

CASE REPORT

Early Diagnosis and Prompt Treatment – An Approach to Hamper Swine Flu Outbreak

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ABSTRACT

Swine flu is an acute respiratory disease also referred as novel A/H1N1, caused by influenza type A virus. Although currently in post pandemic phase, swine flu is considered as a major emerging disease and in this situation notification of every case is essential to interrupt transmission of disease. Therefore, we are reporting this case of 35 year male presented with one week history of sore throat, fever and constitutional symptoms, investigated for swine flu, and successfully treated with an excellent outcome.

Key Words: *Respiratory Disease, H1N1Inflenza, Swine Flu.*

Introduction

Swine flu is an acute respiratory disease caused by a relatively new strain of influenza virus A/H1N1.¹ In June 2009, pandemic of A/H1N1 flu spread in more than two continents, almost 375,000 laboratory confirmed cases and thousands of deaths reported to WHO in nearly 214 countries.² The first global estimates by CDC-Led Collaboration showed an estimated range of deaths between 151,700 and 575,400 people who perished worldwide from 2009 H1N1 virus infection during the first year the virus circulated. These global estimates were more than 15 times higher than the number of laboratory confirmed cases and deaths reported to the WHO.³ Consequently, localized epidemics are thought to be expected and considerable efforts are required to deal with this global threat.³

Pandemic (H1N1) 2009 is an influenza A virus belongs to family Orthomyxoviridae.⁴ The major virus component determining epidemiologic dynamics is HA antigen, which serves as the hemagglutinin attachment protein to enable binding and infecting cells.⁴ Influenza viruses are highly resilient in the environment, low temperature and low humidity favor aerosol transmission, explaining seasonal variation in temperate climates.⁴ Influenza viruses

have been isolated from many hosts including human beings, birds (chicken and ducks), pigs, horses etc. In humans, any preexisting chronic condition, cigarette smoking and alcohol consumption correlate with enhanced influenza virus-associated morbidity and mortality.⁴ The signs and symptoms of swine flu in humans are similar to seasonal influenza and characterized by fever, cough, sore throat, headache, malaise, muscle pain, nasal congestion, chills and fatigue.⁵ The high risk patients include children, elderly, pregnant women, people with chronic conditions and immunosuppressed.⁵

The ministry of health confirmed first swine flu case in Pakistan on August 10, 2009, the only source of virus being migrant people from abroad.⁶ There has been an increase in the number of swine flu cases and consequential deaths in various parts of Punjab and federal capital.⁶ During 2014, swine flu outbreak was observed in Multan, Khanewal, Taunsa, and Dera Ghazi Khan districts of Southern Punjab from where more than 10 cases of swine flu and five mortalities were reported.⁶ We are lacking medical, technical and diagnostic facilities and reporting of even a few cases in this situation is really alarming and needs attention.⁶

We present a case of swine flu successfully treated in our hospital.

Case Report

A 35 year male patient, accountant by profession, admitted with the complaints of sore throat and high grade fever with chills, rigors and cough, initially dry and later on productive for the last one week. He gave history of few episodes of sweating and palpitations. There was no other urinary or bowel

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complaint. He was a non-smoker, non-addict and gave family history of diabetes and ischemic heart disease. On general physical examination he had raised pulse rate and a temperature of 102°F. The examination of respiratory system revealed bilateral coarse crepitations all over the chest. Cardiac and other systemic examinations were within normal limit.

Complete blood count revealed total leukocyte count – $4 \times 10^9/l$, hemoglobin – 14.3 g/dl and platelet count – $193 \times 10^9/l$. ESR, liver function tests, serum electrolytes, renal function tests, random blood glucose and trop-T were normal. Urine analysis was also within normal limits. MP smear, blood culture, dengue serology NS-1, typhidot were all negative. O₂ saturation was 80 to 85% at room air without oxygen. Arterial Blood Gases showed hypoxia. The patient was put on anti malarial drugs and broad spectrum antibiotics. He responded well and became afebrile initially, later on developed dyspnoea and generalized body weakness. Chest X-ray was done showing bilateral lung infiltration in mid lung zone, suggestive of small airway inflammatory disease. ECG was also done which showed serial non specific T-wave inversion in chest leads. No abnormality was detected on echocardiography with normal ejection fraction.

A probable diagnosis of pneumonia (typical, atypical and viral) was made. The nasopharyngeal swab was sent for H₁N₁ serology to National Institute of Health to rule out viral pneumonia (swine flu) and the report was awaited. In the meanwhile he was put on broad spectrum antibiotics and antiviral treatment (Tamiflu 150 mg bd). Daily complete blood count reports showed platelet count dropped to $80 \times 10^9/l$ and TLC dropped to $2 \times 10^9/l$. Serum CK and LDH were markedly raised suggestive of viral pneumonias. D-dimers was negative (<200) and pulmonary embolism was ruled out. C-reactive proteins were mildly raised. Computed tomography of chest showed bilateral infiltrates in both lung fields and spirometry revealed severe restrictive lung disease. The patient was given intravenous steroids to treat acute interstitial pneumonia. After 5 days the report arrived which was positive for H₁N₁, intravenous steroids discontinued thereafter and antibiotics along with antiviral treatment was continued for 7 days. The patient was isolated and strict barrier

nursing was observed. The patient started to recover with gradual improvement of symptoms. All the investigations were repeated and were within normal limits, ECG changes reverted back to normal, chest x-ray showed decreased haziness and O₂ saturation increased. The patient was retained in the hospital for 10 days, his condition improved markedly. The case was notified to WHO and Ministry of health. The EDO Health's surveillance team visited the hospital and the patient to collect the epidemiological data and confirmation of the findings. The antiviral treatment (Tamiflu tablets) was provided by them and the entire team appreciated early diagnosis and prompt treatment of the case.

Discussion

The clinical continuum of the novel swine influenza infection is both self limited illness and in severe outcomes it can lead to respiratory failure and death similar to that seen among persons infected with earlier strains of swine origin influenza viruses and seasonal influenza viruses.⁵ The modes of transmission of influenza viruses in humans including swine influenza are mainly through the dissemination of large droplets and droplet nuclei expelled during coughing and sneezing of an infected person.⁶ There is also potential for transmission through direct contact with the patient and through contaminated fomites. In humans, it is most contagious during the first 5 days of the illness and can remain contagious for up to 10 days.^{5,6} Recommendations to prevent spread of the virus among humans include using standard infection control against influenza including frequent hand washing and use of mask, especially after being out in public. Anyone with flu-like symptoms such as a sudden fever, cough, or muscle aches should be isolated, contact a doctor to be tested and must not socialize.⁶ It has been recommended that patients with confirmed or suspected swine influenza infection should be placed in strict isolation and health care workers providing direct care for patients should observe strict barrier nursing precautions.⁷ After patient report to the health care setup, prompt sample collection and quick diagnosis help to reduce case fatality rate.⁸

During pandemics, health authorities may be uncertain about the spread and severity of the

disease and the effectiveness and safety of available interventions. This was the case during the swine flu (H1N1) pandemic of 2009–2010.⁸ During an infectious disease outbreak, it is crucial to be trained about the concerns, knowledge, attitudes, and behavior of the community to improve communication efforts by public health officials and clinicians.^{8,9} A great concern did not transform into higher conformity with precautionary recommendations, possibly due to the low level of knowledge about the disease among general public.⁹ Therefore, it is imperative to create awareness about mode of spread, preventive measures, availability of vaccines and effective medical treatment to prevent the disease transmission.^{10,11}

During the global H1N1 influenza A pandemic 2009–2010, swine flu vaccines were expeditiously licensed and a mass vaccination program for high risk groups was introduced in UK.¹² The rapid development of H1N1 vaccines to prevent further morbidity and mortality became public health priority and the first vaccines were licensed in October 2009.^{12,13} A mass vaccination program for high risk groups was launched in UK from October 2009 onwards and no significant safety issues were identified.¹³ The groups recommended to receive H1N1 influenza vaccine include; pregnant women, household contacts and caregivers for children younger than 6 months, healthcare and emergency medical services personnel, all people from 6 months through 24 years of age and persons aged 25 through 64 years who have health conditions associated with higher risk of medical complications from influenza.¹³

Although swine flu is currently in its post pandemic phase, there is always a risk of re-emergence of disease in susceptible population and localized outbreaks of varying scale with significant level of H1N1 transmission are expected.¹⁴ Understanding the perceptions of people and their potential resources to infectious disease threats would assist health officials to develop measures to respond this situation.¹⁴

The effectively treated case of swine flu described here implies the fact that the physicians must consider swine influenza infection in the differential diagnosis of patients with acute febrile respiratory illness for delivering good quality management and

treatment. The collaborative efforts of physicians, public health agencies and community education can facilitate to tackle this disease which has now become an emergent global menace.

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