

Case Report

Acute respiratory distress syndrome due to viral pneumonitis in case of varicella zoster in adult: case report

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ABSTRACT

Chickenpox, is a highly contagious disease caused by infection with varicella zoster virus (VZV). The disease is often more severe in adults than children. Here we present a case of adult male suffering from chicken pox who presented with complication of acute respiratory distress syndrome [ARDS] due to viral pneumonitis. Due to his late presentation, despite of giving antivirals, patient had a fatal outcome. So this case highlights the necessity & importance of early administration of antivirals, especially in adult pox, to tackle the complications of disease and get a favourable outcome.

Keywords: Varicella Zoster, Adult Pox, Acute Respiratory Distress Syndrome, Viral Pneumonitis, Acyclovir

INTRODUCTION

Chickenpox, also known as **varicella**, is a highly contagious disease caused by the initial infection with varicella zoster virus (VZV).¹ The disease results in a characteristic skin rash that forms small, itchy blisters, which eventually scab over.² It usually starts on the chest, back, and face then spreads to the rest of the body.² Other symptoms may include fever, feeling tired, and headaches.² Symptoms usually last five to ten days.² Complications may occasionally include pneumonia, inflammation of the brain, or bacterial infections of the skin among others.³ The disease is often more severe in adults than children.⁴ Symptoms begin ten to twenty one days after exposure to the virus.⁵

Chickenpox is an airborne disease which spreads easily through the coughs and sneezes of an infected person.⁵ It may be spread from one to two days before the rash appears until all lesions have crusted over.⁵ It may also spread through contact with the blisters.⁵ Those

with shingles may spread chickenpox to those who are not immune through contact with the blisters.⁵ The disease can usually be diagnosed based on the presenting symptom;⁶ however, in unusual cases may be confirmed by polymerase chain reaction (PCR) testing of the blister fluid or scabs.⁴ Testing for antibodies may be done to determine if a person is or is not immune.⁴ People usually only get the disease once.⁵

The varicella vaccine has resulted in a decrease in the number of cases and complications from the disease.⁷ It protects about 70 to 90 percent of people from disease with a greater benefit for severe disease.⁴ Routine immunization of children is recommended in many countries.⁸ Immunization within three days of exposure may improve outcomes in children.⁹ 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 (acetaminophen) to help with fevers.⁵ For those at increased risk of complications antiviral medication such as acyclovir are recommended.⁵

CASE REPORT

- 35 year old male, labourer by occupation, presented with chief complaints of :
 - Skin Leisons all over the body since 5 days
 - Difficulty in breathing since 1 day.
- Patient was apparently alright 5 days back, when he first noticed skin leisons over his face, which gradually over days progressed to involve the abdomen and then both upper and lower extremities.
- On inquiry, patient gives history of burning sensation, itching over the leisons as well as discharge from the leisons. There is no history of any treatment taken for the same in these 5 days.
- Patient also complaints of difficulty in breathing since 1 day, which was
 - Sudden in onset.
 - Present even at rest.
 - Aggravated in lying down position, no relieving factor.
 - Associated with excessive coughing of whitish frothy sputum.
- There was no history of :
 - Fever
 - Vomiting
 - Chest Pain
 - Bleeding from any site
 - Abdominal Pain
 - Allergy to any drugs
 - Swelling over feet and b/l lower limbs.

On Examination:

- Patient was conscious and well oriented to time, place and person.
- Temp : Afebrile
- Pulse : 104/min, regular
- Bp : 150/90mmhg
- RR : 30/min
- Spo2 : 85% on R/A
90% on O2 via nasal mask @ 10l/min
- No Pallor, cyanosis, clubbing, icterus, lymphadenopathy, oedema.

Local Examination:

- Multiple well defined erythematous vesicles and crusted papules were seen over the face, upper & lower extremities, abdomen and back.
- Erosions were also present in the buccal mucosa and hard palate.

Systemic Examination:

- RS: Air entry was decreased bilaterally. Bilateral coarse crepitations were present in mammary, infra-mammary, inter-scapular, infra-scapular and infra-axillary area.
- CVS: S1S2 Heard, no murmur.
- CNS : Conscious, oriented
Pupils: Equal, BERTL
- P/A : Soft, non tender, BS – present

ABG on O₂ @ 10l/min showed:

pH: 7.37, Po₂: 60.5, Pco₂: 26.8, HCO₃: 15.2
SO₂: 87.7%. Pao₂/fio₂:

- Patient deteriorated further with RR 42/min, and patient was then immediately intubated and put on ventilator support.
- Patient was started on :
 - Inj Pipzo 4.5gm iv TDS
 - Inj Acyclovir 500mg in D5 iv over 4hrs TDS
 - Inj Metro 100 iv TDS.



Figure1: Erythematous vesicles and crusted papules were seen over the face.

Along with other symptomatic treatment.

- Chest X-ray showed bilateral fluffy shadows over both the lung fields, suggestive of ARDS.
- Inj Methylprednisolone 500mg in 100cc ns iv stat was given and then OD.
- Final impression was : ARDS due to Viral Pneumonitis in case of Varicella Zoster (Chicken Pox)
- Next morning patient started desaturating on ventilator support.
- ABG was sent immediately which showed :
pH: 7.17, Po₂ : 71.1, Pco₂ : 57.2, HCO₃ : 20.8
SO₂: 87.8%.

- Patient went into shock with no recordable blood pressure and despite of all the resuscitative measures, unfortunately patient could not be revived.



Figure2: Erythematous vesicles and crusted papules were seen over the lower limb.



Figure3: CXR showing fluffy shadows suggestive of ARDS.

DISCUSSION

Chickenpox (Varicella) is a common infection of childhood typically affecting children aged 2-8 years and usually follows a benign outcome.¹⁰ However, adults have severe clinical manifestations with high complication and mortality rate.¹¹ There is limited data on pathogenesis of varicella, infection usually occurs by an air borne route but it is uncertain whether route of entry is conjunctiva, pharynx or lungs.¹⁰ Primary viremia starts at 96 hours, probably following replication in the regional lymph nodes. The second stage of viral replication takes place in the lymph nodes, lungs, bone marrow, liver, pancreas and adrenal glands, and involves mainly macrophages.¹² Due to the systemic nature of the disease, varicella can involve any organ of the body; as it was observed in this case series. Males, smokers, pregnancy and immunodeficient individuals are associated with

higher complication rates.^{13,14} Varicella pneumonia is the most common complication in adults and its incidence has been reported variably. Gregorakos et al¹ reported the incidence of varicella pneumonia as high as 50%, whereas Hockberger et al¹⁵ reported the incidence in 15-25% adults with chickenpox.¹⁹

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.¹⁶ Feldman S et al who have reported a mortality rate up to 50% in severe varicella pneumonia patients requiring mechanical ventilation.¹⁷ 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.¹⁸ The use of corticosteroids as adjunctive therapy for the treatment of life threatening varicella pneumonia is controversial and has been not well studied.¹⁹

CONCLUSION

Chickenpox is considered to be a benign disease of childhood; however it can be serious in adults with systemic manifestations leading to high frequency of complications with increased mortality rate. 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. If patient presents late or there is a delayed administration, then it can lead to fatal outcome, which is one of the major factor responsible for high mortality rate, despite of mechanical ventilation and icu management.

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