

Neonatal Respiratory Disorders

An Introduction

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Disorders commonly seen

- HMD- Hyaline membrane disease
 - BPD- Bronchopulmonary dysplasia
 - CLD- Chronic lung disease
 - PIE – Pulmonary Interstitial Emphysema
 - Pneumonia
 - Air leak syndromes
 - TTN- transient tachypnea of Newborn
 - PPHN- Persistent Pulmonary Hypertension of Newborn
 - MAS - Meconium aspiration syndrome
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- Preterm
- Term

HMD

- Mainly in preterm less than 34 weeks EGA
- State of surfactant deficiency
- Progressive respiratory failure and hypoxia
- Clinical signs – retractions and grunting
- Surfactant replacement therapy – as early as possible
- Mechanical ventilation and CPAP

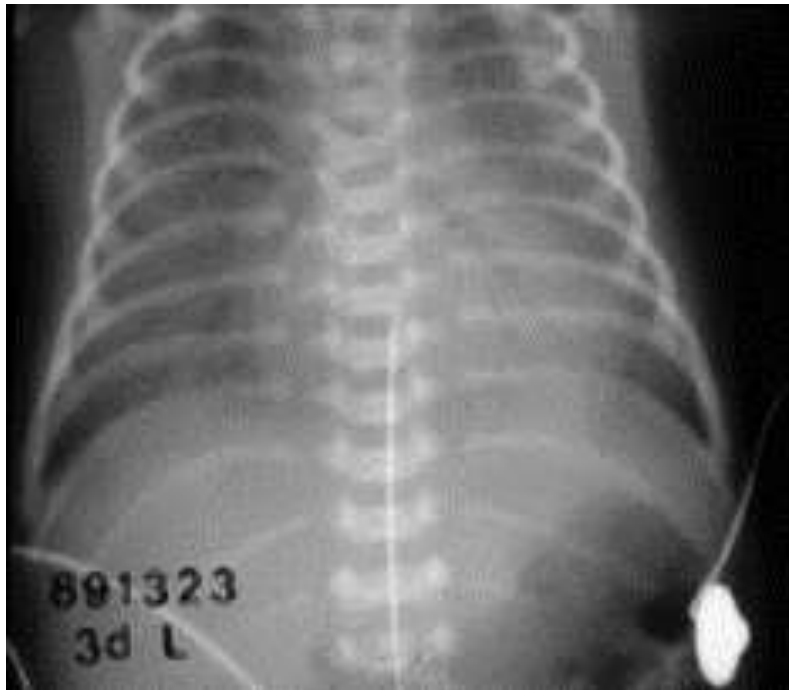


HMD characterized by --
Ground glass appearance
Low lung volumes
Air bronchograms

Lateral view-
See the low
lung volumes



HMD

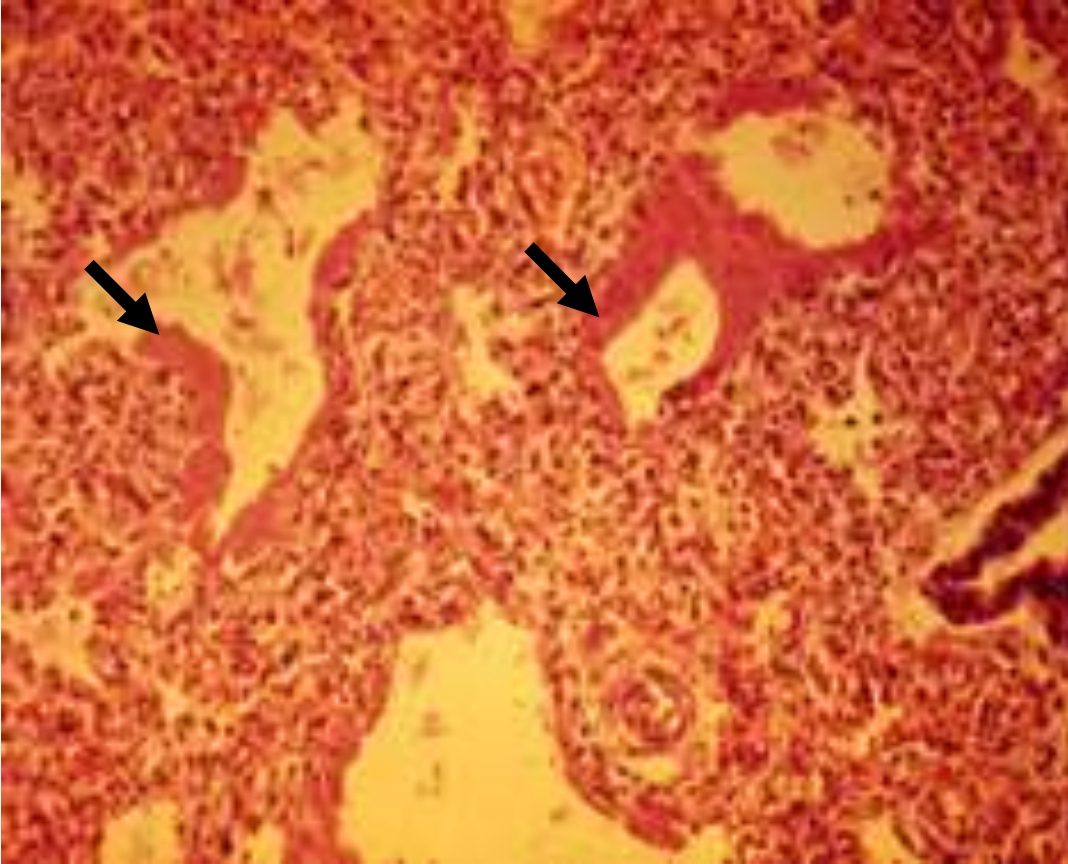


Improvement in
HMD after giving
surfactant

HMD



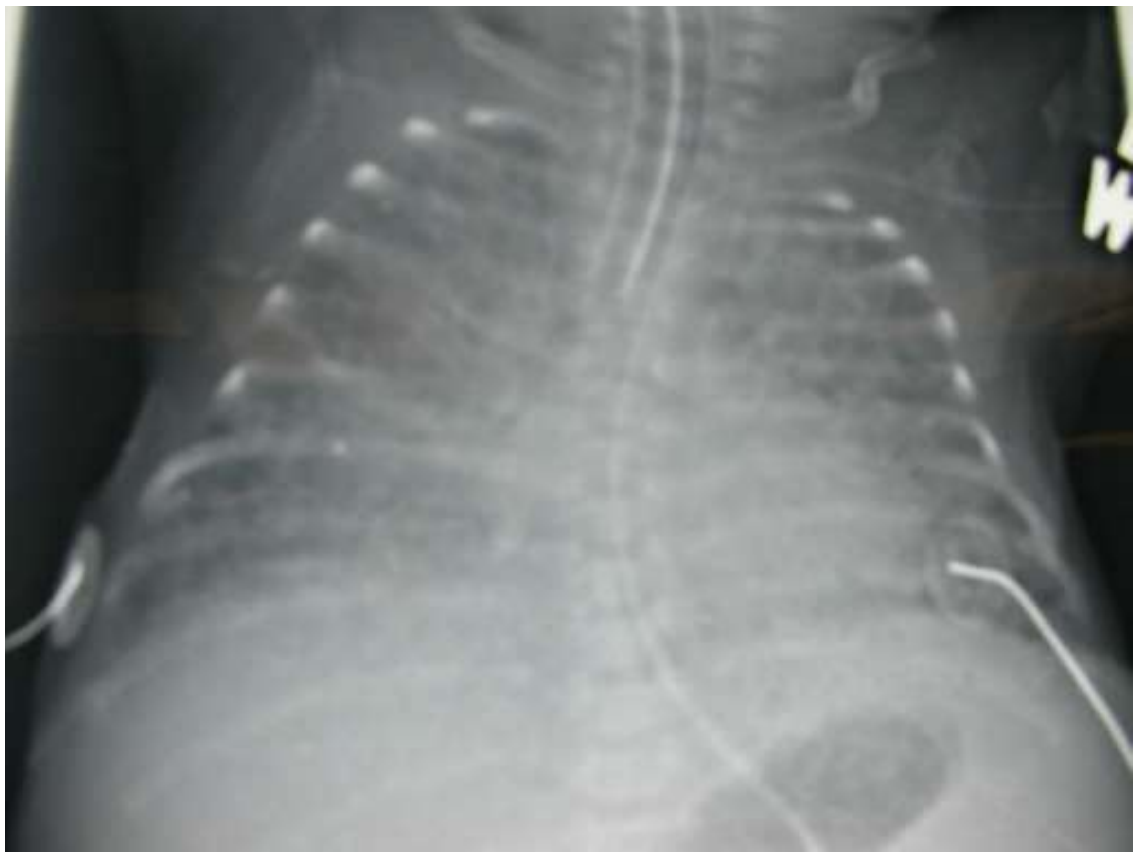
HMD



Microscopic exam of lungs with HMD, notice the collapsed alveoli and collagen membrane

Bronchopulmonary dysplasia

- Mainly in preterm infants
- Oxygen requirement for >28 days after birth with changes on chest x-ray
- Prematurity, mechanical ventilation, oxygen toxicity, infection and poor growth
- Adequate nutrition, minimize mech. Ventilation and oxytrauma, diuretics, bronchodilators





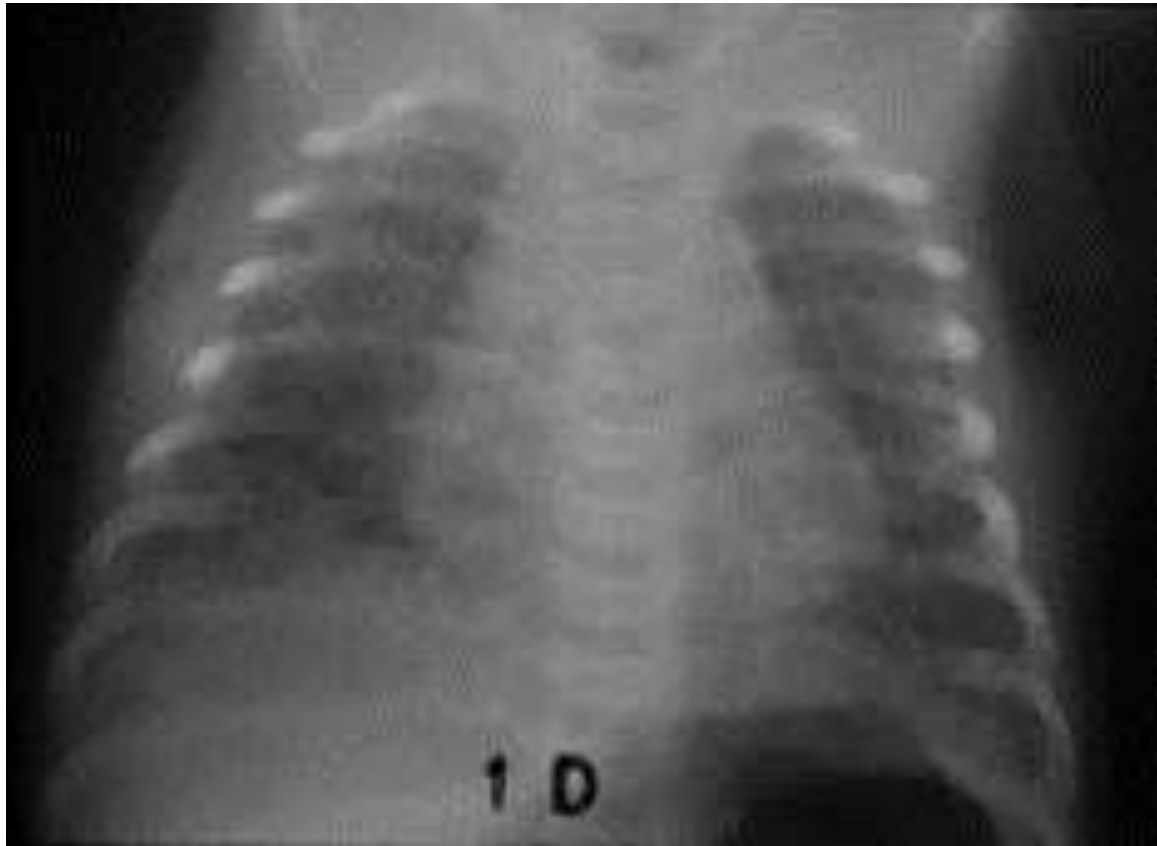
Pulmonary interstitial emphysema

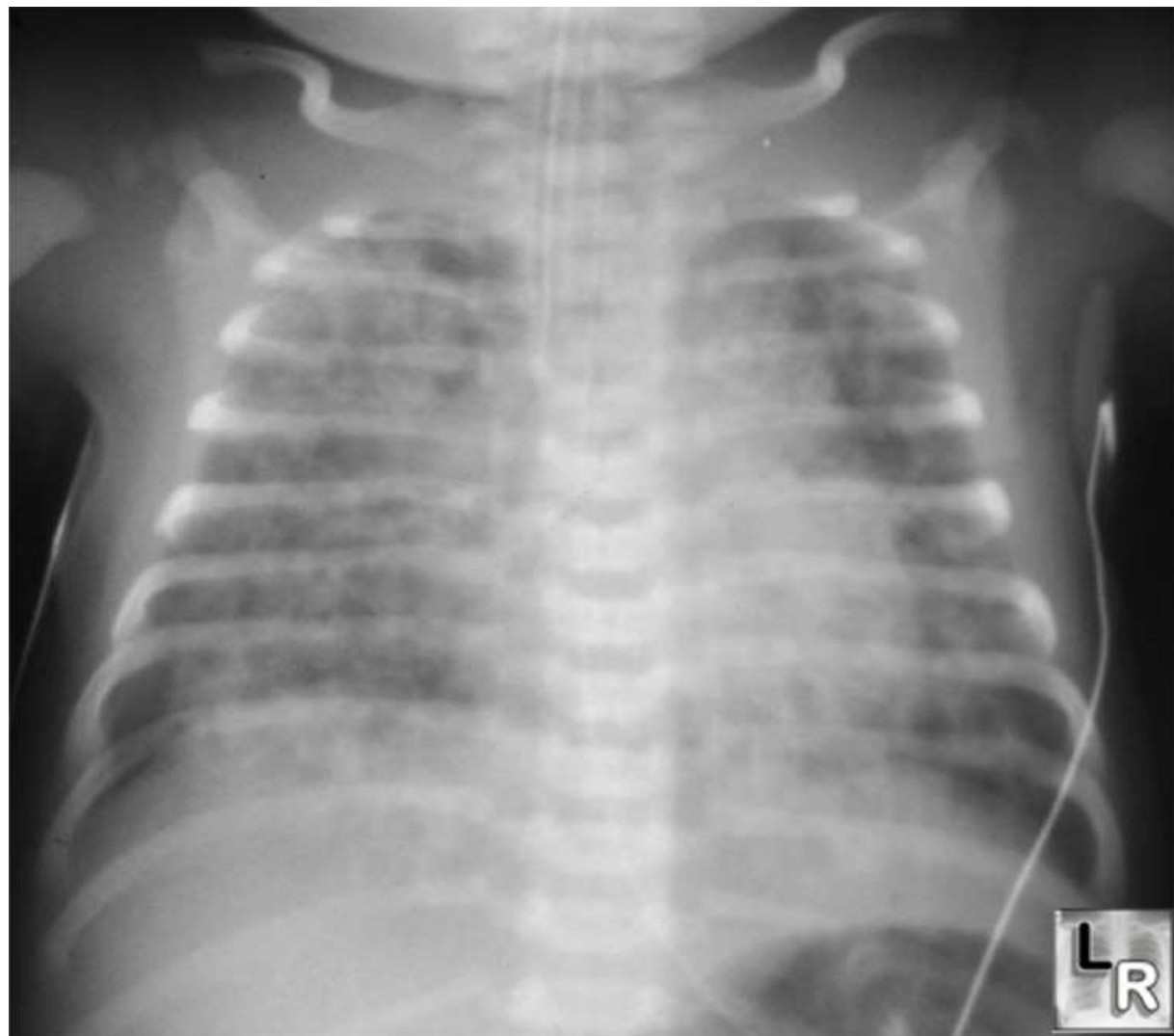
- Acute lung injury
- Mainly related to mechanical ventilation
- Minimize barotrauma
- Supportive care

Meconium Aspiration Syndrome

- Mainly in term or post-term infants
- Meconium-stained liquor at delivery
- Primary or secondary asphyxia
- Pulmonary hypertension
- Adequate oxygenation
- Antibiotics and supportive care

Meconium aspiration





Meconium aspiration

Pulmonary Hypertension

- Primary or Secondary
- Secondary because of meconium aspiration, infection, asphyxia
- Supportive care – maintain normoxia
PaO₂ about 50-80
- Alkalosis (?), maintain cardiac output, vasodilators, Tolazoline (?) and Inhaled Nitric Oxide
- ECMO

Transient Tachypnea of Newborn

- Also known as RDS –II
- Mainly in term infants
- Retained fluid in the lungs
- Rarely needs mechanical ventilation
- Resolves in 48-72 hours
- X-ray show hyper expanded lungs with streaks of retained fluid and fluid in interlobar fissures

TTN



TTN



Pneumonia

- Can occur in term or preterm infants
- GBS is the most common organism at birth
- Usually diffuse infiltrate
- Respiratory support
- Prevent pulmonary hypertension
- Antibiotics

Pneumonia



Apnea

- Apnea of prematurity or a symptom of another problem
- Treatment include, theophylline, CPAP, caffeine

Air leak syndromes

- Pneumothorax
- Pneumomediastinum
- Pulmonary Interstitial emphysema (PIE)
- Pneumopericardium



