

Case Report

Recurrent spontaneous pneumothorax in pregnancy - a case report

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ABSTRACT

Spontaneous pneumothorax during pregnancy is a rare but a serious condition. The typical symptoms of spontaneous pneumothorax include pleuritic chest pain and shortness of breath. Diagnosis is usually made on chest X-ray with abdominal shielding. Management differs according to severity and no specific guidelines are described for management of spontaneous pneumothorax in pregnancy. We report a case of a 27-year-old multigravida, with insignificant past medical history for any respiratory illness, presenting with recurrent, left sided spontaneous pneumothorax during a single pregnancy. It was managed by chest tube thoracostomy each time and patient was discharged with tube till the delivery of the fetus.

Keywords: Spontaneous pneumothorax, Tube thoracostomy, Pregnancy, Case report

INTRODUCTION

Spontaneous pneumothorax during pregnancy is a rare clinical entity with only 87 cases been reported in literature till date.¹ Changes in respiratory physiology and limitations on the use of radiological tests, such as chest X-rays and computed tomographic scans as the definitive diagnostic tools make the management more challenging. Impaired ventilation is not as well tolerated during pregnancy due to a decrease in functional residual capacity as well as increased oxygen demand of approximately 20% during pregnancy and 50% during labour.² Thus, it can have significant consequences, including mortality to both the patient and the fetus.

We report a case of a 27-year-old multigravida with recurrent spontaneous pneumothorax during a single pregnancy, without any identifiable cause.

CASE REPORT

A 27-year-old multigravida woman, presented to the emergency department at 34 weeks of gestation with

complaints of sudden onset left-sided pleuritic chest pain and shortness of breath. There was no history of trauma, cough, fever, chills, or vomiting. She had no obstetric pathology and was a non-smoker. The past medical history was insignificant.

On physical examination, patient had moderate respiratory distress. Her blood pressure was 110/80 mm Hg and heart rate of 112 beats per minute (bpm). She was found to be moderately tachypneic (respiratory rate=26 breaths per minute) with decreased air entry and a hyper-resonant percussion note over the left hemithorax. Peripheral pulse oximetry indicated normal oxygen saturation at room air. Chest radiograph revealed left-sided pneumothorax with partial collapse of the left lung (Figure 1).

A chest tube was inserted in the left 5th intercostal space in anterior axillary line. Patient's symptoms improved soon after chest intubation and post-intubation radiograph of chest showed re-expansion of the left lung. The patient was subsequently admitted to the surgical ward and was encouraged to do incentive spirometry. During her

admission in ward, obstetric consultation was sought. Ultrasound assessment revealed a single fetus with cephalic presentation and growth parameters consistent with gestational age. As the clinical condition of the patient further stabilized, the chest tube was clamped on day 5 and removed on day 6 without any complications. The patient was subsequently discharged.

The patient was readmitted three days later with another episode of left-sided spontaneous pneumothorax (Figure 2). A chest tube was re-inserted, and post-intubation chest x-ray again showed re-expansion of the lung. The patient was again admitted in ward for observation and was discharged on day 3 with chest tube in place till delivery of the foetus.

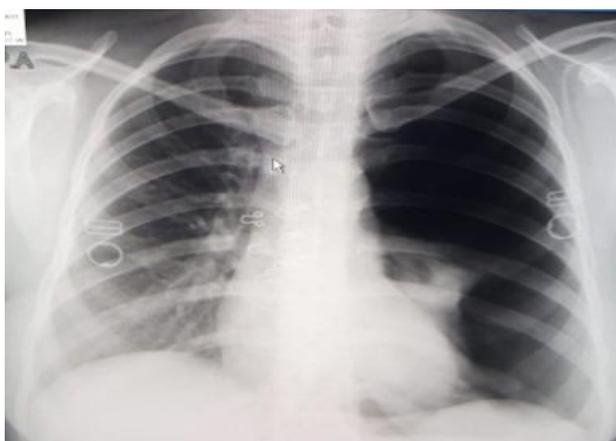


Figure 1: Chest X-ray showing left-sided pneumothorax (1st episode).



Figure 2: Chest X-ray showing recurrence of left-sided pneumothorax (2nd episode).

DISCUSSION

Although cases of pneumothorax in pregnancy have been reported previously in the literature, those of recurrent pneumothorax are rare. Most common cause of spontaneous pneumothorax in pregnancy is rupture of

sub-pleural bulla. Pulmonary lymphangiomatosis and cavitary tuberculosis are some of the rare causes.³ Some other risk factors include asthma, cocaine use, hyperemesis gravidarum, history of a previous pneumothorax, or an underlying infection.⁴ Various changes occurring in the respiratory physiology during pregnancy like a decrease in functional residual capacity and total lung capacity and an increase in respiratory rate, minute ventilation and tidal volume are responsible for the increased risk of pneumothorax in pregnancy.^{3,5,6}

In our case, both episodes of pneumothorax occurred during the same pregnancy in the last trimester. Review of the literature showed that most of the cases of pneumothorax occurred during the last trimester and during the perinatal period.^{1,3,7}

Pneumothorax in pregnancy presents with the same signs and symptoms as described in our case i.e., pleuritic chest pain and shortness of breath.⁷ However, these symptoms are nonspecific and can be attributed to other more common diseases like asthma, paroxysmal tachycardia, or neuralgia.³ Our patient had tachycardia, tachypnoea, decreased air entry with normal oxygen saturation and hyper-resonant percussion note over the affected site. Similar clinical findings were noted in other cases as well.^{3,7}

Radiograph of the chest with an abdominal shield remains the mainstay of diagnosing pneumothorax in pregnancy without endangering the foetus to ionizing radiation.³ Contrast enhanced computed tomography scan with an abdominal shield should be reserved for those patients who require surgical management for the disease.⁸

If there is no dyspnoea, no foetal distress, and the size of pneumothorax on x-ray chest is <2 cm, it can be managed by observation alone. Tube thoracostomy can be performed for symptomatic cases with persistent air leak. Patients who fail to improve by chest intubation, those with bilateral pneumothorax, hemopneumothorax may need thoracotomy or video assisted thoracoscopic surgery (VATS).³

When an obstetric management is required, instrumental delivery with forceps or ventouse at or near term with epidural anaesthesia is considered safest as it shortens the second stage of labour which requires active expulsive forces by the patient.^{6,9} Spontaneous delivery and caesarean section under general anaesthesia should be avoided. Possible reasons include raised intrathoracic pressures by hyperventilation and valsalva manoeuvres during normal delivery and positive pressure ventilation during general anaesthesia.⁸ If C-section is required, it should be carried out under spinal anaesthesia.⁵ C-section is not indicated specifically for recurrent spontaneous pneumothorax in pregnancy and the decision of mode and timing of delivery should be made on obstetric grounds.³

CONCLUSION

Spontaneous pneumothorax in pregnancy although rare, should not be overlooked in a patient who presents with pleuritic chest pain and dyspnea. The management of pneumothorax in pregnancy is same as that of pneumothorax in general and currently no specific guidelines for its specific management in pregnancy are available. In case of recurrent pneumothorax in pregnancy, secondary causes like pulmonary lymphangiomatosis and cavitary tuberculosis should also be kept in mind.

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REFERENCES

1. Agrafiotis AC, Assouad J, Lardinois I, Markou GA. Pneumothorax and Pregnancy: A Systematic Review of the Current Literature and Proposal of Treatment Recommendations. *Thorac Cardiovasc Surg.* 2021;69(1):95-100.
 2. Bobrowski RA. Pulmonary physiology in pregnancy. *Clin Obstet Gynecol.* 2010;53(2):285-300.
 3. Lateef N, Dawood M, Sharma K, Tauseef A, Munir MA, Godbout E. Recurrent spontaneous pneumothorax in pregnancy - a case report and review of literature. *J Community Hosp Intern Med Perspect.* 2018;8(3):115-8.
 4. Garg R, Sanjay, Das V, Usman K, Rungta S, Prasad R. Spontaneous pneumothorax: an unusual complication of pregnancy -- a case report and review of literature. *Ann Thorac Med.* 2008;3(3):104-5.
 5. Lal A, Anderson G, Cowen M, Lindow S, Arnold AG. Pneumothorax and pregnancy. *Chest.* 2007;132(3):1044-8.
 6. Wong MK, Leung WC, Wang JK, Lao TT, Ip MS, Lam WK, et al. Recurrent pneumothorax in pregnancy: what should we do after placing an intercostal drain. *Hong Kong Med J.* 2006;12(5):375-80.
 7. Jain P, Goswami K. Recurrent spontaneous pneumothorax during pregnancy: a case report. *J Med Case Rep.* 2009;3:81.
 8. VanWinter JT, Nichols FC 3rd, Pairolo PC, Ney JA, Ogburn PL. Management of spontaneous pneumothorax during pregnancy: case report and review of the literature. *Mayo Clin Proc.* 1996;71(3):249-52.
- MacDuff A, Arnold A, Harvey J, BTS Pleural Disease Guideline Group. Management of spontaneous pneumothorax: British Thoracic Society Pleural Disease Guideline 2010. *Thorax.* 2010;65(2):18-31.

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