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POEMS SYNDROME IN A-10-YEAR-OLD GİRL: A CASE REPORT

POEMS SENDROMU: 10 YAŞINDA KIZ OLGU

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SUMMARY

POEMS syndrome has been defined as an association of plasma celi dyscrasia with polyneuropathy, organomegaly, endocrinopathy, M protein and skin changes. In this report, we describe a case of POEMS syndrome. A 10-year-old girl presented with polyneoropathy, diabetes mellitus type I, double monoclonal gammopathy (IgA and IgG), hepatomegaly, cardiomegaly, hyperpigmentation, and hypertricosis. To our knowledge, she is the youngest case of POEMS syndrome who has been reported.

ÖZET

POEMS sendromu, plazma hücre diskrazisi ile ilişkili olarak polinöropati, organomegali, endokrinopati, M protein ve deri değişikliklerinden oluşan bir sendrom olarak tanımlanmaktadır. Bu yayında, polinöropati, kardiyomegali, hepatomegali, tip 1 diabetes mellitus, çift monoklonal gammapati (IgA ve IgG), hiperpigmentasyon ve hipertrikozisi olan 10 yaşındaki bir kız olguda POEMS sendromunu tanımlanmalıdır. Bilgilerimize göre yayımlanmış olan en genç olgudur.

INTRODUCTION

POEMS syndrome, also known as Takatsuki-Crow-Fukase syndrome is characterized by polyneuropathy, organomegaly, endocrinopathy, M- protein spike, and skin changes. (1,2). This syndrome is considered to be secondary to the plasma cell dyscrasia leading to multisystemic disorder (3). It is also characterized by various clinical and pathological signs such as cachexia, fever, edema, finger clubbing, telangiectasias, thrombocytosis, and multicentric Castleman's disease (4-5). Chan et al. reported two patients with multicentric Castleman's disease associated with POEMS syndrome (6).

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Unlike polyneuoropathies associated with IgM gammopathies, an autoimmune mechanism directed toward peripheral nerve components has not been shown in POEMS syndrome (7). Her we precent a 10 year-old girl with POEMS syndrome, to our konowledge she is the youngest case in literatüre.

CASE

A 10 year-old girl with a 5- year history of diabetes mellitus type I was hospitalized with headache, stupor, abdominal distention, hyperpigmentation, hypertricosis and weigth loss. A diagnosis of DM type I had been made 5 years ago, and the disease was treated with mixtard insulin, but she had not used the insulin regularly for the last one year. One year before the present admission, hyperpigmentation and hypertricosis had developed on

the lower extremities. Eight months ago, red-brown colour changes had developed on the trunk, and peripheral neuropathy in the lower extremities had also developed.

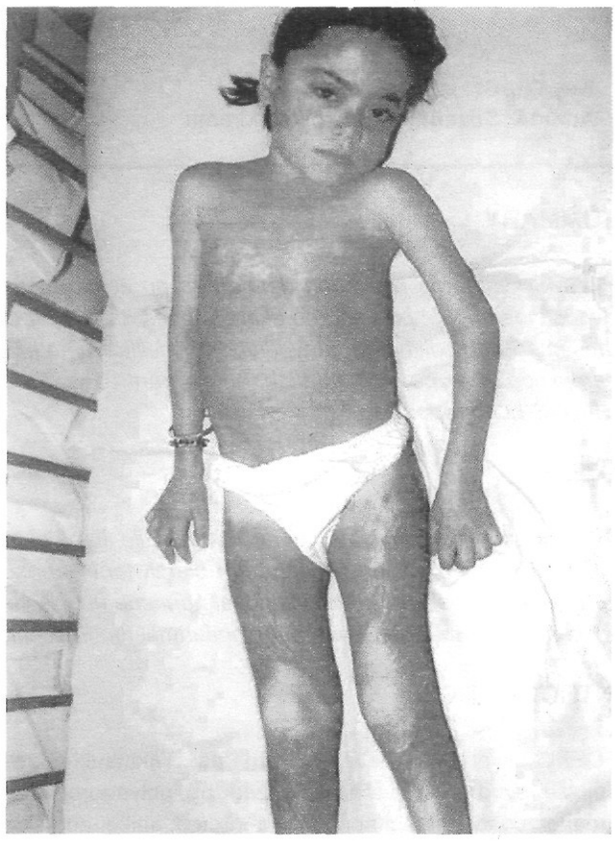
Physical examination showed hyperpigmentation and hypertricosis on the trunk and lower extremities excluding the ankles and knees. She had facial erythema (Figüre 1). Vital signs were normal except for a respiratory rate of 40 breaths/ min. The liver span was enlarged, with a palpable liver edge 6 cm below the costal margin. The heart examination revealed regular rate and rhythm without murmurs. İn addition, her proximal muscle strength, sensation to touch and deep tendon reflexes were diminished minimally in the upper and markedly in lower extremities. Bilateral cataract were shown on the ophtalmological examination.

Laboratory findings included a normal WBC and RBC, increased platelets (487 000/mm^3) and normal levels of electrolytes, BUN, creatinine, and liver function tests. She had hyperglycemia (438 mg/dL). Arterial blood gas analysis revealed a pH of 7.35, PaCO2 of 24 mm Hg, PaO2 of 74 mm Hg, HCO3 of 13.5 mEq/L. Thyroid function tests were normal and anti-thyroid antibodies were negative. Prolactin, progesterone, oestradiol and growth hormone levels were normal. Serum immunoelectrophoresis showed two monoclonal gammopaties: lgGK (24g/L) and lgAX (7.4g/L). Echocardiography revealed hypertrophic cardiomyopathy and chest roentgenogram showed cardiomegaly. Abdominal ultrasound showed bilateral pelvicaliectasia and grade II nephropathy and hepatomegaly. Electromyographic nerve conduction velocities demonstrated mild sensorimotor polyneuropathy of the upper and lower extremities. The histopathologic evaluation of the skin biopsy revealed homogeneity and increased collagen fibers in papillary dermiş and perivascular mononucleer celi infiltration in fatty tissue.

Hyperglycemia was regulated with insulin and diet. Eight months later, only by regulating her hyperglycemia without using any other immunosupressive agents, there was gradual improvement in her neuropathy with marked reduction in hyperpigmentation and hypertricosis.

DISCUSSION

POEMS syndrome appears to have a higher incidence in Japan and is therefore also called Japanese multisystem disease (8). However, this disease is obviously universal even though there is a geographical or racial difference in prevelance. Although the pathogenesis of POEMS is unknown, in this syndrome several clinical features have been described whose pathogenesis is probably mediated by cytokines (3,4). The strong activation of the proinflammatory cytokine netvrork in POEMS syndrome and the imbalance between productions of cytokines and their antagonists support the view that cytokines may be implicated in the expresion of the disease. İn light of human and experimental studies, chronically elevated TNF- a levels, high IL-1B levels, IL-1B correlate well with inflammatory demyelinating neuropathy (9,10), organomegaly affecting liver and spleen endocrine dysfunctions of the POEMS syndrome (11). İt has been suggested that overproduction of vascular endothelial growth factor (VEGF) played an important role in the pathogenesis of POEMS syndrome. VEGF affect blood-nerve barier and microvascular permeability, thereby inducing endoneural edema (12).



Figüre 1. The gril with facial erythema, hyperpigmentation and hypertricosis in the trunk and theextremities excluding the ankies and the knees.

Our patient has ali the features of POEMS syndrome: endocrinopathy (DM type I), polyneuropathy, organomegaly (cardiomegaly, hepatomegaly), two monoclonal gammopathy, and skin changes (hypertricosis, hiperpigmentation). Polyneuropathy is common in POEMS syndrome, eightyfive percent of the patients present with slowly progressive polyneuropathy and features of demyelinization (13). Our case has polyneuropathy in the upper and lower extremities

supported by the EMG, showing a miksed sensitive-motor neuropathy. The most frequent endocrinopathies are hipogonadism, hipothyroidism and diabetes mellitus whlch are observed in 50 percent of patients. We excluded the other endocrinopathies such as thyroid disease, hyperprolactinemia, and growth hormone deficit. Our patient had a poorly controlled DM type I and was hospitolized with the clinic of diabetic coma. Majority of the cases with POEMS syndrome have monoclonal (either IgG or Ig A) and the minör group has polyclonal gammopathy. Two monoclonal gammopathies (IgGK, IgA^) were present in our case. Skin changes include hyperpigmentation, hypertricosis, hyperhydrosis, thicking of the skin suggestive of scleroderma and papillary angiomas (14). Hypertricosis and hyperpigmentation were the most striking skin features in our case. There was hepatomegaly and cardiomegaly in our patient. Thrombocytosis and hyperlipidemia were also present.

Prednisone, and immunosupressive agents such as cyclophosphamide, melphalan, and vincristine are frequently used to treat this syndrome. İn localized form of POEMS syndrome, solitary lesion may be surgically removed, and radiation therapy may be aplicated. (13, 14,15). At the begining we didn't plan to use prednisone in our patient. First we decided to control her diabetes mellitus. Eight months after discharge, there was slight improvement in her polyneuropthy, and marked reduction in hyperpigmentation and hypertricosis. İt has been reported that all-trans retinoic acid has a potential effect in regressing the signs due to POEMS syndrome by reducing cytokin levels (IL-1, TNF- a, IL-6). We are planning to use all-trans retinoic acid in this case. The youngest case with POEMS syndrome in literatüre was a 22-year-old man (16). Our patient is presented because she is the youngest case in literatüre.

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