Plasma Cell Disorders: Atypical Plasma Cell Syndromes

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POEMS Syndrome

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POEMS syndrome is defined by the presence of a peripheral neuropathy (P), a monoclonal plasma cell disorder (M), and other paraneoplastic features, the most common of which include organomegaly (O), endocrinopathy (E), skin changes (S), papilledema, edema, effusions, ascites, and thrombocytosis. Virtually all patients will have either sclerotic bone lesion(s) or co-existent Castleman's disease. Not all features of the disease are required to make the diagnosis, and early recognition is important to reduce morbidity. Other names for the syndrome include osteosclerotic myeloma, Crow-Fukase syndrome, or Takatsuki syndrome. Because the peripheral neuropathy is frequently the overriding symptom and because the characteristics of the neuropathy are similar to that chronic inflammatory demyelinating polyneuropathy (CIDP), patients are frequently misdiagnosed with CIDP or monoclonal gammopathy of underdetermined significance (MGUS)-associated peripheral neuropathy. Not until additional features of the POEMS syndrome are recognized is the correct diagnosis made and effective therapies initiated. Clues to an early diagnosis include thrombocytosis and sclerotic bone lesions on plain skeletal radiographs. Therapies that may be effective in patients with CIDP and MGUS-associated peripheral neuropathy (intravenous gammaglobulin and plasmapheresis) are not effective in patients with POEMS. Instead, the mainstays of therapy for patients with POEMS include irradiation, corticosteroids, and alkylator-based therapy, including high-dose chemotherapy with peripheral blood stem cell transplantation.

Overview

The major clinical feature in POEMS syndrome is a chronic progressive polyneuropathy with a predominant motor disability. The acronym POEMS (*p*olyneuropathy, *o*rganomegaly, *e*ndocrinopathy, *M* protein, and *s*kin changes) refers to several dominant features of the syndrome; however, there are associated features not included in the acronym including sclerotic bone lesions, Castleman disease, papilledema, thrombocytosis, peripheral edema, ascites, effusions, polycythemia, fatigue and clubbing.[1-3] Not all features are required to make the diagnosis; at a minimum, a patient should have the following: the peripheral neuropathy; osteosclerotic myeloma (i.e., a clonal plasma cell dyscrasia and at least one sclerotic bone lesion) or Castleman disease; and at least one of the other features (**Table 1**).[3] Though the majority of patients have osteosclerotic myeloma, these same patients usually have only 5% bone marrow plasma cells or less, and rarely have hypercalcemia or renal insufficiency. These characteristics and the superior median survival differentiate POEMS syndrome from multiple myeloma. The plasma cells are virtually always lambda restricted. Though the pathophysiologic mechanism is not well understood, there is a correlation between treating the underlying plasmaproliferative disorder (clone) and clinical improvement. Radiation therapy produces substantial improvement of the neuropathy in more than half of the patients who have a single lesion or multiple lesions in a limited area. If there are widespread lesions, conventional chemotherapy or high-dose chemotherapy and peripheral blood support may be helpful.

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