اورژانسهای کودکان

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Pathophysiology

- Near-total obstruction of the larynx or trachea can cause immediate asphyxia and death
- Should the object pass beyond the carina, its location would depend on the patient's age and physical position at the time of the aspiration
- Until the age of 15 years, foreign bodies are found on either side with equal frequency
- Once aspirated, objects may subsequently change position or migrate distally
- The object itself might cause obstruction or induce inflammation, edema, cellular infiltration, ulceration, and granulation tissue formation which may contribute to airway obstruction

Pathophysiology

- Distal to the obstruction, air trapping leading to local emphysema, atelectasis, hypoxic vasoconstriction, post-obstructive pneumonia and possible volume loss, necrotizing pneumonia or abscess, suppurative pneumonia, or bronchiectasis may occur
- The likelihood of complications increases after 24-48 hours, making quick removal of the foreign body urgent

Laryngeal Foreign Body

Clinical Manifestations:

- Hoarseness
- Croupy cough
- Aphonia
- Hemoptysis
- Dyspnea with wheezing
- Cyanosis

Laryngeal Foreign Body

Diagnosis:

- Lateral and anteroposterior x-rays of the neck will show indirect evidence if radiolucent or exact location if opaque foreign bodies
  - Lodged anteriorly, in the larynx
  - Behind soft-tissue shadows, hypopharynx or cervical esophagus
  - Sagittal plane, larynx
  - Coronal plane, esophagus
- Direct laryngoscopy confirms diagnosis and provides access for removal
- For severe dyspnea, do tracheotomy first before laryngoscopy

Bronchial Foreign Body

Clinical Manifestations:

- Initial: cough, blood-streaked sputum & metallic taste
- Depends on degree of obstruction and stage patient seen:
  - Nonobstructive – asymptomatic
  - Near-total obstruction – signs of asphyxia
  - Slight obstruction –wheezing
  - Greater degree of obstruction – emphysema or atelectasis
  - If persistent – chronic bronchopulmonary disease

Bronchial Foreign Body

Clinical Manifestations:

- Most often, aspirated into right lung:
  - Immediate: choking, gagging and paroxysmal coughing
  - Latent period – occasional cough or slight wheezing
  - Recurrent lobar pneumonia or intractable asthma
- Rarely, hemoptysis
- Vegetal – *arachidic bronchitis* – cough septic fever and dyspnea

Bronchial Foreign Body

Diagnosis:

- Expiratory chest radiographs are more sensitive for air trapping than inspiratory chest radiographs, also lateral decubitus views
- Fluoroscopy useful in check valve obstruction when little or no air escapes during expiration leading to obstructive overinflation
- Even extensive x-rays will not completely rule out presence of a foreign body; most foreign bodies are radiolucent but <20% of aspirated foreign bodies are radiopaque
- Only bronchoscopy definitive

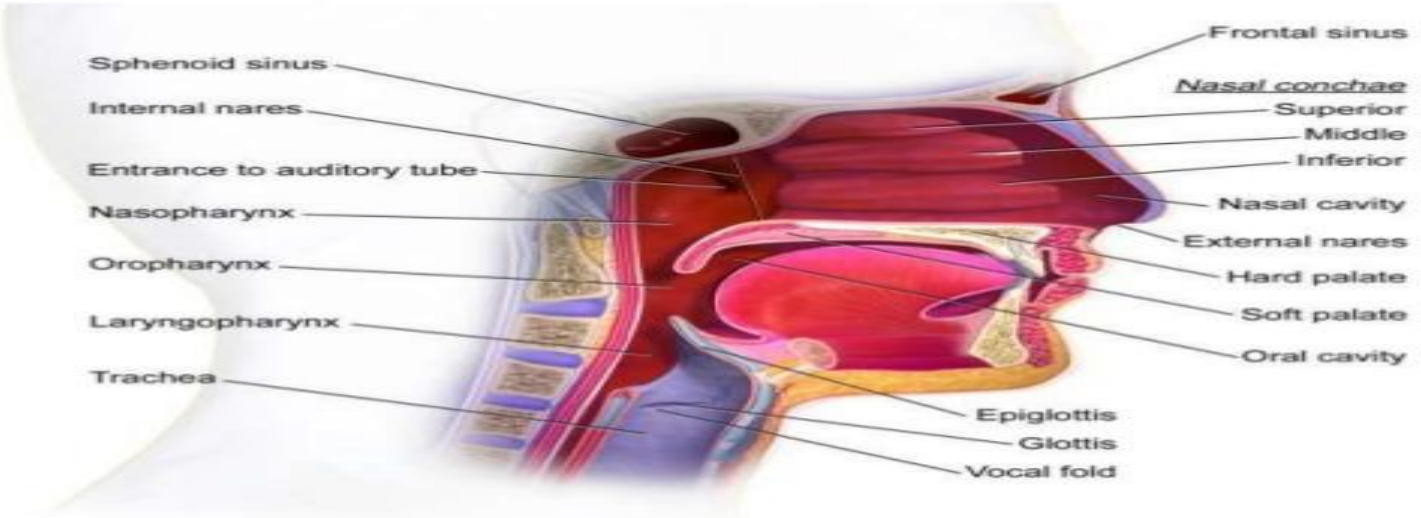
Heimlich Maneuver

Treatment

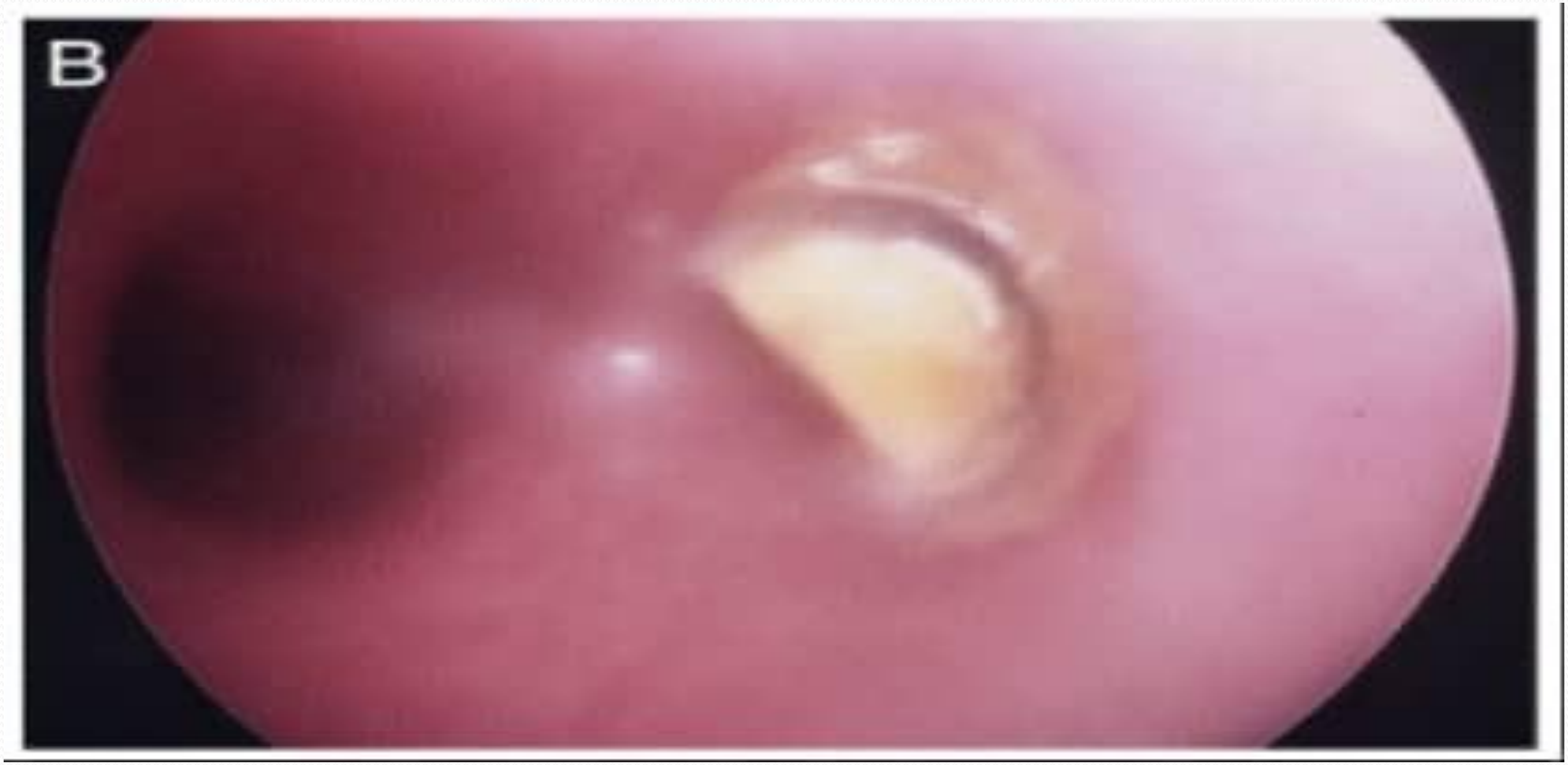
- Almost all aspirated foreign bodies can be extracted bronchoscopically
- If rigid bronchoscopy is unsuccessful, surgical bronchotomy or segmental resection may be necessary
- Chronic bronchial obstruction with bronchiectasis and destruction of lung parenchyma may require segmental or lobar resection
- Antibiotics for secondary infections
- Steroids for inflammation
- Treat complications

- **THE LARYNX**

Beyond the glottic inlet is the larynx. The larynx is bounded by the aryepiglottic folds, the tip of the epiglottis, and the posterior commissure of the lower border of the cricoid cartilage. It bulges posteriorly into the laryngopharynx. Beyond the cricoid cartilage lies the trachea, which is formed by a set of U-shaped cartilaginous rings that extend to the carina before bifurcating into each mainstem bronchi.



The Upper Respiratory System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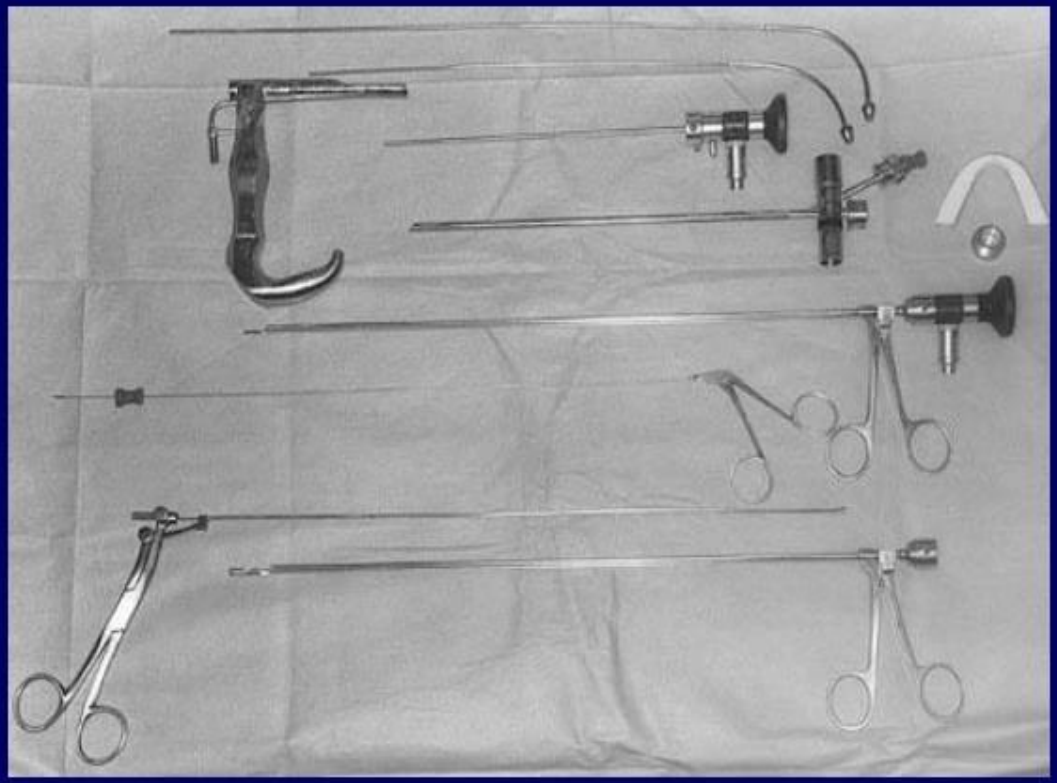
Foreign Body Aspiration

- General anesthesia
- Spontaneous ventilation
- Laryngoscopes
- Bronchoscopes
- Suction
- Forceps
- Rod-lens telescopes



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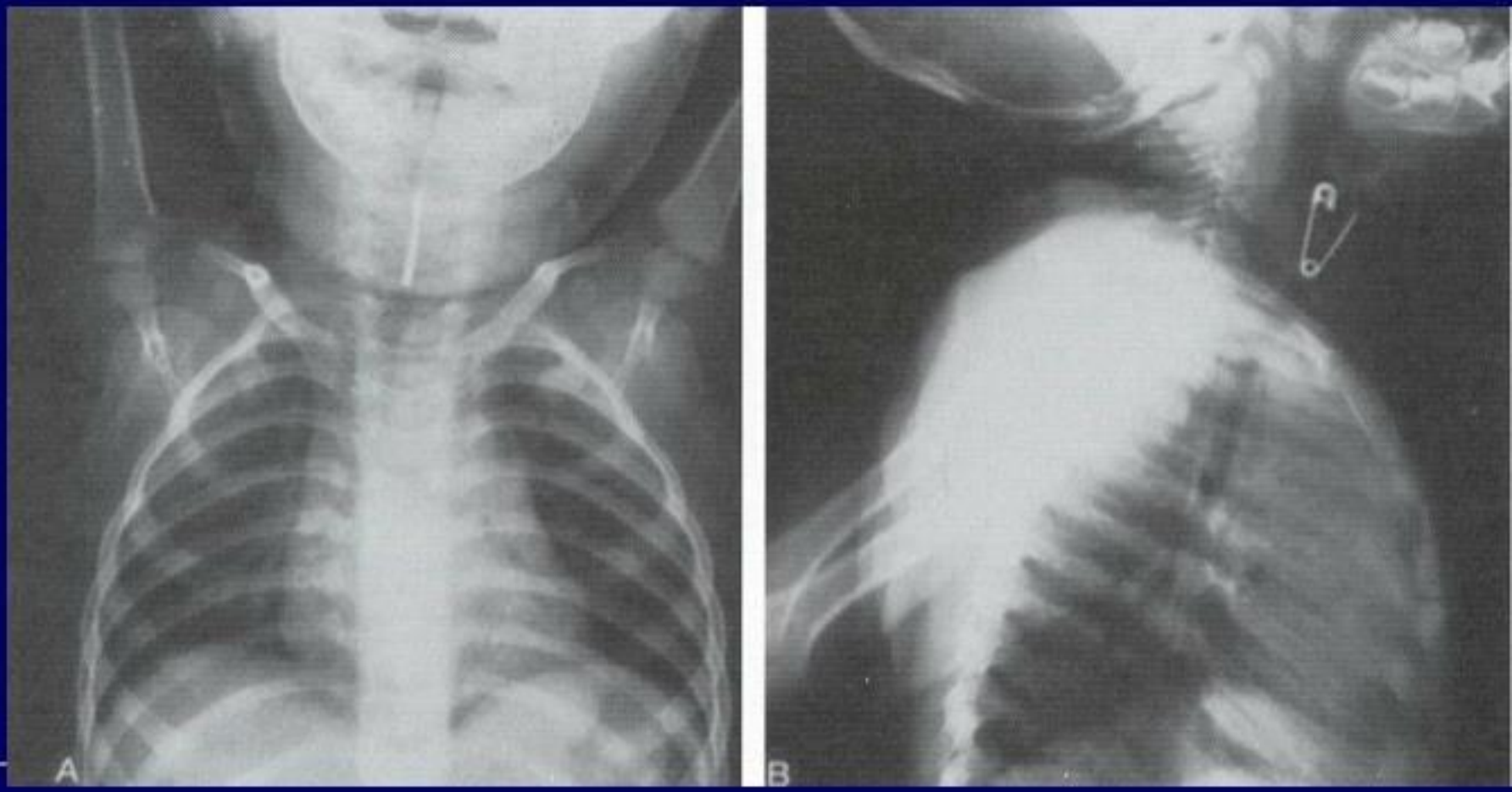

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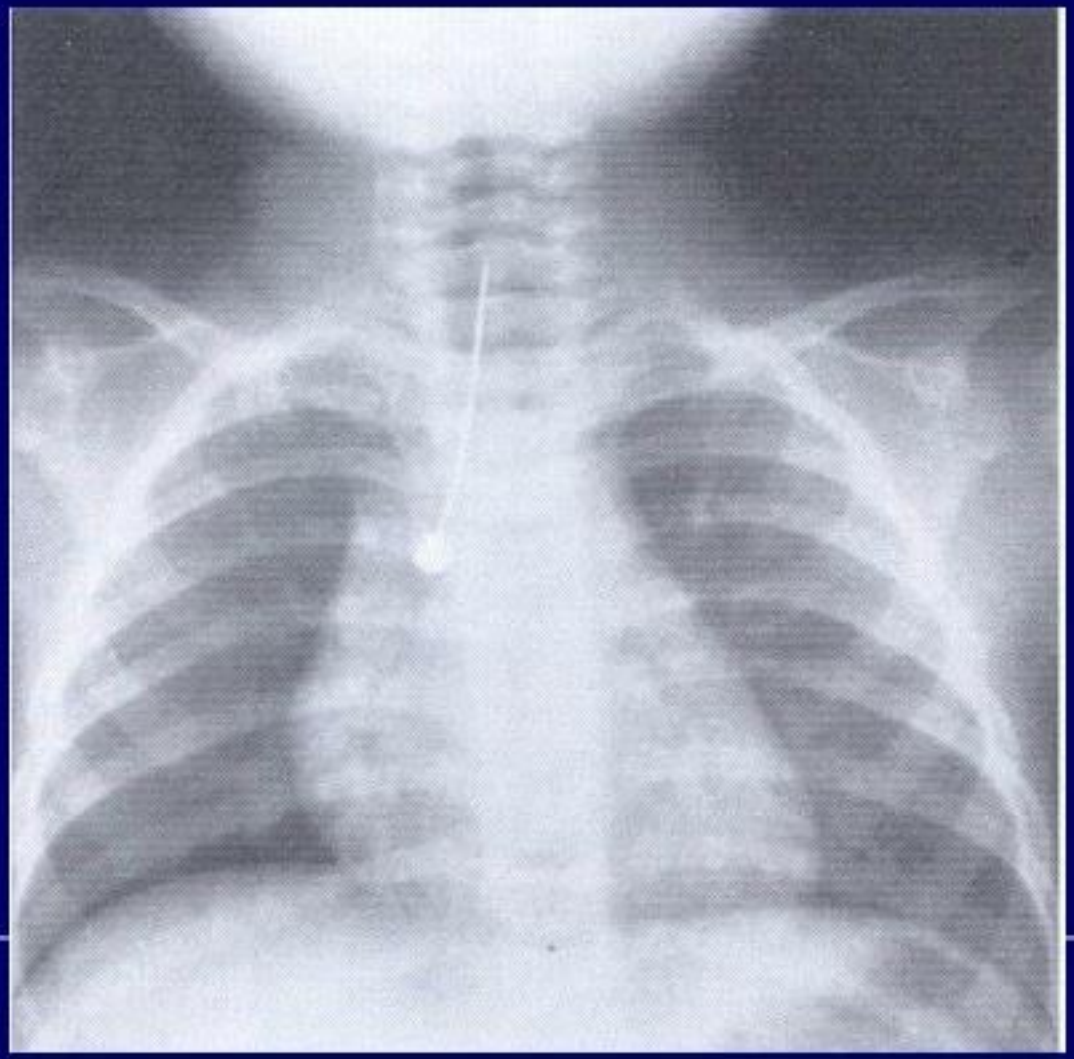

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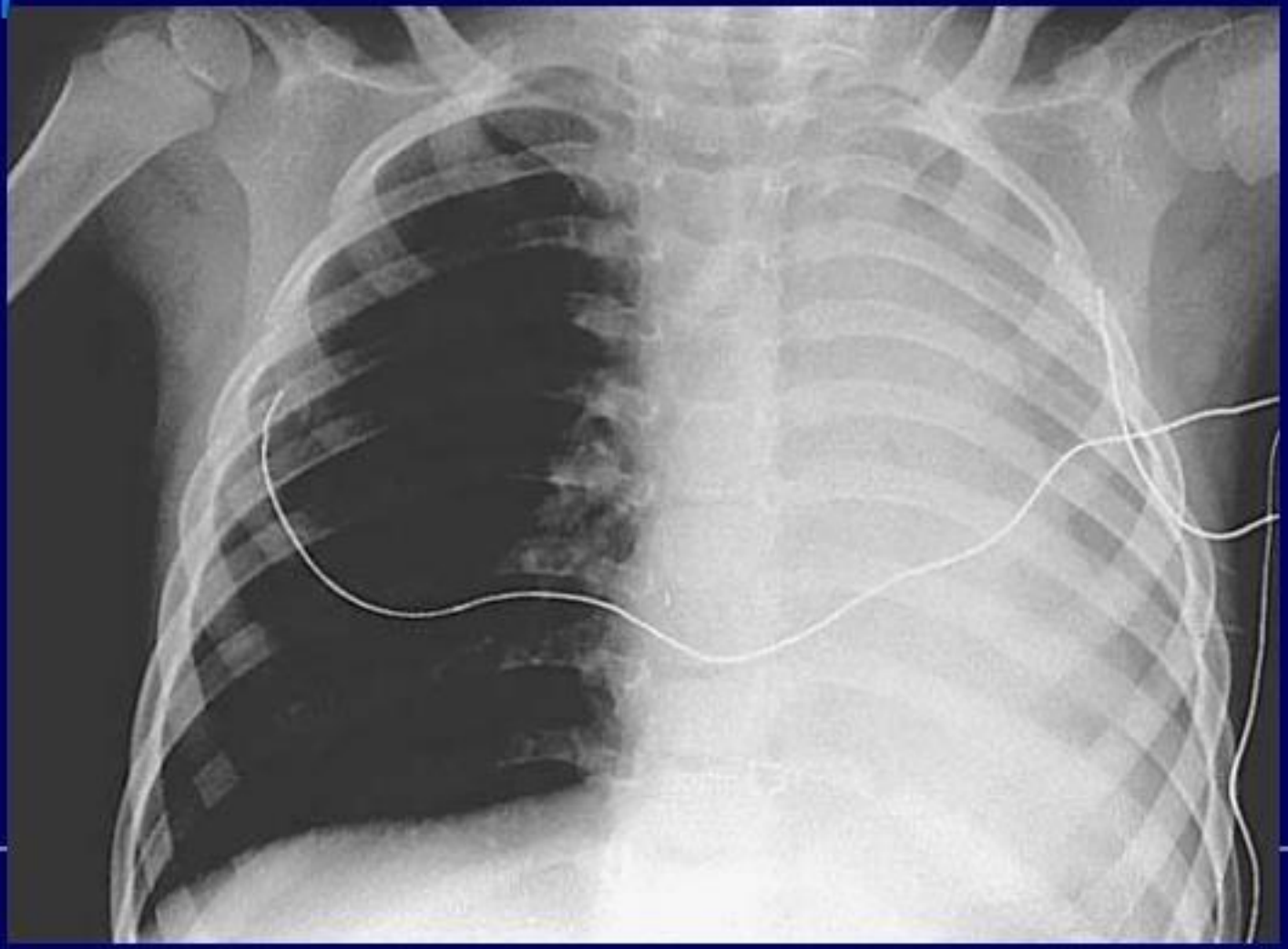

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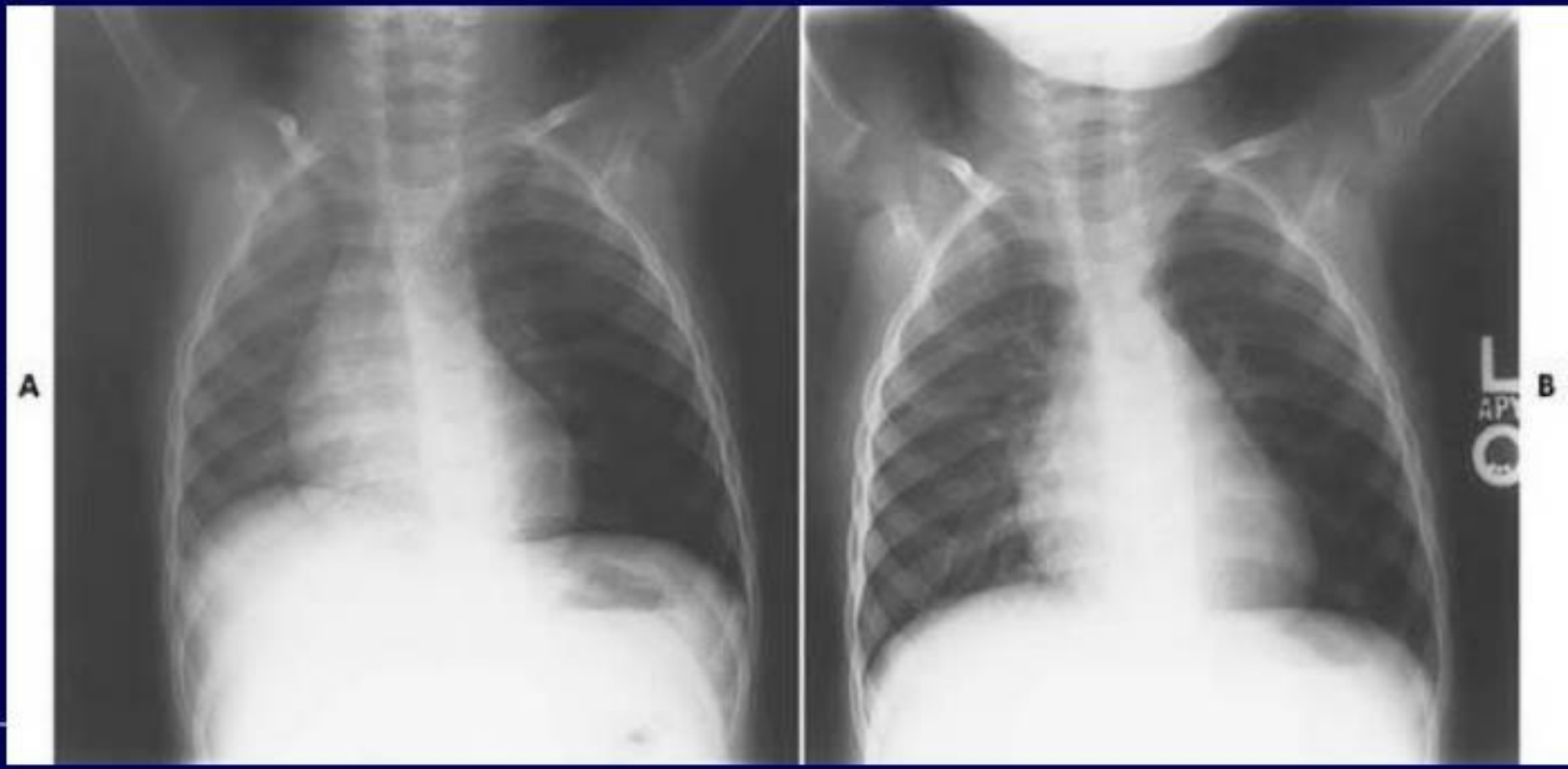

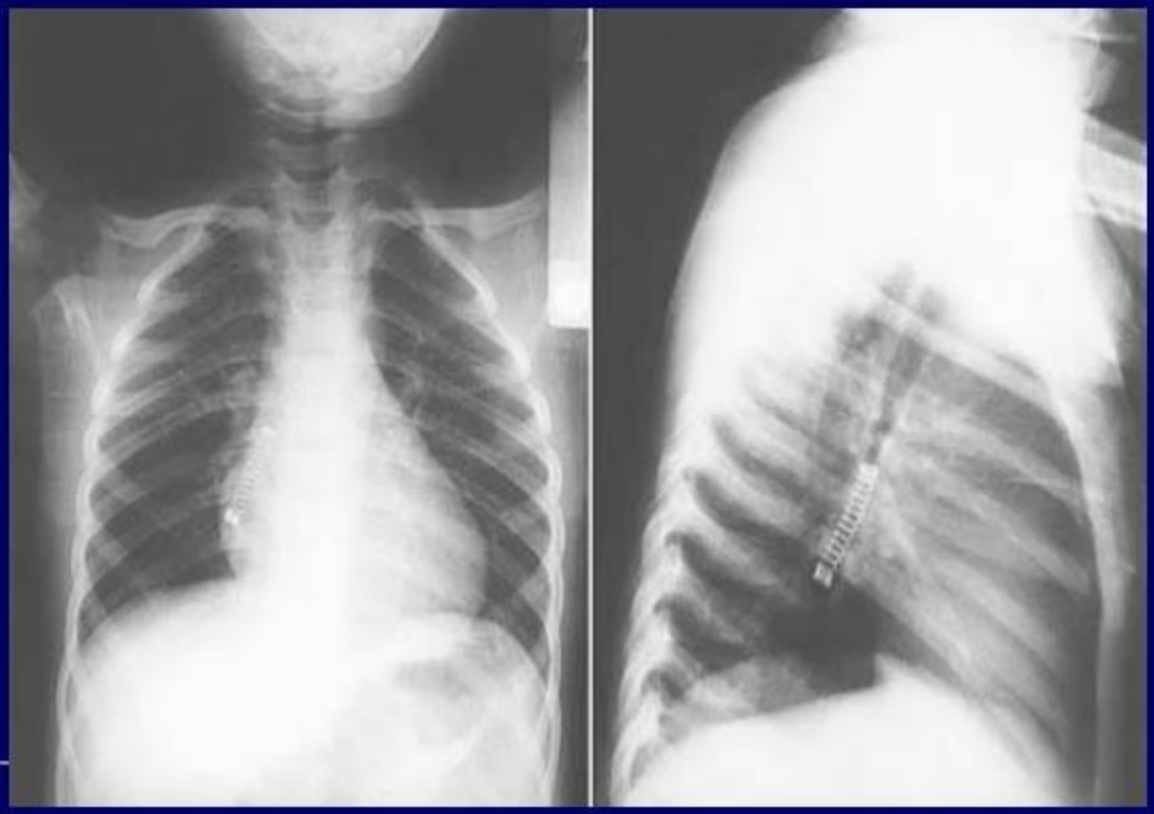

X-RAY FINDINGS

- Obstructive emphysema
- Normal x-ray
- Pneumonitis
- Collapse with mediastinal shift
- Foreign body.
  If still a diagnostic delima,CT scan is advised.

Foreign Body Aspiration

- Radiography
  - PA & lateral views of chest & neck
  - Inspiration & expiration [atelectesis on insp, hyperinflation on exp. In affected bronchus.]
  - Lateral decubitus views [lower lung doesn't collapse if FB present.]
  - Airway fluoroscopy [for intraop evaluation, to locate FB in lung periphery.]
- 25% have normal radiography

Foreign Body Aspiration

- Tachepnia, rib and sternal retraction, cyanosis,n/v.
- Hypoxic seizures, arrest,hypoxic brain damage.
- Asymptomatic interval
  - 20-50% not detected for one week
- Inflammation and Complications
  - Cough
  - Emphysema
  - Obstructive atelectasis
  - Hemoptysis
  - Pneumonia
  - Lung abscess
  - Fever

Foreign Body Aspiration

- History
  - Choking
  - Gagging
  - Wheezing
  - Hoarseness
  - Dysphonia
- Can mimic asthma, croup, pneumonia
- "A positive history must never be ignored, while a negative history may be misleading"

- **Presentation**
- In general, aspiration of foreign bodies produces the following 3 phases:
- **Initial phase - Choking and gasping, coughing, or airway obstruction at the time of aspiration**
- **Asymptomatic phase - Subsequent lodging of the object with relaxation of reflexes that often results in a reduction or cessation of symptoms, lasting hours to weeks**
- **Complications phase - Foreign body producing erosion or obstruction leading to pneumonia, atelectasis, or abscess**

TYPES OF OBSTRUCTION.

- 1. **check valve**: air can be inhaled but not exhaled.[emphysema].
  2. **ball valve**: air can be exhaled but not inhaled.[broncho pul segment collapse].
  3. **bypass valve**: FB partially obstructs both in insp. and exp.
  4. **stop valve**: total obstruction, airway collapse and consolidation.

Foreign Body Aspiration

- Vegetable matter in 70-80%
  - Peanuts & other nuts (35%)
  - Carrot pieces, beans, sunflower & watermelon seeds
- Metallic objects
- Plastic objects

باسپاس از توجه شما