DS (Child) H J 2022; 38(2): 107-110

CASE REPORT

Rare Complication of Chicken Pox in Children - Acute Respiratory Distress Syndrome (ARDS): A Case Report

Farhana Yasmin[1], Shireen Afroz[2], Tahmina Ferdous[3], Umme Tanjila[4], Sukriti Baroi[5]

Introduction

Chickenpox, also known as varicella, is a highly contagious disease caused by infection with varicella zoster virus (VZV).[1] The disease results in a characteristic skin rash that forms small blisters, which eventually form crust. This disease usually starts on the chest, back, and face then spreads to the rest of the body. Other symptoms may include fever, feeling tired, and headaches. Symptoms usually last for 5 to 10 days.[2] Complications may occasionally include pneumonia, inflammation of the brain, or bacterial infections of the skin. There is no data available showing exact number of patients who develop pneumonia as most studies conducted consist of small case series or retrospective review of patients charts. However, it is estimated to be 1 in 400 patients of chickenpox.[3] Various risk factors have been studied for development of varicella pneumonia and these include male gender, smoking, chronic lung disease, immunosuppression, pregnancy, and history of contact with a patient with chicken pox, severity of skin rash at time of presentation to the hospital.[4] Disease symptoms begin within 10 to 21 days after exposure.

This disease can usually be diagnosed based on patients presenting symptoms. People usually only get the disease once. The varicella vaccine has resulted in a decrease in the number of cases and complications from the disease. It protects about 70 to 90 percent of people from disease with a greater benefit for severe disease. Treatment of those infected may include calamine lotion to help with itching, keeping the fingernails short to decrease injury from scratching, and the use of paracetamol to help with fever. Patients with increased risk of complications antiviral medication such as acyclovir are recommended.

Acute Respiratory Distress Syndrome (ARDS) is a clinical syndrome characterized by rapidly progressive hypoxemia, tachypnea and then quickly evolves to respiratory failure. The underlying mechanism is diffuse lung damage.[5]

Case Report

Aroshi Gosh, a 8 year 5 months old girl admitted in our hospital with high grade, continuous fever for 7 days, vesicular eruption which started from trunk

1. Registrar, Department of Paediatric Nephrology & Kidney Diseases, Bangladesh Shishu Hospital & Institute.
2. Professor & Head of Department of Paediatric Nephrology & Kidney Diseases, Bangladesh Shishu Hospital & Institute.
3. Registrar, Critical Care Nephrology and Dialysis Unit, Department of Paediatric Nephrology& Kidney Diseases, Bangladesh Shishu Hospital & Institute.
4. Resident Medical Officer, Critical Care Nephrology and Dialysis Unit,Department of Paediatric Nephrology& Kidney Diseases, Bangladesh Shishu Hospital & Institute.
5. Resident Medical Officer, Critical Care Nephrology and Dialysis Unit, Department of Paediatric Nephrology& Kidney Diseases, Bangladesh Shishu Hospital & Institute.

Correspondence to: Dr. Farhana Yasmin, Registrar, Department of Paediatric Nephrology & Kidney Diseases, Bangladesh Shishu Hospital & Institute. Cell: O1724245695, E-mail: yasmin49th@gmail.com

Received: 2 October 2022; **Accepted**: 7 December 2022

and spread over face and extremities for 5 days, cough for 5 days and difficulty breathing for 1 day. There is no history of same illness previously, no vomiting, headache, and convulsion, taking any drugs for this illness.

She was a diagnosed case of diplegic cerebral palsy with developmental delay for which she was on proper treatment and follow up.

On admission, Aroshi was conscious and well oriented to time, place and person, afebrile, pulse 104/min, regular, blood pressure 90/60mmhg, RR 55/min, SpO_2 85% on room air and 96% on O_2 via face mask 5L/min, no Pallor, cyanosis, clubbing, jaundice, lymphadenopathy, edema. There were multiple well defined erythematous vesicles and crusted papules were seen over the face, upper & lower extremities, abdomen and back and buttock (Fig.-1). Respiratory system revealed, Air entry was poor bilaterally. Coarse crepitation present over both lung fields. On nervous system examination, Spasticity over both lower limbs and knee and ankle jerks were exaggerated over both lower limbs.

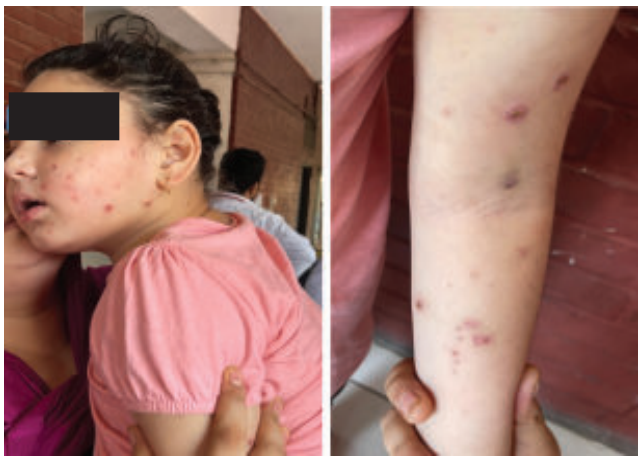

Fig.-1 *Vesicular eruption and crusting over face and arm*

Arterial blood gas analysis showed pH: 7.36, PO_2: 60.9 , PCO_2: 28 , HCO3: 15 SO_2: 90.7%. CBC showed, Hb%: 8.9g/Dl, WBC : 12 x 10^9 cumm, Neutrophil: 60%, Lymphocyte: 32%, platelet: 166 x 10^9 /L. C Reactive Protein: 61.3 mg/L. Serum creatinine: 36 micromol/L, Serum Electrolyte: Na 140 mml/L, K 3.9 mmol/L, Cl 99 mmol/L. SGPT: 20 U/L. Blood culture reveled no growth. Chest X-ray showed bilateral fluffy shadows over both the lung fields, suggestive of ARDS (Fig.-2,3).

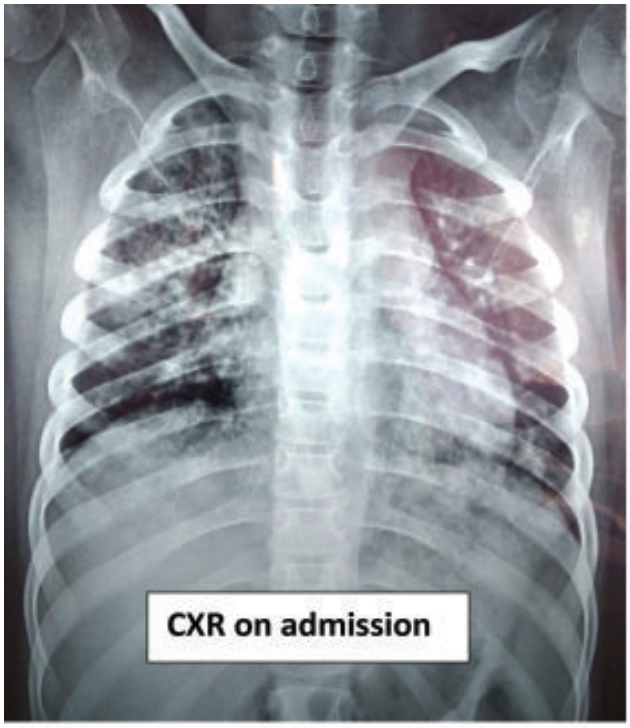

Fig.-2 *Bilateral and diffuse alveolar interstitial opacities*

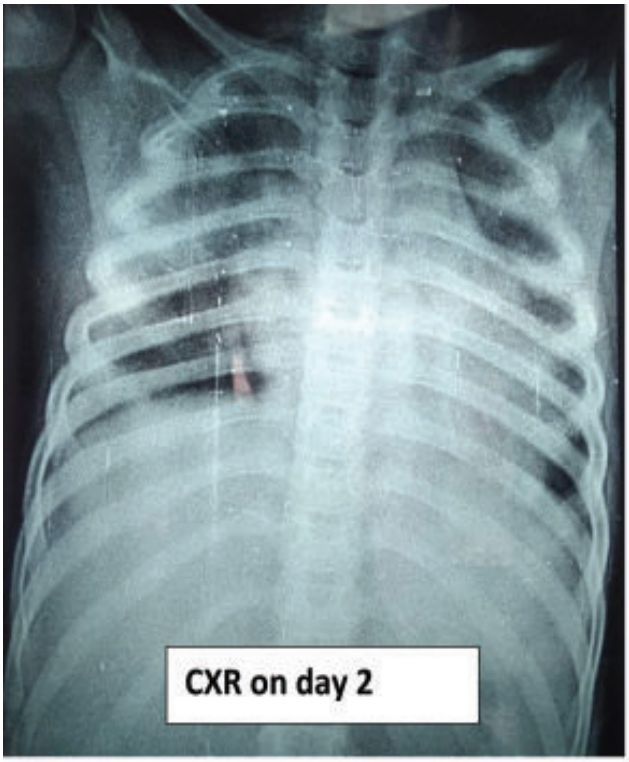

Fig.-3 *Bilateral fluffy opacities*

We started to manage the patient in cabin as there was no available ICU seat. Initial management given, Nothing per oral, oxygen inhalation to maintain saturation as far possible, Intravenous fluids, antipyretic and IV broad spectrum antibiotics, IV Acyclovir along with local emolent and topical antibiotic for infected skin lesion.

After first 24hours of management patient showed no signs of improvement and repeat CXR showed further deterioration. We started to manage the patient with IV Methylprednisolone 20mg/kg for consequetive 5 days. There was significant clinical and radiological improvement (Fig.-4).

During discharge, patient was afebrile with no distress. Vitals were stable and lungs were clear and all skin lesion form crust.

Fig.-4: *Improved CXR*

Discussion

Chickenpox (Varicella) is a common infection of childhood usually affecting children aged 2-8 years and usually runs a benign outcome.[6] However, adults have severe clinical manifestations with high complication and mortality rate.[7] Infection usually occurs by an air borne route but it is uncertain whether route of entry is conjunctiva, pharynx or lungs. Primary viremia starts at 96 hours, probably following replication in the regional lymph nodes.[8] The second stage of viral replication takes place in the lymph nodes, lungs, bone marrow, liver, pancreas and adrenal glands, and involves mainly macrophages. Chickenpox is considered to be a benign infectious disease, however sometimes it can be fatal, particularly when it occurs in adults or persons with impaired immunity.[9] Males, smokers, pregnancy and immunodeficient individuals are associated with higher complication rates.[8] Varicella pneumonia is the most common complication in adults and its incidence has been reported variably. Hockberger et al[10] reported the incidence in 15-25% adults with chickenpox. Respiratory symptoms of Varicella pneumonia began 1-7 days after installation of the rash, they are usually mild with few respiratory symptoms such as dry cough, hemoptysis, thoracic pain, dyspnea, fever, and even acute respiratory distress. Feldman et al[11] who have reported a mortality rate up to 50% in severe varicella pneumonia patients requiring mechanical ventilation. Prompt administration of Acyclovir and corticosteroids, in combination with mechanical ventilation, may be of benefit; particularly in severe varicella pneumonia complicated by ARDS and multiple organ failure.[12] The use of corticosteroids as adjunctive therapy for the treatment of life threatening varicella pneumonia is controversial and has been not well studied.

Conclusion

Though chickenpox is considered to be a benign disease of childhood but its complications may lead to mortalities. Prompt administration of acyclovir and corticosteroids, in combination with mechanical ventilation, may be of benefit; particularly in severe varicella pneumonia complicated by ARDS and multiple organ failure.

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