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Case Report

Congenital herpes infection: An unusual presentation

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ABSTRACT

Maternal genital herpes is a sexually transmitted infection, asymptomatic in 70% of cases. Mostly infection is acquired during intrapartum period or postnatally through contact with mucocutaneous lesions. Primary neonatal herpetic infection outside the oral cavity is uncommon, but there are well-documented ocular cases, with or without associated oral lesions. A high index of clinical suspicion is the key for early antiviral treatment initiation and better outcome.

Key words: *Antiviral, Herpes infection, Newborn, Ocular*

Herpetic eye disease is the most common infectious cause of corneal blindness in developed countries. As many as 60% of corneal ulcer in developing countries may be the result of herpes simplex virus (HSV) infection, and 10 million people worldwide may have herpetic eye disease [1]. Maternal genital herpes is a sexually transmitted infection, asymptomatic in 70% of cases. HSV disease of newborn is acquired during one of three distinct time intervals: Intrauterine (5%), peripartum (85%), and postpartum (5%) [2]. We describe a newborn with bilateral corneal ulcer with anterior staphyloma and perforation. This case report highlights not only the apparently rare occurrence of bilateral corneal ulcer in newborn but also the potential risk of blindness for infected neonates.

CASE REPORT

A single, preterm 2.1 kg (average for gestational age; 34 weeks), male child delivered through cesarean section, and the child cried immediately after birth. The child was vigorous with overall general condition was normal. In local examination, there was mild conjunctival congestion without lid edema. In the right eye, corneal clouding, superficial corneal vascularization with anterior bulging (anterior staphyloma) was seen. In the left eye, ulcerative changes in the cornea including superficial corneal vascularization and leucomatous corneal opacity with healed corneal perforation were seen (Fig. 1). The pupils were normal in size, and iris pattern was normal. There was no evidence of cutaneous manifestation (skin or mouth involvement). No preauricular or occipital lymphadenopathy was there. Systemic examination was within normal. There were no risk factors for sepsis, and no maternal morbidity or obvious congenital anomalies were present.

Routine hematological, biochemical, and microbiological tests such as sepsis screening, liver function test, kidney function test, cerebrospinal fluid (CSF) cytology, and culture were normal. Initial diagnosis was bilateral corneal ulcer with perforation on the left side. For etiology, we sent the high vaginal swab culture from mother, child blood, and swab culture from involved eye and did potassium hydroxide mount for herpes infection, but all of these were normal. We sent the mother's blood for TORCH serology that was positive for herpes simplex-II infection (IgM and IgG both were positive). The patient CSF, blood, and eye swab (sample from local eye lesion site) sent for polymerase chain reaction (PCR).

The herpes baby was treated with intravenous (IV) acyclovir (60 mg/kg/day in three divided doses administered every 8 hourly), atropine ointment (1%), and artificial tear eye drop with local antibiotic (cefazolin 5% and tobramycin 1.3%) drops. Later on, staining was markedly reduced on both side, and the child was comfortable. On day 7, the result of eye swab HSV PCR came to be positive for HSV-II virus, but blood and CSF PCR were negative. The frequencies of drop/ointment were gradually reduced. On day 12, stain was negative, but bilateral corneal haze persisted. In the right eye, anterior staphyloma was still persisted but reduced in size. The instillation of eye drops was further reduced. IV acyclovir stopped after 14 days of therapy. His renal function and urine output remained normal throughout the course of illness.

After completion of therapy, he was discharged with an advice for close follow-up in high-risk clinic and eye clinic. After discharge, the patient's eyes were improving except bilateral corneal opacity with small size anterior staphyloma on the right eye. The patient is in regular follow-up in high-risk clinic as well as in ophthalmology clinic. Swelling in the left eye in the form of anterior staphyloma was noted in follow-up clinic on day 30 of life (Fig. 2), for that we again took ophthalmologist's opinion. He was diagnosed as bilateral corneal opacity with staphyloma

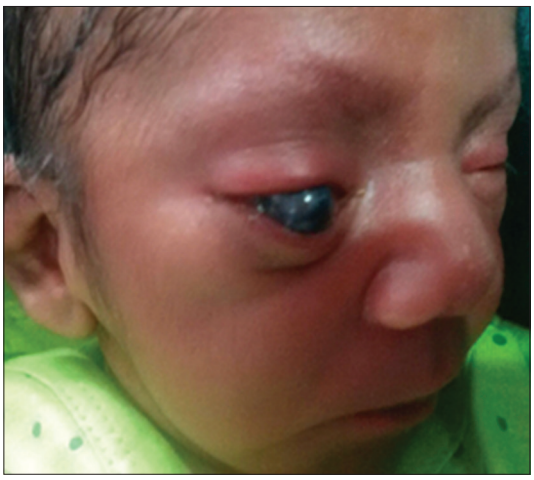

Figure 1: Bilateral corneal ulcer with anterior staphyloma in the right eye (at birth)

Figure 2: Corneal ulcer (healing) with anterior staphyloma in the left eye at 4th week of life

due to outward displacement of anterior chamber structures through damaged cornea. For this, keratoplasty has been planned in future. Growth and neurodevelopment parameters were within normal limit in the last follow-up checkup.

DISCUSSION

Typical herpes simplex keratitis, even though very rare, may appear in the newborn at birth or shortly thereafter. Most infections are acquired during intrapartum period or postnatally through contact with oral or skin lesions of the mother [2]. Diagnosis requires a high degree of clinical suspicion, especially because maternal history of genital herpes is usually not forthcoming. This should be especially considered when bacterial cultures are negative. Early initiation of specific therapy can prevent morbidity and mortality [3].

The primary infection may often be unrecognized or entirely subclinical. Primary infection outside the oral cavity is uncommon, but there are well-documented ocular cases, with or without associated oral lesion. Incubation period is 4-14 days, and it may be accompanied by pyrexia, gastroenteritis, and diffuse lymph node enlargement [4]. Neonatal HSV (NHSV) infections are often categorized into one of three syndromes: Skin-eye-mouth, disseminated, and central nervous system (CNS). However, these disease patterns are not discreet, with encephalitis often due to the extension of skin-eye-mouth or disseminated disease. HSV encephalitis affects the brain cortex or less commonly the brainstem [5]. In the present case, the patient had solely corneal involvement sparing other ocular structures without systemic illness and responded well to IV acyclovir which helped in confirming the diagnosis by therapeutic response.

The clinical diagnosis of herpes infection should always be confirmed by laboratory testing, including serological typing, because the serotype influences both the prognosis and counseling. The definitive diagnosis of herpetic infection relies on demonstrating the presence of HSV in the infected area, either by virus isolation or by detection of antigen. In some laboratories, detection of HSV DNA using molecular diagnostic techniques is replacing viral culture and antigen detection. Serological testing is sometimes useful in symptomatic patients when direct methods have yielded negative results or in asymptomatic patients to determine past or present infection. The value of any laboratory test for the diagnosis of HSV infection will depend on the type of test, the quality of the specimen obtained, ability of the laboratory to perform the test accurately, and interpretation of the test results by requesting clinician [6].

IV acyclovir is the treatment of choice for treating NHSV. The recommended regimen for infants treated for known or suspected neonatal herpes is acyclovir 20 mg/kg IV every 8 h for 14 days if disease is limited to the skin, eye, and mucous membranes or for 21 days for disseminated disease and that involving the CNS [7]. The most common adverse event associated with acyclovir is transient neutropenia. The absolute neutrophil count should be monitored twice weekly during therapy, and if it remains <500 for a prolonged period, the dose of antiviral drug (acyclovir) can be decreased, or granulocyte-colony stimulating factor can be administered [8]. Nephrotoxicity is the other concern; in one study, incidence was 6%, but all patients with nephrotoxicity had disseminated infection, which alone could explain elevated creatinine [8]. In our patient, absolute neutrophil count, renal function, and urine output remained normal throughout the course of the illness.

CONCLUSION

Neonatal herpes simplex infection is a highly morbid and fatal condition. In spite of many advances in the diagnostic and therapeutic field, this disease continues to scourge newborns due to low index of suspicion and longer diagnostic and treatment lag-time. Hence, this vital to detect and treat the illness early. This can be achieved through enhancing awareness among the physicians about the early symptoms and signs of the disease. Furthermore, attempts to diminish transmission from mother to child would be highly beneficial.

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