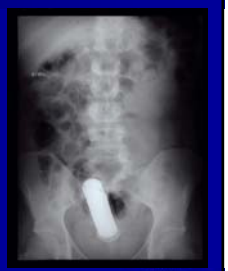
Management of Foreign Bodies in the Gastrointestinal Tract

Objectives

- Timing of endoscopy
- Anatomic location
- High risk objects
- Choosing accessories
- Airway protection

Foreign Bodies in the GI Tract

- 1500 people die annually
- High risk
  - Pediatric age group (80%)
  - Edentulous adults
  - Alcoholics
  - Prisoners
  - Psychiatric patients



Ingested Foreign Bodies

Outcomes

- Pass spontaneously 80-90%
- Endoscopy 10-20%
- Surgery ~1%

Always consider the possibility of more than one foreign body

Commonly Ingested Objects

Children

- Coins
- Toys
- Crayons
- Ball point pen caps
- Batteries

Adults

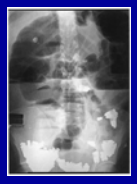
- Food impaction
  - Meat
  - Bones
- Dentures

Patient Presentation

- History
  - Odynophagia
  - Dysphagia
  - Abdominal pain
- Infants
  - Sudden refusal to eat
  - Chronic aspiration

Patient Presentation

- **Physical examination**
  - Subcutaneous emphysema: esophageal perforation
  - Drooling: complete esophageal obstruction
  - Peritoneal signs: gastrointestinal perforation
- **Radiologic imaging**
  - Subcutaneous air
  - Pneumomediastinum
  - Pleural effusion



Ingested bullets

Understand Anatomy

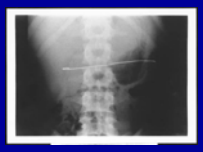
- **Esophagus**

  Foreign bodies impact at physiologic narrowings
  - Cricopharyngeus (15-17 cm)
  - Aortic arch (23 cm)
  - Left main stem bronchus (27 cm)
  - Distal esophagus (36-40 cm)

  Pathologic narrowings due to strictures
- **Pylorus**
- **Duodenal sweep**
- **IC valve**

Indications for Endoscopic Removal of Foreign Bodies

- **Esophageal foreign bodies should be removed within 12-24 hours to prevent complications**
  - Airway compromise
  - Perforation
  - Aortic or pulmonary fistula
- **Foreign bodies leading with sharp/pointed end**
- **Objects >5 cm and wider than >2 cm do not (usually) pass through pylorus or IC valve**



Sharp metal wire In the stomach

Indications for Urgent Endoscopy

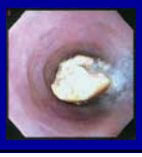
- Complete esophageal obstruction
  - Unable to handle secretions
- Sharp objects below the UES
  - If above UES = ENT
- Button batteries within reach of gastroscope

Tools of Trade

- Grasping forceps
- Polypectomy snare
- Roth retrieval net

Esophageal Food Bolus Impaction

- **Push bolus into stomach – 95 % success rate**
  - Bypass obstruction with endoscope if possible
  - Assess cause of obstruction and angle at GE junction
  - Reposition endoscope--push food bolus from the right
  - Beware bone spicule within bolus = perforation risk
- **Extract food through mouth**
  - Overtube to protect airway
  - Forceps, snare, basket
  - Roth net, variceal ligator



Esophageal Food Bolus Impaction

- Avoid Papain (Adolph's meat tenderizer)
  - Enzymatic digestion of meat=Enzymatic digestion of esophagus
  - Two fatalities
- Glucagon
  - Decreases LES pressure
  - No effect on rings or strictures
  - Low success rate (30%-50%)
- Follow-up EGD to assess/treat strictures

Sharp and Pointed Foreign Bodies

- Toothpicks
- Nails
- Needles
- Razor blades
- Pens
- Safety pins
- Dental appliances

CHEVALIER JACKSON'S AXIOM
"Advancing points puncture, trailing do not"

Sharp and Pointed Foreign Bodies

- Remove sharp and pointed foreign bodies before they pass through stomach
  - Consider overtube
  - 15-35% will perforate intestine, usually near IC valve
  - "Mural withdrawal reflex" turns the object
- If endoscopic retrieval unsuccessful consider surgery if:
  - No movement in 3 days by daily x-ray
  - Object advancing with pointed end

Button Batteries

- Hearing aids,calculators,cameras ,computers
- Larger batteries (>21 mm in diameter) cause problems
- Rapid injury via direct corrosion, low-voltage burns or pressure necrosis
- Liquefaction necrosis
  - Leakage of alkaline KOH or NaOH in 26-45%

Esophageal emergency with high potential for esophagotracheal or esophagoaortic fistulas

Button Batteries in Esophagus

- Airway protection
- Roth retrieval net device of choice
- Avoid graspers or forceps which could puncture

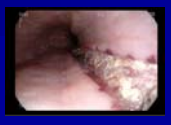
Button Battery in Stomach and Intestine

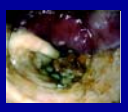
- Most pass once in stomach
  - 85% within 72 hours
  - Consider retrieval in stomach with basket or net
- Follow progress with daily x-rays
- No role for ipecac, H_2RAs or laxatives
- Surgery
  - Abdominal pain
  - Failure to evacuate within 72 hours

Summary

- Recognize indications for urgent endoscopy
  - Complete esophageal obstruction, sharp objects in esophagus, button batteries
  - Recognize contraindications for endoscopic retrieval
    - Cocaine
    - Perforation
- Plan your strategy before endoscopy
- Be familiar with available equipment
- Protect the airway

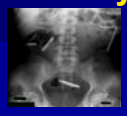
Food Impaction – Key Points





- Never let impaction dwell > 24 hours
- Protect the airway
- Push method – success rate 95 %
- Extraction through mouth
  - Accessories
  - Overtube if necessary
- Majority (75-100%) have predisposing etiology

Foreign Bodies – Key Points



- 85 % pass spontaneously
- Know when to scope
  - Esophagus, sharp, failure to pass
- Secure the airway
- Secure the patient – anasthesia
- Be familiar with available equipment