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# Spontaneous Pneumomediastinum in H1N1 Infection


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Spontaneous pneumomediastinum is an uncommon pediatric emergency which usually occurs secondary to bronchial asthma in children. We report a case of spontaneous pneumomediastinum in a 7 year child following Swine Flu (H1N1) infection.



**Key words**: *Complication, Management, Pneumomediastinum, Swine flu.*


Spontaneous pneumomediastinum in children is triggered by asthma, vomiting, situations reproducing the Valsalva maneuver (e.g. shouting, coughing, inhalation of drugs, and intense sport activities [1]. We report an unusual spontaneous pneumomediastinum caused by Swine Flu (H1N1) infection. Very few similar cases are reported till date [2].

## CASE REPORT

A 7-year-old female child presented with severe cough, high grade fever and breathlessness for 3 days prior to admission. At admission, she had maculopapular rash all over the body, sore throat and tachypnea. Respiratory system examination revealed fine crepitation bilaterally. All other systemic examination was within normal limit. Hemoglobin was 10.2 g/dL and total leukocyte count was 4200 cells/cumm with lymphocytic (70%) predominance. Blood culture and endotracheal aspirate culture revealed no growth. Chest *X*–ray revealed bilateral streaky opacities. A throat and nasal swab was sent to rule out Novel H1N1. She was put on broad spectrum antibiotics, intravenous fluid and oseltamivir. After 48 hours of admission, she developed severe stabbing chest pain. This was accompanied with subcutaneous emphysema along with deteriorating oxygen saturation. Blood gas analysis revealed (pH 7.51, $PaO_2$ 50mmHg, $PCO_2$ 28, $Spo_2$ 90%, $HCO_3$ 26, BE 2.4, $AaDo_2$ 70 mmHg). Chest *X*-ray revealed underlying pneumomediastinum. The child was put on pressure control mode of mechanical ventilation. Trachostomy was done, as the subcutaneous emphysema was increasing. Following six hours of tracheostomy, there was complete disappearance of mediastinal air with total resolution of subcutaneous emphysema at 24 hourss. The child was weaned off from mechanical ventilation. However, the child developed Acute respiratory distress syndrome (ARDS) on day 7 of admission and died.

## DISCUSSION

The index case had no other apparent risk factor apart from vigorous cough in addition to severe H1N1 infection, which is known to cause diffuse alveolar damage and

interstitial pneumonitis leading to the development of spontaneous pneumomediastinum. Accompanying subcutaneous emphysema compresses the trachea and can worsen the respiratory condition and we experienced a similar complication in our case. Although mechanical ventilation may cause air leaks, including pneumomediastinum, continuing it and even escalating respiratory support may be necessary depending on the severity of the underlying respiratory distress and the degree of compromise caused by the air leak. Principle objectives include the use of the lowest pressures or tidal volumes necessary to achieve satisfactory carbon dioxide removal and oxygenation [3]. There are case reports of use of high frequency oscillatory ventilation in pneumomediastinum, especially when it is associated with ARDS. However, further research is needed to support these findings [4].

Surgical intervention has rarely been described in pneumomediastinum. Its use is reserved for pneumomediastinum leading to marked cardio-respiratory compromise. Cervical mediastinotomy with or without tracheostomy is life saving in these cases [5]. We found tracheostomy to be useful in our condition.

To conclude, H1N1 infection can give rise to an unusual air leak syndrome like spontaneous pneumomediastinum and subcutaneous emphysema in children. If required, tracheostomy is helpful.

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# Partial Extensively Drug Resistance (XDR) Tuberculosis in Children

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Emergence of resistance to two most potent first line anti-TB drugs i.e. isoniazid and rifampicin (multidrug resistant TB – MDR TB) is well known, but, the second line drugs used to treat MDR-TB are also showing resistance to the same strain of *Mycobacteria* (extensively drug resistance TB, XDR-TB). We report 3 children with partial XDR TB. Two responded to treatment while one was lost to follow-up.

**Key words**: *Children, India, Treatment, XDR-TB*.

Multidrug-resistant tuberculosis (MDR-TB) is defined as TB caused by organisms that are resistant to isoniazid and rifampicin, two first-line anti-TB drugs, The emergence of extensively drug-resistant TB (XDR-TB), defined as MDR-TB that is also resistant to any one of the fluoroquinolones and to at least one of three injectable second-line drugs (amikacin, capreomycin or kanamycin), has been identified in all regions of the world since 2006. Treatment outcomes are significantly worse in XDR-TB patients than in MDR-TB patients [1,2]. There is no term currently to identify drug resistant TB with either fluoroquinolone resistance or aminoglycoside resistance. Hence we have coined a term as partial XDR TB for these