globulin (Calculated)	2.88 g/dL	2.0 – 4.0 g/dL
Albumin/Globulin Ratio	1.01:1	1.5:1 – 2.5:1
Alpha 1 Globulin	0.32 g/dL	0.21 – 0.35 g/dL
Alpha 2 Globulin	0.59 g/dL	0.51 – 0.85 g/dL
Beta 1 Globulin	0.37 g/dL	0.34 – 0.52 g/dL
Beta 2 Globulin	1.17 g/dL	0.23 – 0.47 g/dL
Gamma Globulin	0.44 g/dL	0.8 – 1.35 g/dL
Paraprotein (M-Protein Peak)	1.07 g/dL	Not normally present
IgG	573 mg/dL	
IgA	954 mg/dL	

Serum free kappa Light Chains	15.5 mg/L	
Serum free lambda Light Chains	220 mg/L	
Kappa lambda ratio	0.070	

3. Discussion

MGUS is characterized by serum monoclonal protein levels below 30 g/L, bone marrow plasma cell counts below 10%, without any lytic bone lesions, without any associated anemia, hypercalcemia, or renal failure.[1] The prevalence of MGUS is more than 3- 4% in people over 50.4 The primary clinical outcome of MGUS is progression to malignancy, at the rate of 1% per year.[5]

Progression to malignancy depends on the subtype of immunoglobulin found in MGUS. IgM MGUS may progress to Waldenstrom macroglobulinemia, & non-IgM MGUS may progress to Multiple Myeloma (MM). Irrespective of the type of MGUS, AL Amyloidosis may occur as a complication.[6]

The most common type of monoclonal gammopathy-associated peripheral neuropathy is IgM type, while IgG and IgA neuropathies are rare.[7] The possible causes of neuropathy in AL amyloidosis include direct amyloid deposition in the nerves, nerve compression, and ischemia.[8]

Amyloidosis occurs due to the misfolding of a soluble precursor protein. These are deposited extracellularly in organs and tissues, which results in organ dysfunction and death.[9] Organ dysfunction is the result of the disruption of architecture caused by the amyloid deposits and their cytotoxic effects. A study of 1384 patients with monoclonal gammopathy of undetermined significance (MGUS) found that the relative risk is.[8] with a 1% incidence of AL amyloidosis.[10]

The major cause of death is cardiac involvement, which also occurs in 70 to 80% of patients. N-terminal pro-B-type natriuretic peptide (NT-proBNP), serum cardiac troponin, or both are frequently elevated. Terminal cardiac decompensation is frequently preceded by bradyarrhythmias.

To confirm the diagnosis of amyloidosis, a biopsy of an affected organ could be required if the clinical index of suspicion is high and the abdominal fat-pad aspiration gives a negative result for Congo red staining. 85% of patients with AL amyloidosis are identified by analyzing samples from bone marrow and abdominal fat biopsies.

The degree of cardiac involvement is the primary factor that determines the outcome of amyloidosis. The ability of magnetic resonance imaging's myocardial extracellular volume fraction to measure cardiac amyloid load is being studied.

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None.

6. Conflict of Interest

None.

References

1. Kyle RA. Monoclonal gammopathy of undetermined significance. Natural history in 241 cases. *Am J Med*. 1978;64(5):814–26. https://doi:10.1016/0002-9343(78)90522-3.
2. Jhang Y, Lee JJ, Park JM, Koo JS, Kim BK, Kwon O. Polyneuropathy associated with IgA paraproteinemia and amyloidosis: a case report and literature review. *J Clin Neurol*. 2007;3(2):116–9. https://doi:10.3988/jcn.2007.3.2.116
3. Nobile-Orazio E, Barbieri S, Baldini L, Marmiroli P, Carpo M, Premoselli S. et al., et al. Peripheral neuropathy in monoclonal gammopathy of undetermined significance: prevalence and immunopathogenetic studies. *Acta Neurol Scand*. 1992;85(6):383–90. https://doi:10.1111/j.1600-0404.1992.tb06033.x.
4. Kyle RA, Therneau TM, Rajkumar SV. Prevalence of monoclonal gammopathy of undetermined significance. *N Engl J Med*. 2006;30:1362–9. https://doi:10.1056/NEJMoa054494.
5. Kyle RA, Therneau TM, Rajkumar SV, Offord JR, Larson DR, Plevak MF, et al. A long-term study of prognosis in monoclonal gammopathy of undetermined significance. *N Engl J Med*. 2002;346(8)564–9. https://doi:10.1056/NEJMoa01133202.
6. Chaudhry HM, Mauermann ML, Rajkumar SV. Monoclonal gammopathy-associated peripheral neuropathy: diagnosis and management. *Mayo Clin Proc*. 2017;92(5):838–50. https://doi:10.1016/j.mayocp.2017.02.003.
7. Ramchandren S, Lewis RA. An update on monoclonal gammopathy and neuropathy. *Curr Neurol Neurosci Rep*. 2012;12:102–10. https://doi:10.1007/s11910-011-0237-4.
8. Vital C, Vital A, Bouillot-Eimer S, Brechenmacher C, Ferrer X, Lagueny A. Amyloid neuropathy: a retrospective study of 35 peripheral nerve biopsies. *J Peripher Nerv Syst*. 2004;9:232–41. https://doi:10.1111/j.1085-9489.2004.09405.x
9. Merlini G, Dispenzieri A, Sanchorawala V, Schönland SO, Palladini G, Hawkins PN, et al. Systemic immunoglobulin light chain amyloidosis. *Nat Rev Dis Primers*. 2018;25:38–10. https://doi:10.1038/s41572-018-0034-3.
10. Gupta N, Kaur H, Wajid S. Renal amyloidosis: an update on diagnosis and pathogenesis. *Protoplasma*. 2020;257:1259–76. https://doi:10.1007/s00709-020-01513-0.

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