

Swine flu: Common disease with a rare complication

Bhavna P. Singh

Department of Critical Care Medicine, Sakra World Hospital, Bangalore, Karnataka, India

ABSTRACT

H1N1 pneumonia is one of the most common causes of community-acquired pneumonia in India. It occurs throughout the year without any seasonal variation. The clinical presentation of the disease varies in severity each year and complications associated with it are most unusual. We recently reported a case of recurrent pneumomediastinum associated with H1N1. Here, we want to report another patient who was diagnosed with severe H1N1 pneumonia complicated by a cardiac tamponade. Cardiac tamponade is a life threatening complication of viral pneumonia and needs to be addressed immediately. Ours is the first case report with cardiac tamponade associated with H1N1 pneumonia.

Key words: Complications of viral pneumonia, H1N1 pneumonia, pericardial tamponade, pericardiocentesis, swine flu

INTRODUCTION

H1N1 pneumonia or swine flu is an ongoing epidemic in India. Our epidemiology is quite different from temperate countries. Cardiac tamponade is a life-threatening condition needing emergent pericardiocentesis. We report a case of H1N1 pneumonia complicated by a sudden cardiac tamponade which is a very rare and life-threatening complication underreported in literature.

CASE REPORT


A male patient aged about 60 years was admitted to our hospital early January (peak winter) with complaints of high-grade fever, dry cough, viral prodrome, and myalgia. He had a background of ischemic heart disease which was medically managed. On arrival to our Emergency room

(ER), he was tachypneic, tachycardic, and saturating 85% on room air. On examination extensive coarse crepitations could be auscultated over bilateral lung fields. Chest X-ray revealed bilateral extensive infiltrates [Figure 1]. In view of suspected H1N1 pneumonia prevalent around that time, we admitted him to our intensive care unit for observation. He remained clinically stable for over 24 h. Preliminary labs revealed an acute kidney injury (creatinine 2 mg/dl), a total count of 2.5 K/mm^3 , and slightly elevated cardiac troponin T. His electrocardiogram was within normal limits and transthoracic 2D echo showed normal chambers, valves, no Regional Wall Motion Abnormality (RWMA) with 50% ejection fraction, and Pulmonary artery systolic pressure (PASP) of 35 mmHg. Ultrasound scan of abdomen was done showed bilateral normal kidneys.

On the 2nd night, he had a sudden onset breathlessness and hypotension. He was resuscitated and intubated in an emergent condition and 2D echo repeated then showed a large pericardial effusion with features of cardiac tamponade [Figure 2]. An emergency pericardiocentesis was

Address for correspondence:

Dr. Bhavna P. Singh,
Sakra World Hospital, Bengaluru, Karnataka, India.
E-mail: bhavna.p.singh@gmail.com

Access this article online	
Quick Response Code:	Website: www.caijournal.com
	DOI: 10.4103/cai.cai_2_19

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Singh BP. Swine flu: Common disease with a rare complication. *Community Acquir Infect* 2019;6:5-7.

performed under echocardiographic guidance and about 500 ml of serosanguinous fluid was removed. A postprocedure echo showed resolved tamponade, but persisting pericardial fluid. A pericardial pigtail catheter was then inserted under fluoroscopic guidance. The pigtail continued to drain about 700 ml over the next 24 h. However the patient deteriorated and a clinical diagnosis of Acute Respiratory distress syndrome was made as per the Berlin definition of 2012. Ventilator parameters were adjusted as per the ARDS net protocol. However despite supportive measures and treatment the patient remained hypotensive with escalating doses of Inj Noradrenaline support. He had decreased urine output with worsening metabolic acidosis. The next blood gas drawn revealed a severe metabolic and respiratory acidosis. An emergent computed tomography chest done showed b/l extensive interstitial pneumonia with minimal pericardial effusion. His laboratory investigations showed an increase in serum creatinine to 2.5 mg/dl and a total count of 5.2 K/mm^3 . His throat and nasal swabs came back positive for the pandemic strain of 2009 H1N1 pneumonia. Treatment and supportive measures were continued for acute respiratory distress syndrome and acute kidney injury over the next 24–48 h after which he started making a gradual and full recovery with normal creatinine and cell counts. All investigations to rule out possible etiologies of sudden tamponade including autoimmune, malignancy, and tuberculosis were negative. Repeated automated pancultures were negative for bacterial sepsis/secondary infections. His complete recovery with resolution of pericardial effusion, acute kidney injury, and ARDS with the typical temporal relationship of a viral pneumonia point out that all the symptoms of this patient were due to the H1N1 virus making it a rare and life-threatening presentation of swine flu pneumonia.

DISCUSSION

H1N1 pneumonia was a worldwide pandemic in 2009. However, its epidemiology in India is quite different from

temperate regions with frequent outbreaks and lack of a clear seasonal correlation with two peaks in winter and rainy season with wider age groups being affected.^[1] The H1N1 virus is a modification of the influenza A strain and the combined incidence is around 16.7%.^[2] Positive patients have a hospitalization rate of 42% and a mortality of close to 4% with most patients dying of respiratory complications.^[2] The actual incidence in India may be even higher because testing kits are available mainly in the metros, testing is expensive, and many patients have mild lower respiratory tract infection symptoms which resolve without treatment.^[3] The most common symptoms of H1N1 pneumonia are fever, cough, sore throat, myalgia, headache, and fatigability with a viral prodrome consisting of stuffy nose, runny eyes.^[4] It has an incubation period of 2–4 days and runs a course of 1–2 weeks before symptoms settle down. Clinical definitions of influenza pneumonia have performed poorly and hence it is important to always keep in mind even if there are minimal or no symptoms. Management is mainly with oseltamivir or zanamivir and supportive treatment.^[5] Complications are higher in elderly >65 years, pregnancy, comorbidities including diabetes or chronic lung disease, and patients from long-term care facilities.^[5] ARDS with respiratory failure is the most common complication followed by secondary bacterial infections most commonly Gram-positive staphylococcus.^[6] Other respiratory complications include acute bronchitis, worsening of bronchial asthma, pleural effusions, and rarely pneumothorax.^[5] Our team recently reported a rare complication of pneumomediastinum associated with H1N1 which resolved with bilateral intercostal drains.^[7] Rhabdomyolysis and acute kidney injury have been described.^[8] Neurological complications include psychosis, encephalitis, and Guillain-Barre syndrome.^[9] Cardiac complications include myocarditis and pericarditis with frequent arrhythmias.^[10] Acute myocardial infarction and pulmonary edema have also been reported.^[11] Frequent reports of left ventricular dysfunction



Figure 1: Dense bilateral infiltrates on chest X-ray

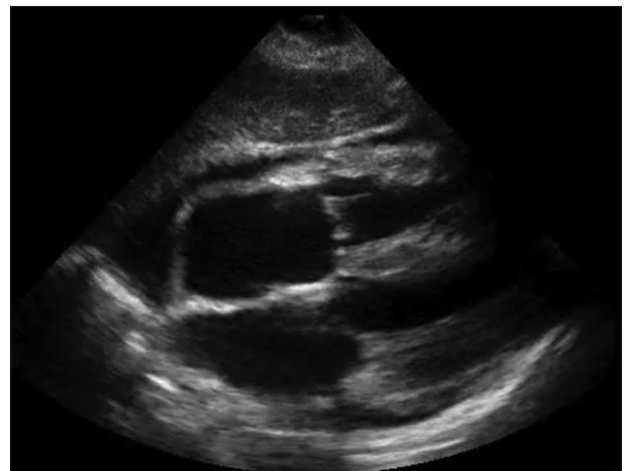


Figure 2: Apical four-chamber view showing features of cardiac tamponade

have been reported in literature.^[12] However, an extensive PubMed and Google search did not yield much information about cardiac tamponade as a complication of swine flu pneumonia. There is a report of cardiogenic shock as a presenting feature in influenza A pneumonia cause of which was attributed to myocarditis.^[13] An association of cardiac tamponade and bacterial pneumonia has been made.^[14] Case series have been reported with viral pericarditis and cardiac tamponade.^[15] To date, no cases have been reported of cardiac tamponade as a complication, in a polymerase chain reaction-positive H1N1 pneumonia patient. We wish to report this case because it is an uncommon and life-threatening presentation of an epidemic infection needing emergent treatment which is underreported in literature.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Acknowledgment

We would like to thank the critical care team at Fortis Hospitals Bannerghatta road, Bengaluru, India, especially Dr. Padmakumar AV, Dr. Ullas Gopalakrishna, Dr. Garud Chandan, and Dr. Pooja.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Mukherjee A, Roy T, Agrawal SA, Mehuli S, Lal R, Chakrabarti S. Prevalence and epidemiology of pandemic H1N1 strains in hospitals of Eastern India. *J Public Health Epidemiol* 2010;2:171-4.
2. Nandhini G, Sujatha S. Epidemiology of influenza viruses from 2009 to 2013 – A sentinel surveillance report from union territory of Puducherry, India. *Asian Pac J Trop Med* 2015;8:718-23.
3. Bagchi S. India tackles H1N1 influenza outbreak. *Lancet* 2015;385:e21.
4. Flu Symptoms and Complications. Available from: <http://www.cdc.gov/flu/about/disease/complications.htm>. [Last accessed on 2019 Sep 10].
5. Saxena KS, Haikerwala A, Kumar S, Bhatt M. Human influenza a virus infection-global prevalence, prevention, therapeutics and challenges. In: *Influenza Therapeutics and Challenges*. London: IntechOpen; 2018.
6. Rello J, Pop-Vicas A. Clinical review: Primary influenza viral pneumonia. *Crit Care* 2009;13:235.
7. Singh BP, Shetty GS, Vijayan PA, Gopalakrishna U, Chandan G, Santini A, *et al*. Management of pneumomediastinum associated with H1N1 pneumonia: A case report. *J Crit Care Med (Targu Mures)* 2019;5:28-33.
8. Berry L, Braude S. Influenza A infection with rhabdomyolysis and acute renal failure-a potentially fatal complication. *Postgrad Med J* 1991;67:389-90.
9. Kimura S, Ohtuki N, Nezu A, Tanaka M, Takeshita S. Clinical and radiological variability of influenza-related encephalopathy or encephalitis. *Acta Paediatr Jpn* 1998;40:264-70.
10. Mamas MA, Fraser D, Neyses L. Cardiovascular manifestations associated with influenza virus infection. *Int J Cardiol* 2008;130:304-9.
11. Warren-Gash C, Bhaskaran K, Hayward A, Leung GM, Lo SV, Wong CM, *et al*. Circulating influenza virus, climatic factors, and acute myocardial infarction: A time series study in England and Wales and Hong Kong. *J Infect Dis* 2011;203:1710-8.
12. Jeyanathan T, Overgaard C, McGeer A. Cardiac complications of influenza infection in 3 adults. *CMAJ* 2013;185:581-4.
13. Mamas MA, Nair S, Fraser D. Cardiac tamponade and heart failure as a presentation of influenza. *Exp Clin Cardiol* 2007;12:214-6.
14. Natarajan B, Stephens JW. Haemorrhagic cardiac tamponade: A rare complication of pneumonia. *QJM* 2009;102:813-4.
15. Kabukcu M, Demircioglu F, Yanik E, Basarici I, Ersel F. Pericardial tamponade and large pericardial effusions: Causal factors and efficacy of percutaneous catheter drainage in 50 patients. *Tex Heart Inst J* 2004;31:398-403.