Parvovirus B19 associated papular-purpuric gloves-and-socks syndrome

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The papular-purpuric gloves-and-socks syndrome (PPGSS) is a disease characterized by an itching erythema and edema of the hands and feet, oral mucosal lesions and fever. It may be caused by various agents. Parvovirus B19 has been implicated as the etiological factor in most cases. Here we report a case of PPGSS in a nine-year-old previously healthy girl with papular and petechial lesions on her peroral area and trunk, and primarily on the dorsal areas of her hands and feet. Serologic study confirmed the acute infection by parvovirus B19. We believe that our case is worthy of particular attention because of the rarity of the disease in the pediatric age group and because it is the first documented case of PPGSS in Turkey.

Key words: papular-purpuric gloves-and-socks syndrome, parvovirus B19.

The papular-purpuric gloves-and-socks syndrome (PPGSS) is a disease characterized by an itching erythema and edema of the hands and feet, oral mucosal lesions and fever. It was first described by Harms et al. in 1990[1]. PPGSS may be caused by various agents. Parvovirus B19 has been implicated as the etiological factor in most cases[2]. Rubella, hepatitis B, human herpesvirus 6 and cytomegalovirus (CMV) infections related with this syndrome have been reported[3-7]. Human parvovirus B19 is the cause of erythema infectiosum, a benign limited infection. It is also manifested as transient aplastic crisis, hydrops fetalis, arthropathy, various vasculitic syndromes, erythema multiforme, and erythema nodosum[8,9]. Infection with this virus may result in a wide range of dermatological findings such as reticular erythema, maculopapular eruptions, petechiae and purpura. A nine-year-old girl with PPGSS is described in this paper. She had an acute febrile illness accompanied by papular and purpuric lesions located primarily on the dorsal areas of her hands and feet. To our knowledge this is the first case of documented PPGSS in Turkey.

Case Report

A nine-year-old previously healthy girl was admitted to our hospital complaining of fever and rash. Physical examination was notable for a temperature of 38.2°C. Examination of the oral mucosa revealed ulcerations on her tongue (Fig. 1). Her respirations were comfortable and the lungs were clear. Breath sounds were equal bilaterally posteriorly and anteriorly. The cardiac exam revealed a quiet precordium with regular rate and rhythm, and normal S1 and S2 without murmurs. The abdomen was soft without hepatosplenomegaly or masses. There was no adenopathy. Papular and petechial lesions on her peroral area and trunk and primarily on the dorsal areas of her hands and feet were remarkable (Figs. 1 and 2).

On admission, platelets and white cell count were within normal range ($197x10^3/\mu L$ and $9.1\ x10^3/\mu L$, respectively). Serum chemistry analysis and urinalysis were normal. The erythrocyte sedimentation rate was 27 mm/h. Her viral serologies were otherwise negative except for detection of parvovirus B19 IgM antibody in serum (Table I).

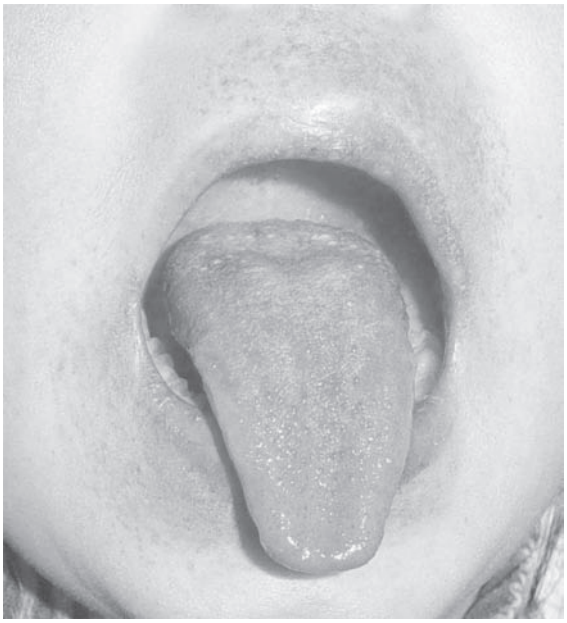

Fig. 1. Papular and petechial lesions on peroral area, and ulcerations on tongue.

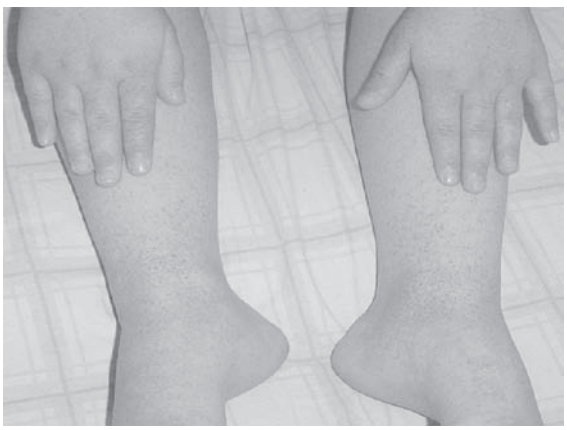

Fig. 2. Papular and petechial lesions on the dorsal areas of hands and feet.

Table I. Viral Serologies of the Patient

Virus	Ig M	Ig G
Cytomegalovirus	–	+
Epstein–Barr	–	+
Hepatitis B	–	–
Herpes simplex type 1	–	+
Herpes simplex type 2	–	+
Measles	–	+
Mumps	–	+
Parvovirus B19	+	–
Rubella	–	+
Varicella zoster	–	–

On the basis of her clinical and laboratory presentation, the most likely diagnosis was PPGSS. Within 48 hours of the hospitalization, her temperature reached normal limits without any medication. Petechial lesions had markedly decreased at the time of discharge to home on the third day of the hospitalization. Parvovirus B19 IgG antibody was detected with the absence of IgM six months after discharge.

Discussion

Parvovirus B19 is the only member of the Parvoviridae family known to cause disease in humans. The most widely known clinical manifestation of B19 infection is erythema infectiosum, a benign limited infection also known as fifth disease. Parvovirus B19 is also manifested as a wide range of clinical entities including aplastic crisis, hydrops fetalis, arthropathy, vasculitic syndromes, erythema multiforme, erythema nodosum and PPGSS[8,9]. Harms et al.[1] first described PPGSS and reported five cases of an acute, self-limited dermatosis with erythema localized to the distal upper and lower extremities in a gloves and socks distribution. Bagot and Revuz[2] described association between PPGSS and parvovirus B19 in 1991.

This syndrome is manifested by rapidly progressive painful and pruritic, symmetric swelling and erythema of the distal hands and feet with sharp margins at the wrists and ankles. Diffuse erythema and swelling of lips, oral and mucosal lesions characterized by vesicles, ulceration and petechiae have been described[10-11]. Our case had ulcerations on her tongue, and papular and petechial lesions on her peroral area and trunk, and primarily on the dorsal areas of her hands and feet. She had normal white blood cell counts and morphology. The red blood cell indices and platelet counts appear to remain normal in PPGSS, as in our case[1,2,12].

Just as in adults, there is a possible association between PPGSS and viral infections. Hsieh and Huang[10] reported several clinical features and laboratory results of patients with several viral infections including CMV, Epstein-Barr virus (EBV) and parvovirus B19. These clinical features are mostly skin lesions consisting of edema, erythema, purpura with pruritus, papules, petechiae, red macules and pustules.

In our case, the diagnosis was confirmed by presence of parvovirus B19 IgM antibody in serum. Other etiologic agents such as rubella, hepatitis B, human herpesvirus 6 and CMV have been reported as possible causes of PPGSS, but no serological evidence of those was detected in our case (Table I).

The differential diagnosis of palmoplantar lesions in children is broad. Various pediatric dermatologic diseases such as erythema multiforme, hand-foot-and-mouth disease, Gianotti-Crosti syndrome and Kawasaki syndrome may present similar involvement with PPGSS[13-16]. The absence of target lesions and vesicles, presence of lesions localized to the hands and feet (gloves and socks type), and normal cardiac exam and platelet count let us to exclude these diseases in our case.

In summary, children with PPGSS are rarely reported in the literature, and this syndrome is a distinctive manifestation of primary infection with parvovirus B19. We believe that our case is worthy of particular attention because of the rarity of the disease in the pediatric age group and because it is the first case of documented PPGSS in Turkey.

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