Angel Wing Sign in a Neonate with Pneumomediastinum

A 3200 g male infant was born at 40 weeks gestation to a 40-year-old gravida 4, para 3 mother. Pregnancy was uneventful and the infant was born via normal spontaneous vaginal delivery. The infant developed marked respiratory distress upon delivery and the heart rate remained below 100/min, for which the infant received positive pressure ventilation for 30 seconds with a bag and mask, then admitted to the neonatal intensive care unit under continuous positive airway pressure ventilation.

At 20 hours after delivery, the infant had sudden deterioration in the clinical condition with marked dyspnea, cyanosis, and oxygen saturations below 60% in 100% fraction of inspired oxygen. Resuscitation was performed with rapid sequence intubation and mechanical ventilation. Although transillumination of the thorax was unremarkable, the supine chest radiograph revealed significant pneumomediastinum revealing angel wing sign along with a bilateral pneumothorax (Figure). Angel wing sign, also known as the spinnaker-sail sign, is the accumulation of air in the mediastinum in a wedge-shaped fashion, boosting the thymic tissue upward and laterally with gas pressure. Although pneumomediastinum has diverse manifestations on chest radiographs, angel wing sign is a distinctly rare, albeit typical, feature of this condition. This sign is always pathologic and should be distinguished from thymic sail sign and thymic wave sign, both of which are normal radiologic findings in infants. In an infant on positive pressure ventilation, as in this case, pneumomediastinum occurs by gas dissecting medially from interstitial emphysema of the lung. Pneumomediastinum can then lead to pneumothorax, pneumopericardium, or pneumoperitoneum.

A right-sided thorax tube was inserted for the drainage of air from the right pleural cavity and the infant was discharged home after being observed for clinical and radiographic improvement for 2 weeks.

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References