

RESPIRATORY SYSTEM

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GMCH-32

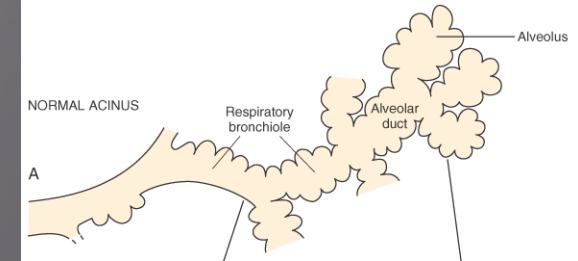
Clinical approach to child with

- Respiratory distress
- Wheezing

Respiratory Distress

- ▣ Tachypnea vs. Dyspnea

Lung development



Embryonic: 3-7 weeks

- ▣ • Lung buds emerge from the ventral wall of the foregut
- ▣ • Division into 3 main lobes on the right and 2 main lobes on the left

Pseudoglandular: 8-16 weeks

- ▣ • Further branching of the bronchi form bronchioles
- ▣ • Further branching of the bronchioles form terminal bronchioles

Canalicular: 16-24 weeks

- ▣ • Development of gas exchange units: Saccules
- ▣ • Respiratory bronchioles, alveolar ducts, alveoli

Terminal sac: 24-40 weeks

- ▣ • Continued generation and development of saccule sand alveoli
- ▣ • Continued growth of alveolar capillaries

Alveolar: Last 4 weeks of the terminal sac period

- ▣ • Exponential growth of gas exchange units
- ▣ • Further growth and development of alveoli continues to age 8

Etiology

A. Extrathoracic Airway Obstructions

Newborn:

Choanal atresia

Pierre Robin Syndrome

Macroglossia

Laryngomalacia

Congenital subglottic stenosis

Post endo-tracheal intubation

Older Children:

Foreign body in nose

Croup Syndrome

Trauma to neck

Burns of upper airways

Post-endotracheal intubation

B. Intrathoracic Airway Obstructions (Extrapulmonary):

Vascular anomalies

Tumors in anterior mediastinum

Tracheal stenosis, Tracheomalacia, T-O fistula

Chondrodystrophies

Diaphragmatic hernia

C. Intrathoracic Airway Obstructions (Intrapulmonary):

Bronchial asthma

Foreign body

Bronchiolitis

Endobronchial tuberculosis

Congenital lobar emphysema

D. Parenchymal lung disease:

Pneumonia

Aspiration syndromes

Air leak syndromes

Pulmonary hemorrhage

Bronchopulmonary dysplasia

Wilson Mikity Syndrome

Pleural effusion/empyema/ chylothorax

E. Non pulmonary causes:

CCF

Metabolic causes

CNS causes

Clinical Features

- ▣ Respiratory Rate and depth
- ▣ Respiratory Rhythm
- ▣ Inspiratory Retractions
- ▣ Intercostal Bulging
- ▣ Head Bobbing
- ▣ Additional Respiratory Sounds
- ▣ Flaring of alae nasi
- ▣ Paradoxical breathing
- ▣ Pulsus paradoxus
- ▣ Cyanosis

Respiratory Sounds

Sound	Cause	Character
Snoring	Oropharyngeal obstruction	Inspiratory, low pitched, irregular
Grunting	By partial closure of glottis	Expiratory, HMD
Rattling	Secretions in trachea/ bronchi	Inspiratory, coarse, palpate
Stridor	Obstruction of larynx/ trachea	Inspiratory, severe cases-both
Wheeze	Lower airway obstruction	Continuous musical sound Expiratory mainly

Investigations

- ▣ CBC
- ▣ CXR
- ▣ ABG

- ▣ Others: USG / Fluoroscopy/ CT/ GER Scan/
Bronchoscopy/Laryngoscopy/ Rhinoscopy/
Pleural tap/ PFT/ Lung biopsy/ Mx/sputum
VP Scan/ Sweat Cl test

Correlation of C/F with site of involvement

Clinical Features	Airway Obstruction				Parenchymal Lung Disease
	Extrathoracic		Intrathoracic		
			Extrapulmonary	Intrapulmonary	
Tachypnea	+		+	++	++++
Retraction	++++		++	++	+++
Stridor	++++		++	-	-
Grunting	+/-		+/-	++	++++
Wheezing	-		+++	++++	+

Management

- ▣ Investigations
- ▣ ABC
- ▣ Treatment of particular entity

Thanks