

Primary Spontaneously Healed Unilateral Pneumothorax in a Neonate: A Case Report

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ABSTRACT

Pneumothorax is a condition where there is free air between the parietal and visceral pleural leaves within the thoracic cavity. Spontaneous pneumothorax is a recognised cause of respiratory distress in newborn infants. Pneumothorax, which is commonly encountered in neonatal intensive care units, causes high mortality and morbidity especially in premature infants. Early diagnosis and appropriate treatment are important to reduce complications and mortality. In this case report we reported neonate with spontaneous pneumothorax with mild to moderate respiratory distress, who recovered completely with conservative management and no surgical intervention.

Key words: Pneumothorax, respiratory distress, conservative management

CASE REPORT

A 3.4 Kg male was born at 37⁺⁵ weeks gestation to Para 2 mother with history of meconium stained liquor with leakage per vaginum for more than 48 hours with the help of assisted vaginal delivery. Baby did not cry immediately at birth and received bag and mask ventilation for 30 seconds with Apgar of 3,6,8 at 1 min, 5 min and 10 min respectively. Child was admitted immediately in Neonatal Intensive Care Unit for post resuscitation care. At admission patient had tachypnea with grunting and cyanosis (SpO₂ varying from 80 to 83%). Supplemental oxygen via nasal Cpap (FiO₂ 40%) was started after which cyanosis resolved (SpO₂ increased to 88-

90%), but respiratory distress persisted. Physical examination revealed a heart rate of 156/min, capillary refill time of 3 seconds, good volume pulses, and respiratory rate of 68/min. Breath sounds were decreased on left side without any crepitations or wheeze. Rest of the systemic examination was within normal limits. Routine chest x-ray revealed Left sided pneumothorax with normal pulmonary vasculature and normal cardiac silhouette (Fig. 1).



Figure 1



Figure 2

Sepsis screen (total leucocyte count = 9300/mm³, absolute neutrophils count = 5490, CRP = >6<12 mg/dL), and blood culture was positive for Methicillin sensitive Staphylococcus Aureus. The oxygen flow was increased to 100% (via Bubble cpap). Oro-gastric tube feeding with mother's milk was continued along with continuous monitoring of the clinical condition. Respiratory distress decreased within 24 hours. He did not require any surgical intervention in form of needle thoracocentesis or chest tube placement. Repeat chest radiograph done after 24 hours showed resolution of pneumothorax (Fig. 2).

DISCUSSION

Pneumothorax in infants regularly develops to a hidden lung pathology and mechanical ventilation treatment. Neonatal pneumothorax is very common in premature and male babies. Mortality is extremely high when pneumothorax is untreated or deferred treatment.¹ Pneumothorax is most commonly seen in the initial three days. This is most likely because of high transpulmonary pressure brought about by the onset of new breathing.² Pneumothorax may develop spontaneously but most newborn children have a fundamental lung pathology. RDS, meconium aspiration syndrome, pulmonary hypoplasia and resuscitation at birth, positive pressure mechanical ventilation are reported as risk factors for pneumothorax and patient prognosis.³ Pneumothorax is a life-threatening condition with high mortality. Currently, very high mortality rates (20-60%) are still reported. It is known that prognosis is better in patients without pulmonary parenchymal disease. Be that as it may, the extent of these patients is very low. Mortality is extremely high particularly in preterms whose gestational age is under 29 weeks. Although there are risk factors that increase mortality in pneumothorax patients such as primary disease, prematurity, mechanical ventilator therapy, mortality can be reduced with early

diagnosis and appropriate treatment.³⁻⁶ Early diagnosis of pneumothorax depends on clinical suspicion. Spontaneous pneumothorax should be kept in mind in the presence of sudden and refractory respiratory distress in the neonatal period. If pneumothorax is suspected, chest radiography should be performed. Administration of high flow or 100% oxygen (nitrogen washout therapy) accelerates the resolution of pneumothorax.⁷ To conclude, all cases of pneumothorax in newborns do not require intercostal drain. Newborn with spontaneous pneumothorax having mild or moderate distress may recover completely with no treatment other than observation in an oxygen-enriched atmosphere. For prolonged treatment (> 48 hours) with oxygen, a lower FiO₂ (40%-60%) can be used safely without causing much harm.

CONCLUSION

Pneumothorax should be considered as a differential diagnosis for every child presenting to neonatal ICU with respiratory distress at birth. A good clinical examination and high degree of suspicion is key to diagnosis. Not all pneumothorax require intercostal drain and babies with spontaneous pneumothorax having mild or moderate distress may recover completely with no treatment other than observation in an oxygen-enriched atmosphere

Declaration of patient consent

The authors certify that they have obtained all appropriate consent forms, in which the, patients attendant has given his consent for his child's images and other clinical information to be reported in journal. The attendant understands the name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed

Conflicts of interest

Author declares that there is no conflict of interest.

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