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Neonatal Varicella Pneumonia: A Rare Presentation

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Abstract
Chickenpox is a common infectious disease in children, but rare in pregnant women. An infant whose mother develops chickenpox rash 4 days antepartum to 2 days postpartum, may develop disseminated neonatal varicella with extensive cutaneous and visceral involvement resulting in a fatal outcome. The neonatal varicella pneumonia in the newborn is accompanied by a high rate of death. We report a case of severe varicella pneumonia in a newborn infected with the transplacentally transmitted chickenpox virus. The clinical picture was associated with an infectious syndrome, severe respiratory distress and a scattered skin rash of macules, vesicles, and scabs suggestive of varicella. Chest Radiography showed diffuse interstitial opacities in both lungs. Treatment with injectable acyclovir combined with supportive therapy has led to improved outcome. Varicella pneumonia in the newborn is associated with high mortality, but treatment with injectable aciclovir can provide cure. Intravenous prophylaxis of acyclovir or multivalent immunoglobulin in the newborn reduces the severity and mortality of perinatal varicella.
Keywords: *Neonatal Chickenpox; Varicella pneumonia; Acyclovir.*

Introduction

Neonatal varicella is mostly caused by maternal chickenpox acquired during the last 3 weeks of pregnancy. Transplacentally transmitted infections occur in the first 10 to 12 days of life, whereas chickenpox after that time is most likely acquired by postnatal infection[1]. Perinatal varicella is associated with a high rate of death when the disease occurs in the mother within 5 days before and 48 hours after delivery. Neonatal varicella pneumonia is leading cause of death with a mortality rate close to 30 % [2,3]. We report a case of severe varicella pneumonia in a newborn.

Case Report

A 6-day-old female baby presented to us with fever, refusal of feeds and respiratory distress since 1 day. She was a term, 2.5 kg, born of a non-

consanguineous marriage at a private hospital. The baby cried immediately and had no skin lesions or congenital malformations at birth. Three days before delivery, her mother had pruritic and erythematous rash, localized to face and neck initially, which later progressed to a maculopapular and vesicular form spreading to the whole body. She had positive contact history. On the fifth post natal day, the baby developed macular, papular and vesicular rashes on an erythematous background, as well as crusts, characteristic of chicken pox . Her palms and soles were spared (figure 1).

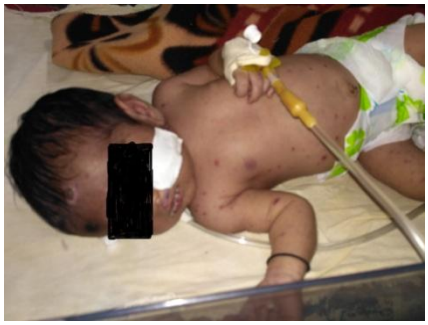

Figure 1. Macular-papular-vesicular rashes with erythematous background

On day 6 of life baby had developed respiratory distress with high grade fever and was unable to suck. She had severe respiratory distress, with a Silverman score of 9/10. Chest auscultation revealed diffuse crepts at bilateral lung fields. Apart from a tachycardia, the cardiac examination was normal.Her blood investigations showed elevated C reactive protein to 72 mg / l but blood count was normal. Chest x-ray showed diffuse interstitial opacities in both lungs (figure 2).

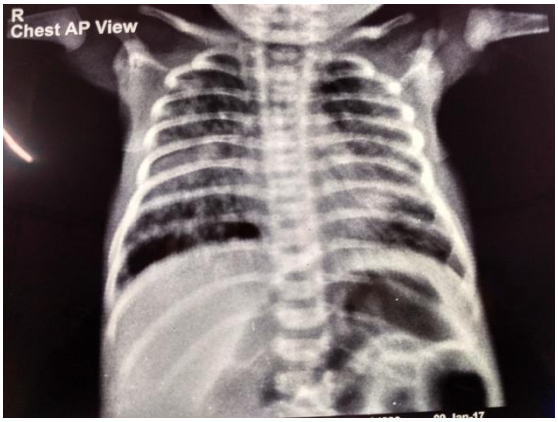

Figure 2. Bilateral diffuse heterogenous opacities

Based on clinical and radiological presentations we made a diagnosis of varicella pneumonia complicated by severe respiratory distress. She was kept in isolation. She was given oxygen therapy at 4 / min, intravenous aciclovir (20mg / kg / 6 hourly for 5 days), intravenous cefotaxime and paracetamol. She also received 125 units of varicella zoster immunoglobulin intramuscularly. Gradually baby showed improvement with a significant decrease in respiratory distress from the 3 rd day of treatment. On day 4 of admission she was accepting feeds. She was discharged after 7 day of hospitalization in almost normal general condition with healing skin lesions.

Discussion

Neonatal varicella can be expected if a mother contracts chickenpox during the last 3 weeks of pregnancy. Maternal chickenpox near term or soon after delivery may cause severe or fatal illness in the newborn. Congenital varicella occurs within the first 10 days of life. Beyond the ^{10th} day, it is a chickenpox acquired after childbirth[4]. In several investigations, the maternal rash onset risk period has been extended from 5 days antepartum to 2 days postpartum[5]. After maternal varicella during this period, the risk of severe neonatal chickenpox is generally calculated as 20% to 50%[6]. Pulmonary involvement is the leading cause of death with mortality amounting to 30 % [2,3]. In our case, the onset of rash in the mother 3 days before the birth and 5 th day of life in baby proves transplacental transmission of the disease. Such newborns are deprived of maternal protective antibodies as there is no enough time to produce the antibodies or to be transmitted to the fetus. Lack of protective antibodies and immature immune system make them prone to develop neonatal varicella complications.

The diagnosis of neonatal varicella is usually based on the typical clinical picture and the maternal history of chickenpox during the last weeks of pregnancy. The differential diagnosis includes herpes simplex virus (HSV) and enterovirus infections. A vesicular rash or bullae present

at birth or within a few days have been observed with congenital HSV infections[7]. Intrauterine transmission of coxsackievirus during the late pregnancy may also lead to varicella-like congenital skin lesions[8]. The treatment of varicella pneumonia in newborns is intravenous acyclovir at 20 mg/kg/every 6 hourly for 5 days. Anti-varicella-zoster immunoglobulin (VZIG) is also advocated by some researchers as the passively administered antibodies can limit the severity of infection and risk of complications such as pneumonitis. VZIG is given as intramuscularly (dosage: 125 U,0.5 ml/kg) or intravenously (dosage: 1 ml/kg) to the neonates whose mothers have signs and symptoms of varicella between 5 and 7 days before and 2 to 3 days after delivery. Extra corporeal membrane oxygenation (ECMO) may be required for neonates with severe pneum-onitis and having high mortality risk [10]. Treatment with intravenous acyclovir, intravenous VZIG combined with continuous oxygen therapy and broad spectrum antibiotic for prevention of secondary infections has resulted in good outcome in our patient.

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