

## CASE STUDY

## Neonatal herpes zoster ophthalmicus: Two rare cases

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Two neonates, one 15 days old and another 20 days old, presented with redness, eye watering, periocular and lid swelling, photophobia, and vesicular lesions over forehead on the right side of face. Ocular examination revealed ciliary and conjunctival congestion, chemosis, and hazy cornea due to stromal edema. Although herpes zoster is very rare in neonates, the diagnosis of herpes zoster ophthalmicus was made and treated with systemic and topical antiviral, topical antibiotic, and corticosteroid. Both neonates showed dramatic response in 7 days of treatment and fully cured within 4 weeks.

**Keywords:** herpes zoster, child hood zoster, varicella zoster, post herpetic neuralgia

### Introduction

Herpes ophthalmicus (HZO) is a result of reactivated varicella-zoster virus (VZV) (1). HZO is rare in neonates. Usually, neonatal HZO is associated with history of maternal infection of varicella-zoster infection (chickenpox) during pregnancy. Early neonatal varicella (chickenpox) due to weak immune system is more likely to result in childhood zoster (2). Neonatal HZO is frequently misdiagnosed as impetigo or other cutaneous disorders as it presents with mild clinical manifestations.

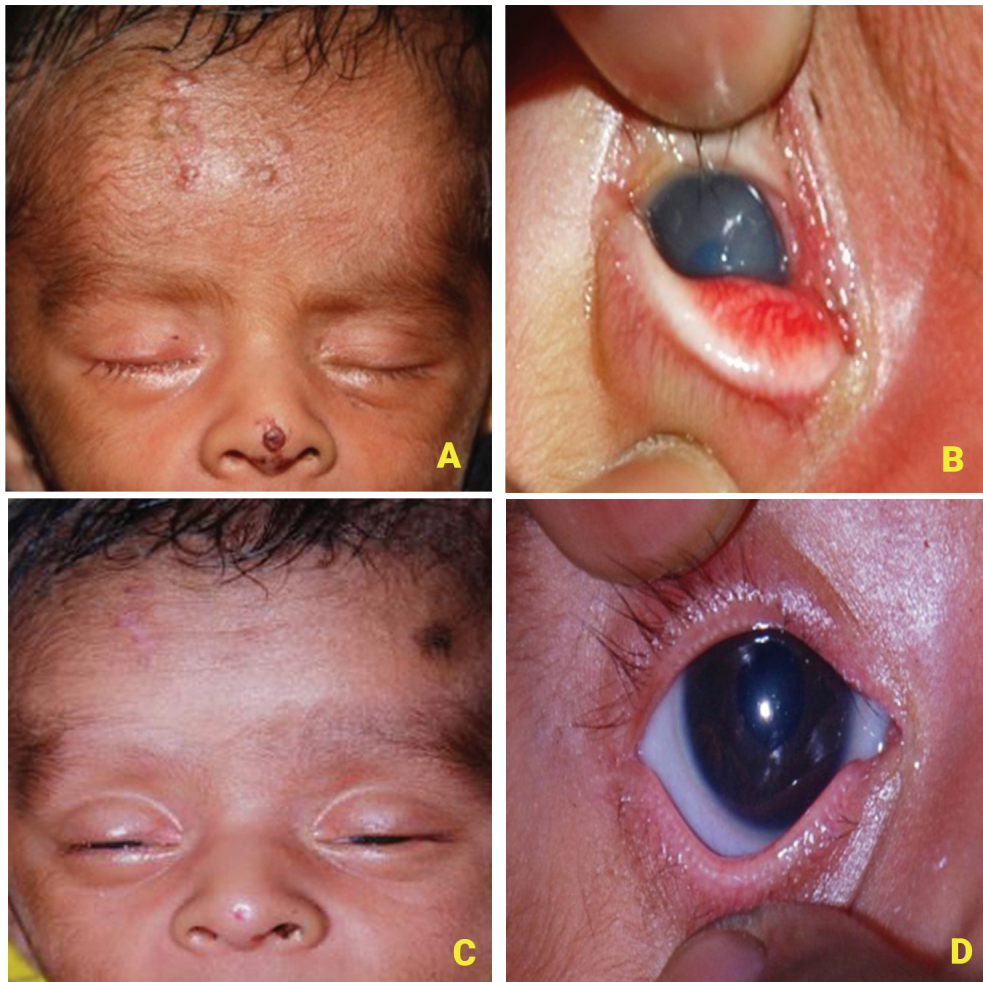
### Case 1

A 15-day-old baby girl from a low socioeconomic society presented at Cornea Clinic with the complaints of redness, eye watering, eyelids and periocular swelling, intolerance to light, and elevated spots in the forehead, scalp, and tip of the nose on the right side of face for 5 days. There was no history of maternal chickenpox and no history of varicella vaccination of mother during pregnancy. Examination revealed vesiculopapular rashes and pustules over the right side of forehead, scalp, and tip of the nose (Hutchinson's sign) along with the right cranial nerve V-1 dermatome, mild edema of lids with matted

eyelashes, ciliary and conjunctival congestion, conjunctival chemosis, hazy cornea due to stromal edema, round, regular and reacting pupil, and deep anterior chamber with clear lens. Her left eye was normal and she was afebrile. Tzanck smear, serology, and viral culture were not performed. She was diagnosed clinically as HZO and treated with homatropine eye drops 2%, 3 times daily; moxifloxacin eye drops 0.3%, 4 times daily; acyclovir eye ointment 3%, 5 times daily; dexamethasone eye drops 0.1%, 4 times daily in her right eye; mupirocin skin ointment 2 times daily over vesiculopastular lesions; and oral acyclovir (syrup) 30 mg/kg body weight in 3 divided doses for 7 days. Dramatic response resulted after 7 days. Vesiculopapular rashes and pustules nearly resolved, ciliary and conjunctival congestion was diminished, cornea became clear. Acyclovir eye ointment 3% and dexamethasone eye drops 0.1% were tapered over a month. The baby was good and no recurrence in 5 years follow-up (Figure 1).

### Case 2

A 20-day-old baby boy presented to cornea department with vesicular lesion over the right side of forehead and eye watering, lid swelling, and photophobia of the right eye for 3–4 days. History of maternal chickenpox during



**FIGURE 1 | (A)** Papulovesicular rashes over forehead and positive Hutchinson's sign. **(B)** Stromal keratitis. **(C)** Resolved rashes after 4 weeks. **(D)** Resolved stromal keratitis with clear cornea.

pregnancy and varicella vaccination of mother in pregnancy were absent. Examination revealed vesiculopustular lesion over the right forehead not crossing the midline, swelling of lid with discharge and excoriation of margin, conjunctival and ciliary congestion, and stromal keratitis without iris detail. His other eye was normal, patient was afebrile, and there was no other systemic abnormality. The baby was diagnosed as HZO of the right eye based on clinical features and treated with topical homatropine eye drops 2%, three times daily; moxifloxacin eye drops 0.3%, 4 times daily; ganciclovir eye ointment 0.15%, 5 times daily; dexamethasone eye drops 0.1%, 4 times daily in her right eye; mupirocin skin ointment two times daily over vesiculopustular lesions; and oral acyclovir (syrup) 30 mg/kg body weight in 3 divided doses for 7 days. Parent was asked for follow-up after 7 days but presented after 14 days. Vesiculopustular rashes and pustules were resolved, and only scar was over forehead, ciliary and conjunctival congestion reduced, and cornea became clear. Ganciclovir eye ointment 0.15% and dexamethasone eye drops 0.1%, were tapered over a

month. The patient was in good health up to 2 years follow-up (**Figure 2**).

## Discussion

Herpes zoster ophthalmicus is more common in adults than children, but it may occur as early as the first year of life. Globally, the age-adjusted incidence rate of herpes zoster is the lowest (0.45 per 1000 person-years) in 0–14 years age group and highest (4.2–4.5 per 1000 person-years) among people aged 75 years and older (3). In the pediatric population, the incidence is the lowest in 0–5 years age group (20 per 100 000 person-years) compared with adolescents (63 per 100 000 person-years) (4). In children who develop zoster in the first 2 years of life, there is rarely a history of chickenpox but a history of maternal chickenpox during pregnancy is found. Early neonatal varicella (chickenpox) due to weak immune system is more likely to result in childhood zoster. In a few instances, primary infections by VZV appear to provoke zoster rather than chickenpox,



**FIGURE 2 | (A)** Vesiculopustular rashes over forehead and periocular area. **(B)** Stromal keratitis associated with lid margin excoriation. **(C)** Resolved rashes with scar after 4 weeks. **(D)** Resolved stromal keratitis with clear cornea.

but the explanation is not known. On occasion, zoster may also occur simultaneously with a primary attack of chickenpox. Postherpetic neuralgia, which is common in affected adults, rarely occur in childhood (2). Herpes zoster in children represents an uncommon finding with potentially devastating sequelae. The incidence of childhood zoster is 122 times higher in children with a childhood malignancy. Varicella vaccination can also be a risk factor for development of infection because current vaccines are made from live-attenuated viruses (5). The most frequent cause in immunocompetent patients is intrauterine exposure to VZV. It has been hypothesized that this condition is rarely recognized because of the mild clinical manifestations in this age group and the expectation that maternal antibodies will be protective (6). It is likely that the vesicular lesions of herpes zoster in this age group are misdiagnosed as impetigo or other cutaneous disorders. With a high degree of suspicion, the dermatomal distribution of a vesicular eruption in infancy should point the clinician toward a correct diagnosis of herpes zoster (7).

We believe that in our country HZO in neonates, although not commonly reported, occurs more commonly than expected due to poor immunity, mild clinical manifestation, misdiagnosed as impetigo, and lack of investigations for virus detection.

## Conclusion

Herpes zoster ophthalmicus is very uncommon in neonate. Dermatomal distribution of a vesicular eruption in infancy strongly suggests the diagnosis of HZO and treatment with systemic antiviral medication is generally satisfactory.

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