Foreign Bodies
Esophageal vs. Trachea

Scott May RRT-NPS, C-NPT
Objectives

- List three anatomical sites for foreign bodies
- Identify characteristics Esophagus vs. Trachea
- Describe radiographic findings for foreign bodies
Deaths from choking in the US 2003
  • 4300 (National Safety Council)

• Fatalities occur soon after aspiration

• Two Thirds of deaths occur in the home

• 4th leading cause of death at home
Who is at Risk!

- High Risk 1-4 yrs of age
Why Are They at Risk?

- Grasping becomes effective
- Immature Swallowing Mechanism
- Small objects in grasping distance
Why Are They at Risk?

- Improper Preparation of Food
- Hasty Eating and Drinking
- Playing & Eating
- Talking with food in the oral cavity
Why Are They at Risk?

- Improper supervision of small children around infants
Aspirate What!

- Organic Material (Most Frequent)
  - Nuts
  - Seeds
  - Popcorn
  - Hot Dog
Aspirate What!

- Expands with moisture
- May Fragment
Aspirate What!

- Non-Organic Material
  - Coins

- Button Batteries
  (Tissue Necrosis/Sodium Hydroxide)

- Beads

- Candy Wrapper
Airway Foreign Body

- Larynx (Least Frequent) (6%)

- Tracheal (Rarely) (4%)

- Bronchial (Most Common)
  - Right (58%)
  - Left (42%)
Larynx (Least Frequent)

- Complete Airway Obstruction
  - Emergency

- Partial
  - Stridor
  - Hoarseness
  - Aphonia
  - Croup-like cough
  - Odynophagia
  - Hemoptysis
  - Wheezing
  - Dyspnea
Tracheal rarely

- Obstruction
- Stridor
- Wheezing
- Dyspnea
- Complications 4-5 times greater
Bronchial most common

- Coughing
- Wheezing
- Hemoptysis
- Dyspnea
- May shift between Right & Left Bronchus
Bronchial most common

- Obstructive emphysema/Ball Valve
- Atelectasis
- Pneumonia
- Lung abscess
- Empyema (bacterial overgrowth)
Bronchial most common

- Organic material
  - Intense Inflammation
  - Granulation Tissue
  - Purulent Mucus
- Antibiotics
- Steroids
Initial Evaluation

- History (Key Element)
- Physical Examination
- Radiography
Evaluation

- Coughing (33%)
- Dyspnea 30%
- Fever 36%
- Hx Choking Crisis (7-91%)
Classic Triad

- Cough
- Wheezing
- Unilaterally Decrease Breath Sounds
Clinical Phases 2

- Quiescent Period/Asymptomatic
### Renewed Symptomatic Period

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<th>Airway</th>
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(Rare Complication)
**X-Ray Bronchial Obstruction**

*(Left) Inspiratory radiograph in a boy who aspirated a LEGO piece shows symmetric expansion and aeration of the right and left lungs. *(Right) An expiratory image from the same patient shows no change in the volume of the right lung but appropriate decreased volume in the normal, unobstructed left lung.*

*(Left) A toddler with subacute wheezing due to an aspirated almond in the right main bronchus has asymmetric lucency and increased volume of the right lung on an inspiratory fluoroscopic image held. *(Right) An image held during forced expiration of the same patient shows persistent asymmetric lucency and hyperexpansion of the right lung compared to the left.*

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X-Ray Bronchial Obstruction

Chest x-ray statistics

- Normal 14-43%
- Obstructive Emphysema 21-41%
- Opacification/atelectasis 18-29%
- Mediastinal Shift 36.8%
- Radiopaque Foreign Body 3-23%
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Esophageal Foreign Bodies

- Upper Esophagus at Thoracic Inlet
- Carina and Aortic Arch
- Distal Esophagus
Initial Evaluation

- History (Key Element)
- Physical Examination
- Radiography
Gastrointestinal Symptoms

- Dysphagia
- Drooling
- Vomiting
- Gagging
Clinical Phases 2

- Quiescent Period/Asymptomatic
## Renewed Symptomatic Period

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Esophageal Foreign Bodies

- May mimic airway foreign bodies
- Contraindication to Cricoid Pressure
Esophageal Foreign Bodies

**Differential Diagnosis**

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