A Young Infant with Skin Blisters Looking Like Dew Drops Over Rose Petals!

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A growing preterm male infant was evaluated for fever and skin eruptions in the out-patient department of All India Institute of Medical Sciences Bhopal, India. The infant was discharged a month ago from the neonatal intensive care unit (NICU) of our institute. The infant was born premature at 32 weeks of gestation (1250 grams, 3rd-5th centile; small for dates) by emergency caesarean section done for maternal preeclampsia. He was fed by enteral routine throughout the four weeks stay in hospital. No prematurity related ailments were seen in the preterm infant and he had an uneventful stay in NICU. He was discharged home at physiological stability of 36 weeks post-menstrual age (PMA) on kangaroo mother care, at a weight of 1850 grams with full enteral feeds supplemented with human milk fortifiers, iron and vitamin D.

The infant presented at 40 weeks PMA and weighed 2400 grams. The infant was febrile with temperature of 37.8° Celsius but was active and looked well. Skin eruptions were present all over the body except oral mucosa and palms/soles. These lesions were in different stages of evolution, ranging from vesicles to blisters on erythematous macules of around one cm in size. The vesicles and blisters were shiny and were pink to red in colour due to underlying erythema and were filled with clear fluid. This appearance is described as *dew drops over rose petals*. These erythematous rashes and clear fluid filled blisters are suggestive of infectious etiology. A few lesions had formed crusts. A Tzanck smear suggested multinucleate giant cells with ground glass nuclei on microscopy. There was no history of drug intake or presence of similar lesions with fever in the family members. No contact with an infected person was reported at home nor a community outbreak of febrile illness with similar rashes was known. No outbreak of febrile illness with similar rashes was seen in other NICU graduates. A consultation with the infectious disease specialist was taken who advised supportive treatment with antipyretics, topical emollients, oral acyclovir and home isolation until all the lesions have crusted. During the follow-up visits the infant had mild hyperpigmentation at the blister sites which soon faded over the next few weeks. The infant was healthy at follow-up at 4 months of age.

Question

What is the most likely diagnosis?

a. Monkey pox infection

b. Community acquired varicella

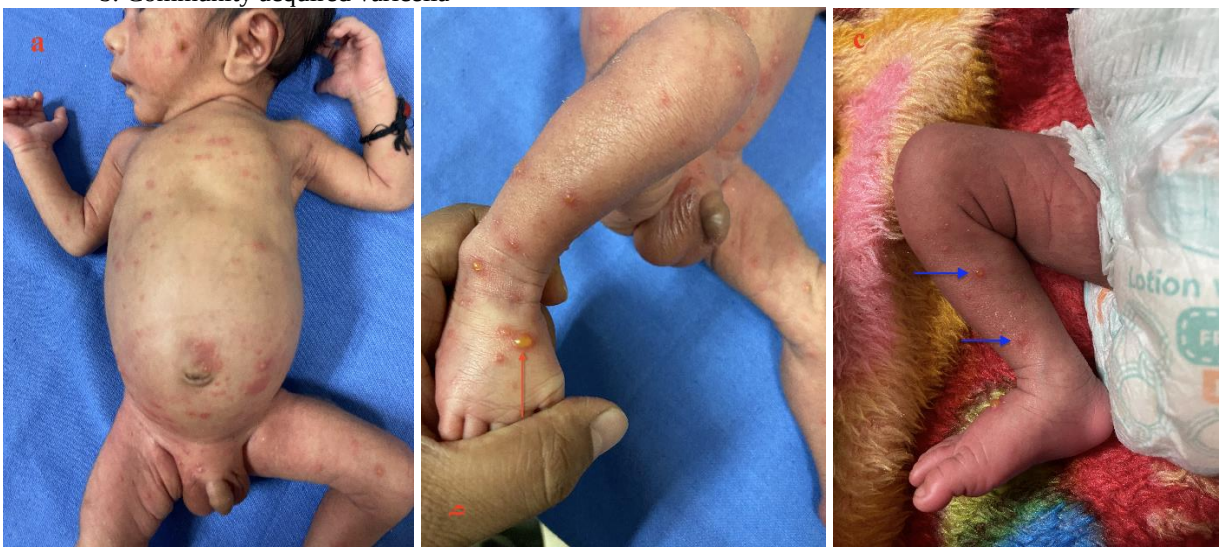
c. Incontinentia Pigmenti

d. Perinatal varicella zoster infection

e. Miliaria crystallina

Answer

b. Community acquired varicella



A **B** **C**

Figure 1: 1a to 1c illustrates dermatological manifestations of varicella zoster infection in a growing preterm newborn. Clear vesicles with underlying macules are present over face, chest, abdomen, and acral parts described as a "dew drops on rose petals" appearance. Lesions range from small fluid filled vesicles to small bullae. A red arrow in figure 1b points towards a bullous lesion with surrounding erythema. Blue arrows in figure 1c points a typical dew drop over erythematous base.

Discussion

Varicella zoster infection is ubiquitous in tropics. It is caused by the herpes group of viruses. Varicella infection in the newborn infants can occur antenatally or postnatally. An early fetal infection may result in congenital varicella syndrome characterised by cicatricial skin lesions and various anomalies at birth. The perinatal varicella zoster transmission if occurs two days before the delivery can result in a fulminant neonatal infection or disseminated infection with central nervous system symptoms. These two varieties of varicella zoster infection result in significant illness within a few days of birth.

The incubation period of the varicella zoster infection is usually 2-3 weeks. A varicella zoster exposure from the community is likely as the symptoms in the index infant evolved after four weeks of discharge from the hospital. In addition, this postnatal varicella zoster infection was diagnosed in the index preterm infant on grounds of typical skin eruptions, positive Tzanck smear findings and maternal-infant serology. A positive IgG titre in the mother, and positive IgM titres in the infant suggested acute varicella zoster transmission in the index infant and supported the diagnosis of postnatal community acquired viral transmission. A positive PCR for varicella zoster assay from the blister fluid would confirm the diagnosis, if available. The typical rashes evolved after 1-2 days of low grade fever, which began over the face followed by other areas sparing palms and soles. Presence of pleomorphic rash in different stages of evolution (vesicles, papules, crusted lesions) at the same time differentiates it from other causes mentioned above. Community acquired varicella zoster infection in young preterm infants is uncommon and perplexing due to pleomorphic rashes and mild symptoms. The course of infection is usually favourable and with complete recovery,

however, hospitalization is required in severe cases. Therapy is supportive and pragmatic.[1] The index infant had a favourable outcome as seen in most cases of childhood varicella zoster infection.

The differential diagnosis for the clear *dew drops* appearance of vesico-bullous inflammatory dermatological conditions are rickettsial disease, neonatal syphilis or monkey pox infection.[2] Also, an absence of a erythematous macule with a clear *dew drops* appearance characterises miliaria crystallina seen in as sweat retention syndrome in hyperthermic conditions.[3] Impetigo, a common skin infection in infants and children also has an erythematous base but the content are purulent and yellow in contrast to the clear fluid seen in varicella zoster infection. The report illustrates an uncommon community acquired varicella zoster infection in a young preterm infant and its differentials to be considered while evaluating vesiculobullous lesions in this population.

References

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