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

<table>
<thead>
<tr>
<th>Sound</th>
<th>Cause</th>
<th>Character</th>
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<tbody>
<tr>
<td>Snoring</td>
<td>Oropharyngeal obstruction</td>
<td>Inspiratory, low pitched, irregular</td>
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<tr>
<td>Grunting</td>
<td>By partial closure of glottis</td>
<td>Expiratory, HMD</td>
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<tr>
<td>Rattling</td>
<td>Secretions in trachea/ bronchi</td>
<td>Inspiratory, coarse, palpate</td>
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<tr>
<td>Stridor</td>
<td>Obstruction of larynx/ trachea</td>
<td>Inspiratory, severe cases-both</td>
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<tr>
<td>Wheeze</td>
<td>Lower airway obstruction</td>
<td>Continuous musical sound</td>
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<td>Expiratory mainly</td>
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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
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<tr>
<th>Clinical Features</th>
<th>Airway Obstruction</th>
<th>Parenchymal Lung Disease</th>
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Management

- Investigations
- ABC
- Treatment of particular entity
Thanks