

A CASE OF BILATERAL SPONTANEOUS PNEUMOTHORAX IN A TERM NEONATE: A RARE ENTITY

Pediatrics

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ABSTRACT

Respiratory distress in newborn can be due to various causes and pneumothorax is a recognized cause for the same in immediate newborn period. It usually occur secondary to various underlying lung diseases but rarely may occur spontaneously. We share our experience of a neonate with bilateral spontaneous pneumothorax, who presented with severe respiratory distress and recovered with bilateral intercostal drainage tube (ICD).

KEYWORDS

Bilateral spontaneous pneumothorax, intercostals drains, neonates

CASE:

A 37 weeks, 3.650 kg female baby was born to primigravida mother by elective caesarian section in view of previous section. Baby had cried immediately after birth. Mother had an uneventful antenatal period. There was no history of trauma during delivery, meconium stained liquor or any resuscitation. Baby developed respiratory distress at one hour of life followed by cyanosis for which baby received IV fluids and oxygen support. On physical examination heart rate of 156/min, capillary refill time of 3 seconds, good volume pulses, and respiratory rate of 72/min with retractions, Downe's score 5 and requirement of 80% FiO₂, BP of 62/42 mm of Hg. Breath sounds were decreased bilaterally without any crepitations or wheeze. Rest of the systemic examination was within normal limits. Chest x-ray revealed bilateral pneumothoraces and normal cardiac silhouette (Fig. 1). Baby was intubated and was started on synchronized intermittent mandatory ventilation (SIMV) mode of ventilation with settings of PIP 12 mm, PEEP 4 mm, rates of 45 and FiO₂ of 60%. Arterial blood gas measurement showed respiratory acidosis without hypoxemia (pH = 7.24, PaCO₂ = 62 mmHg, PaO₂ = 70 mmHg, HCO₃ = 22.6, and base excess = -3.2). Bilateral ICD were introduced. Baby was hemodynamically stable at admission. Baby was initially started on antibiotic Inj Piperacillin and Tazobactam and Amikacin, which were stopped after the blood culture was reported as sterile. As distress improved and x ray showed clearing, ICD were clamped and removed one by one by day 4 of life. Due to reaccumulation of gas in left side, left ICD was removed on day 7 of life. Baby was extubated and made on room air by day 8 of life, with normal chest x ray (Fig. 2). Baby was started on tube feeding with mother's milk on day two of life which was gradually hiked and made on full feeds by day 4 of life. Later baby was transitioned to complete breastfeeds by day twelve of life. Baby remained hemodynamically stable throughout the hospital stay.



Figure 1: Chest X-ray (AP view) showing bilateral pneumothoraces

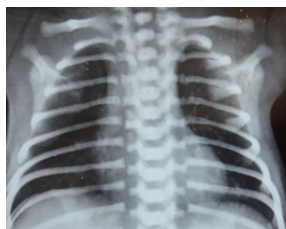


Figure 2: Chest X-ray (AP view) showing resolution of bilateral pneumothoraces

DISCUSSION

Pneumothorax is a recognized cause of respiratory distress in newborns, which is associated with lung pathologies. It is one of the frequent cause of sudden deterioration of newborns. Spontaneous pneumothorax is rare but is one of the few pulmonary diseases in the newborn period in which prompt treatment can be life saving. [1] Bilateral spontaneous pneumothorax during the neonatal period is a very rare entity. In term newborns, the incidence of pneumothorax is 1 to 2%. [1,2] It is about 6% in premature babies because of poor lung compliance. [3] Incidence of spontaneous pneumothorax is 0.3-1.3%. [4,5]

In the newborns pneumothorax can occur spontaneously or due to underlying lung disorders like hyaline membrane disease, meconium aspiration syndrome, pulmonary hypoplasia, vigorous resuscitation, positive pressure ventilation, pneumonia, congenital cystic malformations of lungs. Spontaneous pneumothorax at birth may result from rupture of alveoli because of high distending pressure required to expand previously uninflated lungs. The other possible explanation is uneven distribution of inflating pressures amongst alveoli. Folliculin gene disorders or α 1-antitrypsin deficiency should be ruled in cases of familial spontaneous pneumothorax. [6] Rarely babies with Cystic fibrosis may have bilateral spontaneous pneumothorax. [7]

Although all cases of pneumothorax in newborns do not require intercostal drain but some cases with severe distress require surgical intervention, as in our case. As reported in Tawil et al study, [2] nearly 7.5% of symptomatic, term babies with spontaneous pneumothorax required chest tube insertion or needle thoracocentesis. Newborn who have spontaneous pneumothorax with mild or moderate respiratory distress may recover completely with observation in an oxygen-enriched environment.

CONCLUSION

In conclusion, spontaneous bilateral pneumothorax is a rare cause of respiratory distress in healthy newborn after delivery. Although some babies with mild to moderate respiratory distress can be managed conservatively with oxygen rich environment but babies with severe respiratory distress require intervention.

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