



# Poems Syndrome without “M” - Could it be Possible? A Case Report

Emanuelle Bianchi da Silva Rocha<sup>1\*</sup>, Christina Covolo de Carvalho<sup>2</sup>, Rosana Herminia Scola<sup>3</sup> and Paulo Eduardo Mestrinelli Carrilho<sup>4</sup>

<sup>1</sup>Department of Neurology, Medical School of São José do Rio Preto (FAMERP), São José do Rio Preto, Brazil

<sup>2</sup>Department of Hematology, Oncology Center of Cascavel, Brazil

<sup>3</sup>Department of General Practice, Neurology Unit, Federal University of Parana, Brazil

<sup>4</sup>Department of Neurology, State University of Western Parana (UNIOESTE), Brazil

## Abstract

**Introduction:** POEMS syndrome is a rare disease characterized by polyneuropathy, organomegaly, endocrinopathy, “M-protein” disorder and skin changes. The purpose of this article is to report a case of a patient with progressive polyneuropathy without M protein and plasma cells disorder, one of the mandatory criteria diagnoses.

**Case:** A 43 year-old man of Japanese origin with three months of weight loss, painful feet paresthesias and reduction of muscle strength in the lower limbs. At physical examination he presented distal motor deficit in legs, global absence of profound reflexes, feet amyotrophy, hepatosplenomegaly, gynecomastia, papilledema, axilar lymph node enlargement and a cyanosis of extremities. Myelogram and bone marrow biopsy discarded myeloma or plasma cell neoplasm. Protein electrophoresis and immune fixation electrophoresis not detected “M-spike”. After a clinical worsening, new diagnosis investigation was made and a vascular endothelial growth factor dosage was available (2812 pg/ml - normal range: 31 pg/mL to 86 pg/mL).

**Discussion:** Polyneuropathy and plasma cells disorder are both mandatory diagnosis criteria for POEMS syndrome. However, we present a case without plasma cells disorder and “M-protein spike”, with the diagnosis confirmed with the combination of characteristic clinical manifestations and elevated vascular endothelial growth factor. We highlight that in some situations diagnosis can be made with auxiliaries exams to avoid delay in starting treatment.

**Keywords:** POEMS syndrome; Endocrinopathy; M-protein; Lymphadenopathy

## Introduction

POEMS syndrome, also known as Crow-Fukase syndrome or Takatsuki syndrome, is a rare systemic disease, characterized by polyneuropathy, organomegaly, endocrinopathy, plasma cells disorder (or “M-protein”) and skin changes. These five characteristics form the acronym that gives name to the syndrome. Other manifestations like sclerotic bone lesions, pleural effusion, ascites, edema, lymphadenopathy, Castleman disease, low fever, papilledema, clubbing, hyperhidrosis and hematological disorders (thrombocytosis, polycythemia) are also commons [1].

Most cases occur at the fifth and sixth decades of life. It is more common in man and among Japanese people. Although the etiology of the syndrome remains unknown, an association with Herpes Virus HHV8 infection and an increased production of cytokines (IL-1 $\beta$ , IL6, TNF- $\alpha$  e VEGF) [2] is observed. Polyneuropathy and monoclonal plasma cell disorder are both considered mandatory for the diagnosis of POEMS syndrome [3,4]. However, in rare occasions, “M-protein” spike or an identifiable plasma cell disorder cannot both be easily defined by usual methods [5,6]. In such cases, other clinical features and other laboratory markers should be equally considered with the aim do avoid delays in the diagnosis and treatment [3].

The purpose of this article is to report a case of a patient with progressive polyneuropathy without “M-protein” and plasma cells disorder.

It is a case report study based on review of medical record. The data presented here were collected and presented after the patient previous authorization allowing the use of his health data with scientific purpose.

## OPEN ACCESS

### \*Correspondence:

Emanuelle Bianchi da Silva Rocha,  
Department of Neurology, Medical  
School of São José do Rio Preto  
(FAMERP) - Adib Buchala Street, N  
150, Sao Jose do Rio Preto City, Sao  
Paulo, Zip code: 15091-320; Tel: +55  
(045) 99125-5655;

E-mail: m.bianchis@hotmail.com

Received Date: 04 Aug 2020

Accepted Date: 12 Sep 2020

Published Date: 22 Sep 2020

### Citation:

da Silva Rocha EB, de Carvalho CC,  
Scola RH, Mestrinelli Carrilho PE.  
Poems Syndrome without “M” - Could  
it be Possible? A Case Report. *Ann  
Neurol Surg.* 2020; 4(1): 1022.

**Copyright** © 2020 Emanuelle Bianchi  
da Silva Rocha. This is an open access  
article distributed under the Creative  
Commons Attribution License, which  
permits unrestricted use, distribution,  
and reproduction in any medium,  
provided the original work is properly  
cited.

## Case Presentation

A 43 year-old man of Japanese origin and severe smoker was evaluated in neurology service with a 3 months history of weight loss, painful feet paresthesias and reduction of muscle strength in the lower limbs. Neurologic exam disclosed an important distal motor deficit in legs, with global absence of profound reflexes and presence of feet amyotrophy. Hepatosplenomegaly, gynecomastia, papilledema, axillary lymph node enlargement and a cyanosis of extremities were also recorded.

Complementary investigation showed discrete polyglobulia, hypothyroidism and thrombocytosis. Electroneuromyography of lower limbs demonstrated mixed demyelinating-axonal polyradiculoneuropathy pattern. Bone X-ray screening for plasma cell lesions showed small osteolytic and non-sclerotic lesions in the ribs and ilium bones. Positron emission tomography do not showed neoplastic lesions. Axillary lymph node biopsy demonstrated Castleman disease. Myelogram and bone marrow biopsy no evidenced myeloma or plasma cell neoplasms. Protein electrophoresis and immunofixation electrophoresis not detected "M-spike" and Urinary Bence-Jones protein was absent.

Patient's condition worried and therapy for a chronic inflammatory demyelinating polyneuropathy with prednisone (1 mg/kg/day) was started, with some initial subjective and objective improvement. After sixty days, a new deterioration of polyneuropathy occurred. It was decided to initiate intravenous immunoglobulin (five days of 400 mg/kg/day). No benefit was obtained.

A new diagnosis investigation was made and the Vascular Endothelial Growth Factor (VEGF) was measured, the result was 2.812 pg/mL (normal range: 31 to 96 pg/ml). So that, a POEMS "incomplete" syndrome, because the absent of "M-protein" was considered to be the target of our efforts. A proper therapy was started with a sequence of cyclophosphamide plus methylprednisolone. It was followed by melphalan plus prednisone, both without improvements. A course of bortezomib was attempted and also a localized radiotherapy of suspected bone lesions but they had both failed to bring some amelioration in his clinical condition.

The patient was referred to autologous bone marrow/stem cell transplantation. After two months his clinical situation started to improve, with progressive weight regain, disappearance of visceromegalias, lymph nodes enlargements, papilledema. After two years of the transplantation patient presented continuous improvement, but slow, of his motor and sensory symptoms. A relentless decline of VEGF levels was also observed soon after transplantation (Figure 1).

## Discussion

POEMS syndrome is a paraneoplastic syndrome with predominance in Japanese men and average incidence at fifty years-old [7]. The patient of the study was a man of Japanese origin and with 43 years-old at the moment of onset of the disease.

The diagnosis of the syndrome is made based on Mayo clinic criteria. It is confirmed when both mandatory major criteria (polyneuropathy and monoclonal plasma cells disorder), at least one of the major criteria (Castleman disease, sclerotic bone lesions and elevated vascular endothelial growth factor) and one of the minor criteria (organomegaly, endocrinopathy, skin changes, extra vascular volume overload, papilledema and thrombocytosis) are

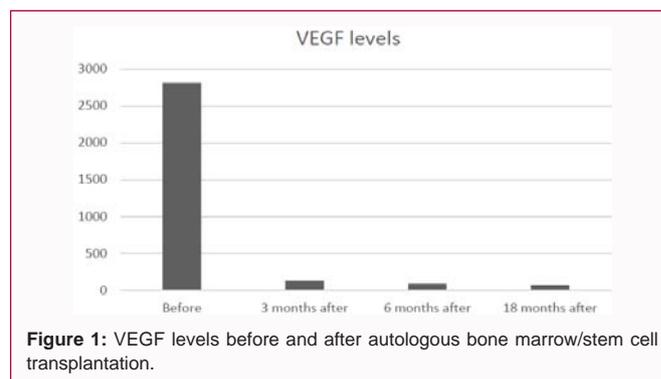


Figure 1: VEGF levels before and after autologous bone marrow/stem cell transplantation.

present. Our patient presented polyneuropathy, Castleman disease, bone lesions, elevated VEGF, organomegaly (hepatosplenomegaly and lymphadenopathy), endocrinopathy (gynecomastia, hypothyroidism), papilledema and thrombocytosis, but the plasma cells disorder was absent.

Establish the diagnosis of POEMS syndrome is a challenge because of the rarity and the complexity of the disease. However, a good clinical history and physical examination with bones X-rays, VEGF dosage, detection of "M-protein" and bone marrow biopsy, make possible the differentiation between the syndrome and another disorders of plasma cells or peripheral neuropathy [3,8]. But, the evidence of "M-protein" or plasma cell disorder is essential for the diagnosis, therefore the importance of this case.

Castleman disease can promote a "POEMS-like" polyneuropathy, but usually, a sensory painless neuropathy is far more frequently observed in this disease, and not a severe polyradiculoneuropathy with prominent demyelinating features as noticed in the present case. However, every Castleman's with POEMS-like disorder, without evidence of "M-protein" or plasma cell disease, cannot be defined as "real POEMS syndrome", according to recently defined clinical criteria [3]. So that, the patient presented here could be in the clinical spectrum of "Castleman disease associated neuropathy". Nevertheless, all his clinical features were strongly suggestive of a polyradiculoneuropathy associated with a POEMS syndrome with almost all major and minor criteria, with the crucial exception of a well-defined M-protein disorder.

The course of POEMS syndrome is chronic and progressive and the time of survival is about ten years [7]. Based on that, the early diagnosis is very important for reduce morbidity and enhance survival of the patients.

## Conclusion

Therefore, we advocate that in cases similar to ours, with the presence of a proper clinical syndrome, even with no clear-cut or well-identified plasma cell disorder, VEGF can be not only a real laboratory POEMS marker, but it can be considered a kind of "monitor index", closely related to the diagnosis and the treatment evolution.

## References

- Andresik D, Russo MP. Syndrome POEMS: Comunicación de cuatro casos. *Medicina*. 2015;75(5):324-7.
- Machado PV, Daxbacher EL, Obadia DL, Cunha EF, Alves MF. Do you know this syndrome? Berardinelli-seip syndrome. *An Bras Dermatol*. 2013;88(6):1011-3.
- Dispenzieri A. POEMS syndrome: Update on diagnosis, risk-stratification

- and management. *Am J Hematol.* 2015; 90(10):952-62.
4. Karan C, Klein CJ, Dispenzieri A, Dyck PJB, Mandrekar J, D'Souza A, et al. Polyneuropathy improvement following autologous stem cell transplantation for POEMS syndrome. *Neurology.* 2015;84(19):1981-7.
  5. Stankowski-Drengler T, Gertz MA, Katzmann JA, Lacy MQ, Kumar S, Leung N, et al. Serum immunoglobulin free light chain measurements and heavy chain isotype usage provide insight into disease biology in patients with POEMS syndrome. *Am J Hematol.* 2010;85(6):431-4.
  6. Liang M, Jiang Z, Lin Z, Chen B, Zou H, Wan W, et al. Polyneuropathy as novel initial manifestation in a case of "Nonsecretory" POEMS syndrome with Sjögren syndrome. *Case Rep Med.* 2017;2017:1276759.
  7. Kumar S, Sharma S. Polyneuropathy, organomegaly, endocrinopathy, M-protein and skin changes (POEMS syndrome): A paraneoplastic syndrome. *Oxf Med Case Rep.* 2015;2015(3):237-40.
  8. Li J, Zhou D. New advances in the diagnosis and treatment of POEMS syndrome. *Br J Hematol.* 2013;161(3):303-15.