

Cutaneous Manifestations of Prader-Willi Syndrome

Eduardo Bornhausen-Demarch, MD; Livia Célem, MD; Ronita Carvalhal, MD; Claudia Souza, MD; Patricia Martins, MD; Ana Paula Almeida, MD; Omar Lupi, MD, PhD

Prader-Willi syndrome (PWS) is a multisystemic genetic disease associated with structural, behavioral, and intellectual disorders. The clinical appearance of PWS includes dysmorphic facial features with almond-shaped eyes, a narrow bifrontal diameter, and a thin upper lip; short stature; central obesity; and small hands and feet. We present a case of a 27-year-old woman with PWS and describe the typical clinical features and cutaneous manifestations of PWS.

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Prader-Willi syndrome (PWS) was first described in 1956.¹ It is a multisystemic genetic disease associated with structural, behavioral, and intellectual disorders caused by the loss of function or disruption of the genes on the paternal chromosome arm 15q11-q13.² Prader-Willi syndrome occurs in approximately 1 in 15,000 births and affects both genders. The structural disorders associated with PWS include short stature in 90% of cases, hypotonia, central obesity, hypogonadism, and infertility. Behavioral disorders associated with PWS include impulsive and compulsive conduct, anxiety, hyperphagia, intellectual disorders, and mental and cognitive delay. Central obesity associated with PWS represents a major cause of increased morbidity and mortality. The clinical appearance of PWS includes dysmorphic facial features with almond-shaped eyes, a narrow bifrontal diameter, and a thin upper lip; short stature; central obesity; and small hands and feet. The

diagnosis is based on clinical and genetic evaluation.² We present a case of a 27-year-old woman with PWS and describe the typical cutaneous manifestations associated with the disease.

Case Report

A 27-year-old woman with hypotonia and motor delay present since birth reported cutaneous manifestations since 3 months of age including erythematous papules and crusts in seborrheic skin that started on the face and spread as ulcerations in the diaper area with burning sensation and pruritus. The lesions persisted until adolescence with periods of improvement and periods of stress. She was previously diagnosed with cerebral paralysis and underwent physical therapy and phonological care.

She began to gain weight in childhood and experienced a persistent sensation of hunger as well as hyperphagia that developed into central obesity. She also began to present episodes of aggressiveness and intolerance. Other clinical findings included short stature, almond-shaped eyes (Figure 1), and small hands and feet.

By 12 years of age an endocrinologist suspected a diagnosis of PWS and a karyotype test was performed, which confirmed the diagnosis. Interestingly, her parents were cousins and had 3 children, 2 who were diagnosed with PWS confirmed by laboratory examinations. In her visit to dermatology she presented with cutaneous manifestations of seborrheic dermatitis with lesions characterized by a yellow color; mild erythema; and oily thick scales and crusts with a predilection for the scalp, retroauricular folds, and glabella (Figures 2 and 3). The lesions were associated with pruritic, erythematous, macerated skin in intertriginous areas with satellite vesicopustules, similar to candidiasis. She also presented with intense xerosis, mainly on her lower extremities (Figure 4). She was treated with zinc oxide, nystatin, topical corticosteroids, and urea lotion 10% for 15 days with marked improvement.

Drs. Bornhausen-Demarch and Souza are from the Professor Rubem David Azulay Institute of Dermatology, Santa Casa da Misericórdia General Hospital, Rio de Janeiro, RJ, Brazil. Drs. Célem, Carvalhal, Martins, Almeida, and Lupi are from the Department of Dermatology, Policlínica Geral do Rio de Janeiro, Rio de Janeiro.

The authors report no conflict of interest.

Correspondence: Omar Lupi, MD, PhD, Rua Frei Leandro, 16/501, Lagoa, Rio de Janeiro/RJ 22.470-210, Brazil (omarlupi@globo.com).

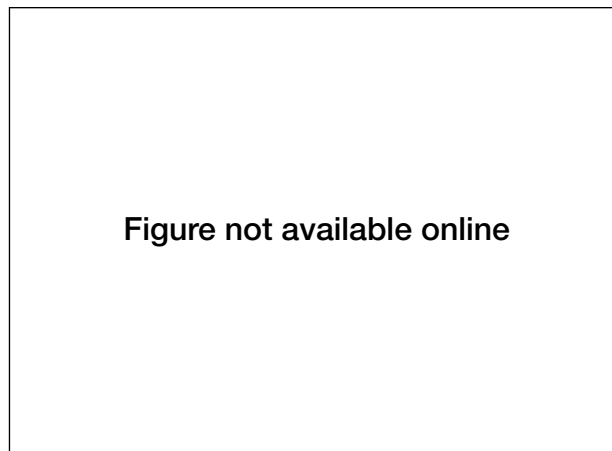
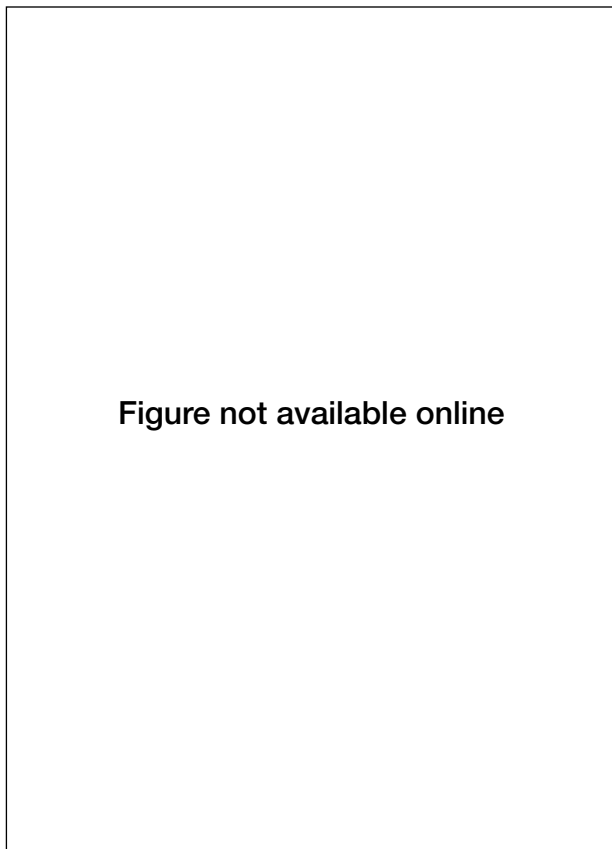


Figure 1. Prader-Willi syndrome is characterized by obesity, short stature, and almond-shaped eyes.

Comment

Prader-Willi syndrome is commonly associated with obesity. The syndrome has 2 typical clinical stages. The first stage is associated with low birth weight, hypotonia, and delayed growth. In the second stage, patients develop a compulsion for food and a voracious appetite, producing an abnormal body composition with low muscle mass and increased fat mass.³⁻⁵ Intellectual disorders, short stature, small hands and feet, and hypogenitalism also have been noted.^{6,7}

In addition to cutaneous manifestations associated with PWS, patients have been noted to pick their skin in a fashion similar to patients with Down syndrome.⁸ Skin picking is one of the most predominant symptoms and occurs in most patients with PWS; it is a minor criteria of diagnosis. Skin picking produces roundish lesions in different evolutionary phases (ie, excoriations, scabs, scars, secondary milia) on the dorsal surface of the hands and extensor surface of the forearms. It can either constantly or occasionally affect patients throughout their lives. Physicians can rule out pseudofactitial dermatitis in the differential diagnosis because of its linear or geometric outline and long-term evolution.

Figure 2. Skin picking leads to recurrent episodes of candidiasis associated with seborrheic dermatitis (A and B).

Hypopigmentation is common in patients with PWS as well as differences in hair color and sensitivity to the sun. The presence of obesity (onset before 6 years of age) and skin picking are signs for diagnosis of PWS.^{9,10} Trichotillomania also is common in patients with PWS and results in unsightly hair loss. One patient presented with cutaneous manifestations most likely related to a deficiency of the immune system with recurrent episodes of candidiasis associated with seborrheic dermatitis.⁸ Other lesions such as lichenoid



Figure 3. Seborrheic dermatitis-like lesions on the retroauricular fold.



Figure 4. Small feet and xerosis associated with Prader-Willi syndrome.

skin eruptions on the legs have been noted with PWS, but histologically the lesions were determined to be pseudo-Kaposi sarcoma.¹¹ Acanthosis nigricans may be the first sign of a neoplastic process and is frequently associated with obesity.¹² Recurrent panniculitis on the lower back and extremities may spontaneously resolve without any specific treatment. Physical trauma to the fatty tissue may lead to panniculitis.¹³

Early diagnosis of PWS is important to enable patients and guardians to manage an appropriate diet. Developing healthy eating habits and encouraging physical activity early in the disease course will help

to reduce concerns related to PWS-induced obesity, such as diabetes mellitus, high blood pressure, and pulmonary conditions, which are the main causes of death in adolescence for patients with PWS.¹⁴

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