

Herpes Zoster Reacting with Short-Term Corticosteroid Therapy in a Healthy 8-Year-Old Girl

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ABSTRACT Herpes zoster (HZ) is an infectious disease characterized by acute vesicles, located in the dermatomes formed by the reactivation of varicella zoster virus with dorsal ganglia. Although the disease is common in advanced age and in immunosuppressed people, it can also be seen rarely in healthy children and young people who have had in the early period. Herpes zoster in children have a mild course of the disease and the disease mainly affects the thoracic dermatomes. The clinical manifestations of the disease in children differ from adults. Pain and postherpetic neuralgia are rarely seen in pediatric patients before the onset of herpes zoster rashes and during rash. Unlike the findings in adults, herpes zoster in children is painless but itchy. In this study, we presented a herpes zoster case -8 years old girl- who had suffered chickenpox at the age of one and had received short time corticosteroid therapy for acute urticaria two weeks before herpes zoster.

Keywords: Herpes zoster; child; kortikosteroid

Varicella zoster virus (VZV) is a double helical DNA virus from herpes virus family. It is the factor of chickenpox and herpes zoster (HZ).¹ Varicella, alias chickenpox, is a primary disease which develops after a nonimmunized person encounters the virus for the first time and which is characterized by widespread eczematous skin rashes and children have a mild form of it.² The virus becomes latent in cerebral or posterior root ganglion after primary infection.³ Herpes zoster is a disease which develops as a result of the reactivation of the virus that remains latent after primary infection. It is characterized by vesicular lesions during unilateral dermatome. Chickenpox or HZ are often mild in healthy individuals. However, it can cause morbidity or mortality in patients with primary or acquired immunodeficiency, especially if cellular immunity is affected.² The risk of having herpes zoster is 10-15% life-long in those who have chickenpox; 75% of them consist of the cases developing after 45 years of age. The incidence of HZ in children is very low and it is frequently seen in children who use immunosuppressive medicine and who have malignant disease and immune deficiency and a severe course of disease occurs. Herpes zoster, which is much less common in healthy children, is seen in children with chickenpox or contact history in the first year of life or in intrauterine period.^{1,3}

CASE REPORT

An eight-year old girl applied to our outpatient clinic with the complaints of red and succulent rashes and itching that started two days ago on the

front and left side of her abdomen. The mother claimed that the rashes occurred nearly three days ago, water blisters developed on these rashes after 24 hours and fever, pain and asthenia accompanied the symptoms. Before the occurrence of the rashes, our patient had received inpatient treatment for 10 days in the hospital because of urticaria and she received corticosteroid and antihistamine treatment. It was learnt from her medical history that she was born by normal spontaneous vaginal delivery following 39 weeks of gestation weighing 3470 gram and she received breast milk for six months and other routine vaccinations were made except for varicella vaccine. In her medical story, patient had varicella when she was one year old and she did not have immunosuppressive disease or frequent infections. There was nothing special feature in her family history. Bodyweight of the patient who looked weak was 30 kg (50-75 p), she was 136 cm (90-97 p), cardiac apex beat was 90/min, respiratory rate was 25/min and axillary body temperature was 36.7°C. Physical examination revealed vesicles that conformed to T8-9 dermatomes, started from the left anterolateral of the abdomen and conformed to T10 dermatome, spread umbilicus left lateral, and did not cross the midline and formed groups on the erythematous surface (Figure 1). Other system examinations were normal. In laboratory investigation, hemoglobin was 14 g/dL, thrombocyte count was 199 000/mm³, leucocyte was 4420 K/ μ L and lymphocyte dominance was detected in peripheral smear. Biochemical parameters were normal in the case and CRP was 0,5 mg/dL (NV: <0,5 mg/dL), ASO was 88 U/mL and sedimentation was 10 mm/hour. Varicella zoster virus IgM was detected as negative and VZV IgG was detected as positive. Systemic acyclovir treatment was initiated at the dose of 20 mg/kg/day in the patient who was diagnosed with HZ. From the third day of treatment, the patient's lesions improved and no complications developed.

DISCUSSION

Although varicella, or chickenpox, infections are quite common in the first years of childhood, HZ is



FIGURE 1: Vesicles that conformed to T8-9 dermatomes, started from the left anterolateral of the abdomen and conformed to T10 dermatome, spread umbilicus left lateral, did not cross the midline and formed groups on the erythematous surface.

rare in childhood.⁴ The incidence of HZ changes between 0.2-0.74 per thousand in children. The most important risk factor for developing HZ in healthy children is intrauterine or the exposure to VZV in the first years of life.⁵ When the literature is examined, it is observed that the majority of reported infantile period HZ are the result of intrauterine contamination. Fetuses of women who have been infected with varicella during pregnancy may become infected and HZ may develop in children in the first years of life depending on this. This is explained by the lack of immune response to VZV due to immaturity of the immune system.^{1,6} Our case has had chickenpox when she was one year old.

In a study performed by Topkarcı et al. on 14 HZ patients consisting of 10 boys and 4 girls, it was determined that mean age was 8 (15 months-15 years). Our case was also 8 years old in accordance with this study. HZ can occur at any time after VZV infection. Cellular immunodeficiency, the presence of malignancy, the use of immunosuppressive drugs, trauma and surgical operations can trigger HZ development. In the studies performed so far, 10% of HZ patients have consisted of healthy children.⁷ Our patient was also a healthy non-immunosuppressed girl who had a short term use of corticosteroid use.

Chickenpox is highly contagious and can be infected with direct contact droplet pathway or vesicular fluid. Although HZ is not as contagious

as varicella, VZV can be infected to seronegative individuals from the fluid in the HZ vesicles and chickenpox can develop. The risk of contamination goes on until the lesions become crusted. For this reason, it is advisable to inform patients that HZ has a risk to infect varicella and it is advisable to avoid risky groups, such as infants, until the lesions are crusted.⁸

Herpes zoster infections are generally diagnosed by physical examination findings. VZV infections are diagnosed by the presence of vesicles which form groups on the erythematous surface in the skin region which characteristically corresponds to the sensory nerve dermatome. In addition, polymerase chain reaction, cell cultures, detection of VZV specific antibodies and smear are other laboratory methods that can be used for the diagnosis. Herpes simplex, insect bites, irritant dermatitis and bullous diseases are present in the different diagnosis.⁹

It is reported that HZ is involved in thoracic dermatome in approximately half of the cases and respectively in cranial, cervical, lumbar and sacral roots. The clinical appearance of HZ is in the shape of vesicle in children, as in the adults, in the erythematous zone and in the area corresponding to a dermatome.⁹ There was a thoracic dermatome in our case as well in accordance with the literature as seen in Figure 1.

The most common symptom in children during HZ infection is itching. During HZ, pain is quite rare in children compared to the adult and this is linked to the damage of VZV by its duration in dorsal ganglion.¹⁰ Itching symptom was in the forefront in our patient, too.

HZ infection can also be seen in children who have been vaccinated with varicella because varicella vaccine is a live vaccine.¹¹ Varicella vaccine was included in our national vaccination program in 2013 and it is performed in a single dose at the age of one.¹² Our patient was not vaccinated with varicella because it was not in vaccination program in our country before. In the studies abroad, HZ infection was reported more in children with immunosuppressive or comorbid disease.⁷ In the

studies, HZ development may have been reported less in healthy children because of the fact that frequent application of varicella vaccine prevents varicella infection and HZ development. The course of HZ in healthy children is mild-moderate and it generally heals within 1-3 weeks. Secondary bacterial infection, depigmentation and scarring often accompany as complication; serious complications are rare.¹³

The most frequent complications in the course of the disease are postherpetic neuralgia, ocular involvement (keratopathy, episkleritis, ceratitis), bacterial skin infections, cranial and peripheral nerve paralysis. Especially in old patients, the most frequent complication is postherpetic neuralgia and the rate of incidence was reported to be 70%. It can be defined as the pain in the retained dermatome line which still continues one month after the appearance of the rash. There is insufficient evidence that antiviral therapy reduces post-herpetic neuralgia risk.¹⁴

The aim of HZ treatment is to reduce pain, the severity and complications of the disease and to accelerate healing. Early initiation of treatment leads to better clinical response. Each patient should be advised to keep the lesions dry and clean. Since the pain may be so severe as to require sympathetic nerve blockade, neuralgic pain should be taken carefully. It is not clear to whom treatment will be initiated, but it should be considered to initiate treatment for elderly and for patients with immunosuppressive and ocular involvement and with a high risk of complications. In healthy children who do not have immunosuppression, prevention of complications and rapid healing of the disease can be achieved by early treatment.¹⁵ For this reason, antiviral treatment was started in the early period and the response was received in a short time in our case, too.

As a result, healthy infants who have had varicella in their first years of life are at risk of having herpes zoster in early childhood without immunosuppression and malignancy in etiology. Short-term corticosteroid therapy initiated for other reasons may lead to VZV reactivation. The

introduction of VZV vaccine into the routine vaccination program protects both immunosuppressed and healthy children from HZ and related complications. In this article we wanted to draw attention to the fact that we may encounter HZ cases in healthy children as well who are followed up frequently especially in the primary health care.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Ruhuşen Kutlu, Cennet Büyükyörük; **Design:** Ruhuşen Kutlu, Cennet Büyükyörük; **Control/Supervision:** Ruhuşen Kutlu; **Data Collection and/or Processing:** Ruhuşen Kutlu, Cennet Büyükyörük; **Analysis and/or Interpretation:** Ruhuşen Kutlu, Cennet Büyükyörük; **Literature Review:** Ruhuşen Kutlu, Cennet Büyükyörük; **Writing the Article:** Ruhuşen Kutlu, Cennet Büyükyörük; **Critical Review:** Ruhuşen Kutlu.

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