Polyneuropathy with Osteosclerotic Myeloma — POEMS Syndrome


Abstract
A 55-years-old male, who presented with insidious onset gradually progressive sensorimotor polyneuropathy, POEMS-syndrome was diagnosed based on polyneuropathy, splenomegaly, hypothyroidism, the presence of IgG-monoclonal serum protein with osteosclerotic lesions and hyperpigmention of skin. Biopsy of the osteosclerotic lesion from the right superior pubic rami was consistent with plasmocytoma. Electrophysiological studies revealed demyelinating sensorimotor neuropathy and biopsy from sural nerve showed demyelinating neuropathy with secondary axonopathy. The patient showed improvement with radiotherapy. This is a rare systemic disease from the clinical spectrum of plasma cell dyscrasias with polyneuropathy. The importance of POEMS syndrome in the differential diagnosis of polyneuropathies has been emphasized.

INTRODUCTION
POEMS syndrome1 (Crow-Fukase syndrome or Takatsuki’s disease) is a rare multisystem disorder characterized by polyneuropathy, organomegaly, endocrinopathy, monoclonal proteins and skin changes. Although it accounts for only 3 to 5 percent of myelomas, 85 percent of patients present with polyneuropathy.2 The neuropathic symptoms are slowly progressive and have the features of demyelination.3 The M protein, which is usually IgG or IgA present at low concentration, is found in 90 percent of cases, and the light chain is virtually always of the lambda subtype. We present a patient with an acquired demyelinating polyneuropathy who was eventually diagnosed as having POEMS syndrome.

CASE REPORT
A 55 years old male, presented with tingling of the hands and feet and increasing unsteadiness of gait over the period of 2 years, followed several months later by progressive distal predominant weakness in both upper and lower extremities. There was no history suggestive of joint pain, rashes, photosensitivity, weight loss, anorexia, hemoptysis or melena.

On clinical examination cranial nerves were normal. Proximal and distal power in both upper and lower extremity muscles were 4/5 and 4/5 respectively. All deep tendon reflexes were absent, plantar response was flexor and multimodality sensory deficit to mid-leg and forearm. No enlarged peripheral nerves were found. Thickening and hyperpigmentation of skin was observed below both knees. On abdominal examination the splenic tip was palpable 4cm below the costal margin; the liver was not felt, and no mass was detected. No lymphadenopathy was detected.

The laboratory studies included; complete count, GBP, ESR, routine chemistries, liver and renal function tests, total protein and serum B12, homocysteine level were normal. ANA, RA factor, HIV, Hepatitis B and C markers, were negative. Thyroid hormone profile examination revealed hypothyroidism [TSH 20.0 µU/ml, T3 37.0 ng/dl, T4 0.7 µg/dl]. Prostate Specific Antigen was 0.11ng/ml [Normal less than 4.00ng/ml]. X-ray of pelvic bone showed single osteosclerotic lesion measuring 2+2 cm and X-ray skull, spine were normal. Immuno-electrophoresis of serum showed IgG monoclonal protein chain and urine electrophoresis did not reveal any M peak. Results of sternal bone marrow were normal while the morphological features of biopsy from the right superior pubic rami was consistent with plasmacytoma. Protein content was elevated in the CSF [165mg%] with normal cells and sugar. Electrophysiological studies showed prolonged distal latency, with slowed conduction velocity, conduction blocks, prolonged F wave latency and non-generation of sensory nerve action potentials.

Sural nerve biopsy showed increased perineural thickening and separation of the perineural layers suggestive of demyelinating neuropathy with secondary axonopathy. In USG abdomen spleen was enlarged measuring 14.67 cm, homogenous echotexture, no focal lesion noted splenic hilum was normal.

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Patient was offered focused radiotherapy with ten doses of 30Gy divided over the period of two weeks. There was improvement in the distal power and skin changes in the follow up examination after three months.

**DISCUSSION**

A number of common disorders of the peripheral nervous system, termed paraproteinemic neuropathies, are closely connected with the presence of excessive amounts of an abnormal immunoglobulin in the blood. These immunoglobulins can be detected by immunoelectrophoresis or by immunofixation test which is more sensitive. Polyneuropathy occurs in about 1.4 percent of myeloma, but the POEMS syndrome is only a rare subset of that group.4

As yet, aetiology and pathophysiology of the disease is not fully understood. The deposition of light chains in the endoneurium suggests that the paraprotein has a proximate role in nerve damage.5 Greatly elevated levels of proinflammatory cytokines, such as tumor necrosis factor, have also been implicated.6 Paraproteinaemic polyneuropathies are usually chronic and respond poorly to treatment. An exception to this is seen in the POEMS syndrome2 in which polyneuropathy may improve after treatment for the osteosclerotic myeloma with which it is often associated. With resection of solitary bone lesions, focused radiation, or chemotherapy, the neuropathy stabilizes or improves in half of patients, but the response may take many months.

In this communication we describe a rare manifestation of POEMS syndrome presenting as sensorimotor polyneuropathy. The diagnosis of POEMS syndrome was established on the basis of polyneuropathy, splenomegaly, IgG monoclonal protein, hypothyroidism, and hyperpigmented skin changes. Biopsy of the osteosclerotic lesion revealed plasmacytoma. Patient was treated with focused radiation and there was improvement in the weakness.

It was concluded that patients with unexplained peripheral sensorimotor polyneuropathy should undergo as a part of their diagnostic evaluation serum protein electrophoresis and biopsy of benign-appearing bony lesions, as the importance of recognizing this rare syndrome lies in its potential for treatment.

**REFERENCES**


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**Announcement**

**Web site of the Indian Association for Bronchology**

We have set up a website for the Indian Association for Bronchology (IAB). The website URL is www.iabronchology.org.