Araştırma Makalesi / Research Article

Herpes zoster infection in childhood: prospective evaluation of 21 cases

Çocukluk **çağında** Herpes zoster enfeksiyonu:21 olgunun prospektif **değerlendirilmesi**

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Abstract

Background: Herpes zoster (HZ) is a disease caused by the reactivation of varicella zoster virus, which remains latent in the dorsal root ganglion. HZ is a rarely seen disease in childhood. HZ is more common in pediatric patients with immunosuppressive drug use, immunodeficiency and malignancy. This study examined the clinical characteristics of children with HZ.
Methods: Twenty one pediatric patients admitted to our dermatology clinic between January 2017 and July 2018 and diagnosed with HZ were evaluated prospectively. Patients were evaluated in term of age, sex, affected dermatome, history of previous varicella, varicella vaccine, accompanying disease, complication development and treatment.
Results: Twelve (57.1%) of the 21 pediatric patients with HZ were male and 9 (42.9%) were female. The mean age of the patients was 10.1 years (6-16 years). Fourteen (66.6%) patients had thoracic dermatome involvement, 5 (23.8%) patients had cervical involvement, and 2 (9.5%) patients had lumbar dermatome involvement. Two patients were receiving systemic chemotherapy for ALL. In our study 71.4% of patients had a history of varicella and there was no history of varicella vaccine in any of the patients. None of the patients developed dissemination and no major complication was observed.
Conclusion: In conclusion, while HZ is also seen in healthy children, children who are immunosuppressed are more affected. Similar to adult disease, thoracic dermatomal involvement is the most common. Complications such as postherpetic neuralgia due to HZ in healthy children are rarely seen.

Key words: Childhood, Herpes Zoster, Varicella zoster virüs

Öz.

Amaç: Herpes zoster(HZ), dorsal kök ganglionunda latent olarak kalan Varicella zoster virüs'ün reaktivasyonu sonucunda gelişen bir hastalıktır. HZ çocukluk çağında nadir görülen bir hastalıktır. HZ, çocukluk çağında immünsupresif ilaç kullanımı, immünyetmezlik ve malignite durumlarında daha sık olarak karşımıza çıkabilir. Bu çalışmada polikliniğimize başvuran HZ tanısı konulan çocuk hastaların klinik özellikleri ve eşlik eden hastalıklar incelendi.
Materyal ve Metot: Hastanemiz deri ve zührevi hastalıkları polikliniğine Ocak 2017- Temmuz 2018 tarihleri arasında başvuran ve HZ tanısı konulan 18 yaşından küçük 21 hasta prospektif olarak değerlendirildi. Hastalar yaş, cinsiyet, tutulan dermatom, geçirilmiş varisella öyküsü, varicella aşısı öyküsü, eşlik eden hastalıklar, komplikasyon gelişimi ve tedavi açısından değerlendirildi.
Bulgular: HZ tanısı konulan 21 çocuk hastanın 12(%57,1)'si erkek, 9 (%42,9)' u kız idi. Hastaların yaş ortalaması 10,1 yıl (6-16 yaş) olarak saptandı. On dört (%66,6) hastada torakal dermatom tutulurken, 5 (%23,8) hastada servikal ve 2 (%9,5) hastada lomber dermatom tutulumu izlendi. İki hasta ALL tanısı nedeniyle sistemik kemoterapi almaktaydı. Hastaların hiçbirinde varisella aşısı olma öyküsü yoktu. Varisella geçirme öyküsü hastaların 15(%71,4)'inde vardı. On altı (%76,1) hastaya sistemik antiviral tedavi verildi. Hastalarımızın hiçbirinde disseminasyon gelişmedi. Hastalarda postherpetik nevralji veya majör bir komplikasyon görülmedi.
Sonuç: HZ, immünsupresyonu olan çocuk hastalarda sıklıkla görülmesine rağmen sağlıklı çocuklarda da görülebilmektedir. Erişkin hastalara benzer şekilde en sık torakal dermatom tutulumu görülür. Sağlıklı çocuklarda HZ' ye bağlı postherpetik nevralji gibi komplikasyonlar nadir olarak görülür.

Anahtar kelimeler: Çocukluk çağı, Herpes zoster, Varisella zoster virüsü

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Introduction

Herpes zoster (HZ) is a dermatomal, painful vesicular dermatosis characterized by reactivation of the virus which remains latent in the sensory nerve posterior root ganglia after varicella infection caused by varicella zoster virüs(1,2). The overall annual incidence is below 1.5 to 3.0 / 1000, but above 75 years it exceeds 10/1000(3,4). HZ is a rarely seen disease in childhood. HZ is more common in pediatric patients with immunosuppressive drug use, immunodeficiency and malignancy (5,6). In this study, the clinical characteristics and accompanying diseases of children with HZ who referred to our outpatient clinic were evaluated.

Materials and Methods

Twenty-one children with HZ who were admitted to the our dermatology clinic between January 2017 and July 2018 were evaluated prospectively. Patients were evaluated in term of age, sex, affected dermatome, history of varicella, varicella vaccine, accompanying disease, complication development and treatment. The patients were followed up for 2-6 months. Written consent was taken from the patients. Statistical analyzes were performed using the SPSS 21.0 for Windows (SPSS Inc., Chicago, IL, USA) program. This work has been approved by the ınstitutional review board.

Results

Twelve (57.1%) of the 21 pediatric patients with HZ were male and 9 (42.9%) were female. The mean age of the patients was 10.1 years (6-16 years). Fourteen (66.6%) patients had thoracic dermatome involvement, 5 (23.8%) patients had cervical involvement, and 2 (9.5%) patients had lumber dermatome involvement. Two patients were receiving systemic chemotherapy for ALL. Crusting of lesions in cases treated with acyclovir ranged from 7 to 10 days. Of 71.4% patients had a history of varicella and there was no history of varicella vaccine in any of the patients. None of the patients developed dissemination and no major complication was observed.(Table 1)

Discussion

HZ is a disease that affects mainly adults. It can be seen in all races and affects both genders equally (2). The risk of life-long illness is approximately 10-20%. The factor playing a key role in the development of HZ is advanced age. Less than 10% of cases are under 20 years of age. Unlike adult disease where pain is the main complaint, childhood HZ is usually accompanied by pruritus (3,4).

Most of the pediatric cases are older than 5 years, and most of them are children who have had chickenpox in the intrauterine period or in the first year of life or have a history of contact with chickenpox. This is explained by the inadequate immune response to VZV due to immaturity of the immune system (1,7). The mean age of children diagnosed with HZ patients in three separate studies conducted in Turkey was 8, 10,5 10.6 (1,8,9). In our study, the mean age of patients with HZ was similar in the literature. In the study conducted by Yung-Hsiu Lin et al., the incidence of HZ in female was significantly higher than in male (10). In the Yalaki et al study, there were 10 female and 4 male patients with HZ and the female to male ratio was 2.5 (8). In the Colgecen et al study, the ratio of females to males was 1.4 (9). In our study, HZ was seen more frequently in male.

Guess et al.(11) and Terada et al. (12) found that HZ infection in children was most frequently observed in thoracic dermatome (65%) and cranial nerves (5%) were uncommonly affected contrary to in adult patients. Also sacral involvement and dissemination (5%) are rarely reported.

In the Yalaki et al study reported that the most common (79%) affected dermatome was thoracic dermatome (8). Rahsan et al reported that the most affected dermatome was trigeminal dermatome in their study. They explained that this is because study performed just in hospitalized patients (5). In our study, thoracic dermatomal involvement was seen most common, similar to the literature.

Although HZ is thought to be a paraneoplastic condition, especially in childhood (13), studies have not confirmed this (14,15). Wurzel et al. reported that malignancy was not observed during the follow-up period of 4.2 years in a study with 20 healthy HZ children (14). In another study, malignancy was associated with 3% of patients (16). Therefore, systemic research is not recommended for children with HZ without immunosuppression (14). In our study, two patients with HZ were receiving systemic chemotherapy for ALL.

In some studies, two doses of varicella vaccine have been shown to reduce the incidence and morbidity of HZ (17). In study by Colgecen et al., 79.2% of patients had history of varicella, and none had varicella vaccination (9). In our study 71.4% of patients had a history of varicella and there was no history of varicella vaccine in any of the patients. In cases without varicella vaccine and varicella history, zona development is not expected. Considering the sociocultural situation of the region in which we study, it was thought that this was due to the lack of knowledge about chickenpox and chickenpox vaccine.

HZ is a benign disease that usually heals itself. In rare cases, however, complications such as disseminated HZ, aseptic meningitis, and facial paralysis may be seen, especially in patients with immunosuppression (5,18). In the study of Rahsan et al., Ramsay Hunt Syndrome was

Table 1. Clinical features of pediatric zona zoster cases

Age	Gender	Affected Dermatome	Varicella History	Varicella Vaccine	Accompanying Disease	Complication	Treatment
6	F	Thoracic	-	-	ALL	-	Systemic acyclovir
6	M	Thoracic	-	-	-	-	-
6	F	Thoracic	-	-	-	-	-
7	M	Thoracic	-	-	ALL	-	Systemic acyclovir
7	M	Cervical	-	-	-	-	-
7	M	Thoracic	-	-	-	-	-
8	F	Thoracic	+	-	-	-	-
10	F	Thoracic	+	-	-	-	Systemic acyclovir
10	M	Cervical	+	-	-	-	Systemic acyclovir
10	M	Thoracic	+	-	-	-	Systemic acyclovir
12	M	Thoracic	+	-	-	-	Systemic acyclovir
12	F	Thoracic	+	-	-	-	Systemic acyclovir
12	M	Cervical	+	-	-	-	Systemic acyclovir
12	F	Thoracic	+	-	-	-	Systemic acyclovir
13	M	Thoracic	+	-	-	-	Systemic acyclovir
13	F	Thoracic	+	-	-	-	Systemic acyclovir
14	M	Cervical	+	-	-	-	Systemic acyclovir
14	F	Thoracic	+	-	-	-	Systemic acyclovir
15	F	Lumbar	+	-	-	-	Systemic acyclovir
16	M	Cervical	+	-	-	-	Systemic acyclovir
16	M	Lumbar	+	-	-	-	Systemic acyclovir

F: Female, M: Male, ALL: Acute lymphoblastic leukemia

observed in 2 (13%) of the patients and no complications were observed in the other patients (5). In our study, none of our patients developed dissemination and no major complication was observed.

Postherpetic neuralgia (PHN) is a common complication of HZ that affects quality of life and daily activity, characterized by long-standing pain of one month in the affected dermatome (4). The incidence of PHN varies between 8-15% in adults (19). Advanced age and presence of immunosuppression have been reported as factors associated with the development of PHN (20).

It is a rare complication in children (9). In a study conducted in Germany, PHN was detected in 4 of 244 children with HZ who were hospitalized (21), but none of the 92 HZ pediatric patients in a study conducted in Japan did not develop PHN (22). In our country, PHN was not detected in a study with 15 children patients with HZ(5). In this study, PHN was not seen in any patient during the follow-up period of 2-6 months.

HZ infection heals spontaneously in healthy children (23). However, early initiation of HZ treatment reduces the incidence of morbidity and mortality, especially in immunocompromised children (5,24). Some researchers believe that antiviral therapy may be useful in reducing complica-

tions in non-immunosuppressive patients and accelerating healing (5,25). In our study sixteen (76.1%) patients were treated with systemic antiviral therapy.

In conclusion, while HZ is also seen in healthy children, children who are immunosuppressed are more affected. Similar to adult disease, thoracic dermatomal involvement is the most common. Complications such as postherpetic neuralgia due to HZ in healthy children are rarely seen.

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