Case Reports

Herpes Zoster with Dissemination

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Herpes zoster or shingles is an acute vesico-bullous cutaneous infection characterized by dermatomal distribution, predominantly in adults. Extensive cutaneous dissemination has been reported in immunocompromised patients. However, its existence is documented in immunocompetent individuals as well. We report two children with disseminated herpes zoster, one of whom was immunocompromised secondary to severe malnutrition and had associated orbital septal cellulitis.

Key words: *Acyclovir, Herpes zoster.*

Herpes Zoster (HZ) is caused by varicella-zoster virus (VZV) due to reactivation of the virus from dorsal root or cranial nerve ganglia. This occurs in upto 15% individuals following varicella, less frequently in children than adults. The latent period varies from several weeks to years(1). Varicella during in fancy is reported to be a risk factor for childhood zoster(1). Human immunodeficiency virus infection, chronic infections, primary immunodeficiency syndrome and immunosuppressive therapy are important causes of disseminated herpes zoster(2).

We report 2 cases of childhood herpes zoster with dissemination which is an uncommon presentation

Case Report 1

A 6-year-old boy presented with eruption of blisters around left eye associated with fever of one-week duration. Two days later, the patient developed numerous lesions distributed over trunk and few scattered lesions over both the arms. The ocular lesions were associated with watering, pain, photophobia and blurring of vision in the left eye. The child had history of chickenpox at three years of age that resolved after 3-4 weeks without any medication. There was no history suggestive of any high-risk exposure with reference to acquisition of HIV, intake of steroid or cytotoxic drugs or any history of recurrent infections. The child had a positive personal and family history of atopy.

Examination revealed a boy weighing 10 kg with a height of 94 cm (grade IV malnutrition). The patient was febrile (101°F) and had multiple enlarged, discrete, non-tender lymph nodes measuring about 0.5 cm in the left submandibular region and axillae.

Cutaneous examination revealed multiple vesicles and pustules on an erythematous base present over the left upper eyelid and forehead with few interspersed brownish, mildly adherent crusts (*Fig.1*). Examination of the left eye revealed swollen, erythematous tender eyelids, chemosed palpebral conjunctiva and nebular opacity over the lower temporal cornea with restricted eyeball movement and

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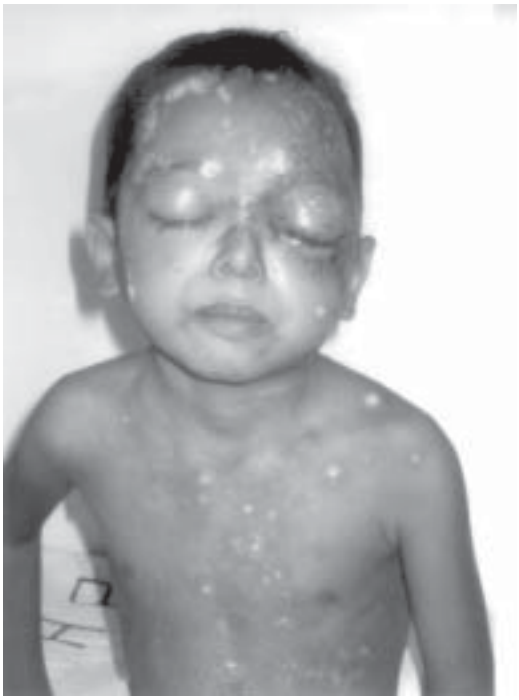

Fig. 1. Multiple vesicles and erosions over the face with clustering on the left upper eyelid, and similar discrete lesions on the trunk.

no active discharge or bleeding from the eyes, suggestive of left orbital septal cellulitis. Examination of the lower labial mucosa revealed multiple, well defined erosions about 3-4 mm in size. In addition, there were discrete, vesicopustular and crusted lesions all over the body (*Fig. 1*).

Tzanck smear from vesicular lesions present around the eye and trunk revealed multinucleate giant cells suggestive of varicella zoster infection. Serology for HIV and syphilis was nonreactive. Hemogram revealed microcytic hypochromic anemia (hemoglobin 8.5 g/dL) along with polymorphonuclear leukocytosis and no atypical lymphocytes. Total serum protein was 5.2 g/dL with albumin/globulin ratio of 1.8/3.2. Mantoux test was negative at 48 hours. Other hematological investigations, cultures and *X*-ray chest were within normal limits.

The patient was diagnosed to have disseminated herpes zoster with herpes zoster opthalmicus of the left eye and was treated with oral acyclovir 400 mg 5 times a day along with intravenous ceftriaxone, amikacin and cloxacillin for 2 weeks followed by oral cloxacillin for another 2 weeks. NSAIDS and steroid-antibiotic eye drops were also administered, in addition to the supportive nutritional supplements.

The lesions healed completely and the ocular inflammation resolved in 4 weeks.

Case Report 2

An 11-year-old boy presented with fever and multiple, painful fluid filled lesions, of 3 days duration. Cutaneous examination revealed grouped vesicobullous lesion on erythematous base present along left third and fourth thoracic segment and numerous discrete lesions scattered mainly over the trunk, with few scattered ones on both arms and thighs as well. Few of these lesions were crusted with blackish, adherent crust and underlying erosions with healthy granulation tissue at the floor (*Fig. 2*). The child weighed 33 kg and height was 130 cm. There was past history of chickenpox about 5 years back, which resolved spontaneously in 3 weeks. There was no history of high risk behavior with reference to the acquisition of HIV or history of recurrent infections. History of atopy was elicited in the patient.

Tzanck smear from both dermatomal and disseminated vesicular lesions revealed multinucleate giant cells. The child had dimorphic anemia, predominantly microcytic hypochromic. Total serum proteins were 5 g/dL with albumin/ globulin ratio of 1.9 / 3.1. Rest of the hematological investigations,

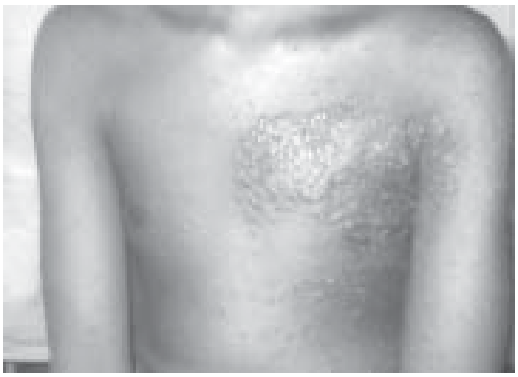

Fig. 2. Grouped vesico-bullous lesions along left T_3-T_4 segment with numerous discrete lesions over the rest of the trunk

X-ray chest and ultrasonography of the abdomen revealed no abnormality. Mantoux test reading and serology for HIV and syphilis were negative. The patient was diagnosed as a case of thoracic herpes zoster with dissemination and treated with oral acyclovir 800 mg 5 times a day for 7 days. The lesions completely resolved with post inflammatory hyperpigmentation in 3 weeks.

Discussion

Herpes zoster can occur in patients of any age who have had a previous infection with VZV, but it is rare in healthy children, below 10 year of age(1). More than 66% of the affected patients are over 50 years and a direct association between increasing age and higher incidence has been seen, even in the pediatric age group(3). Herpes zoster following immunization with attenuated varicella vaccine has been reported in children(1). Furthermore it has been suggested that children who acquire varicella during infancy, may be predisposed to HZ earlier in life(3). Majority of the zoster cases in the series reported by Laxmisha, *et al*. were below 50 years (75 %) and 22 % were below 20 years(4). This is in contrast to the western literature where the prevalence is highest in individuals above 50 years of age. They also reported a single case of disseminated zoster who was HIV positive(4).

Herpes zoster in prepubertal children usually follows a benign clinical course with most of the lesions resolving spontaneously in 10 to 14 days(3). Systemic reactions such as fever, headache and regional lymphadenopathy are more common in childhood(3). Hemorrhagic lesions; secondary bacterial infections, superficial skin necrosis and anesthesia of the involved dermatome are among the dermatological complications. Postherpetic neuralgia and involvement of 2-3 contiguous dermatomes may be occasionally seen in adolescents(3).

Herpes zoster is usually associated with transient viremia caused by hematogenous spread of virus from the infected ganglion(5). Although this viremia is immediately curbed in an immunocompetent individual, some of the virus may still reach the skin through this route, to give rise to few disseminated vesicles (lesions <25) away from the dermatomes affected by herpes zoster(5). In these patients, lesions begin along a dermatome, but, by third or fourth day, a few widely scattered vesicles begin at distant skin sites remote from the original dermatome(3). The term herpes zoster with aberrant vesicles' has been used to describe this situation, and the natural history and course of herpes in this group is not different from those with the illness limited to the affected dermatomes(5). However, Takayama, *et al*. reviewed 92 children with herpes zoster and found that the infection was not as mild as is generally accepted(6).

Disseminated herpes zoster, quite often confused with herpes zoster with aberrant vesicles, is in fact the result of a similar viremia, which instead tends to be persistent

usually because of some underlying immunosuppression. Disseminated zoster leads to a generalized vesicular eruption (lesions >25) akin to varicella(5). A patient with generalized zoster deserves a complete search for under-lying malignancy or immunodeficiency(3).

Herpes zoster with aberrant vesicles may be observed in 17 to 35% of immunocompetent patients with herpes zoster, whereas disseminated HZ occurs in 2 to 10% of immunocompromised zoster patients(5). Presence of an occult underlying disease, malignancy, immunodeficiency or immunosuppressive therapy is amongst the well-known causes of disseminated herpes zoster(2). Malnutrition may cause immunosuppression with increased susceptibility to infections, as it has a profound effect on cell mediated immunity, antibody production and non-specific immune responses(7). In the first patient, development of widely disseminated disease was probably due to immunosuppression, which under aforesaid circumstances may be attributed to severe malnutrition. In the second case however, patient had disseminated herpes zoster, without any documented immunodeficiency state. This has been reported infrequently in adults, and even more infrequently in the pediatric age group(6,8).

Early treatment with oral acyclovir, 10-20 mg/kg, 4-5 times a day for 7 days decreases viral shedding, reduces the rate of new lesion formation, shortens the duration of fever and improves the rate of healing by 1-2 days(9). It is of special significance in ophthalmic herpes zoster so as to prevent serious ocular complications. Both the patients responded adequately to oral acyclovir without any dermatological or systemic sequele.

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