Foreign Body Removal: Techniques and Tips

Binh Pham, MD

Financial Disclosure

• Medical Consultant:
  – Olympus Medical
  – Boston Scientific
Outline

• Introduction
• Diagnosis
• Management and Equipment
• Specific Scenarios

Introduction

• Pediatric population (6mos – 6 years)
• Adults:
  – Psychiatric
  – Developmental delayed
  – Alcohol intoxicated
  – Incarcerated
  – Edentulous
• > 80% spontaneously pass with low surgery and mortality rates

Diagnosis

• Nonimpaired individuals: history is sufficient
• Children or impaired: drooling, refusing to eat, vomiting
• Recognize emergent perforation, peritonitis, or SBO → no endoscopy and consult surgery
• 2 V radiographs or CT for identification
• Contrast exams should not be performed
• Endoscopy

Management

• Airway:
  – Moderate or MAC with overtubes/hoods
  – GA with intubation
    High aspiration risk
    Prox esoph foreign body
    Difficult or multiple objects
    Pediatric
Management

- Timing of intervention/endoscopy:
  - Patient age
  - Clinical condition
  - Size, shape, content, location of ingested object
  - Risks of aspiration, obstruction, or perforation

Equipment

- Endoscopes
- Retrieval devices
- Protective devices
Retrieval Devices

- retrieval basket
- retrieval net
- polyp snare
- prong graspers
- rat tooth forceps
- alligator forceps

Overtubes

- esophageal: 25 cm
- gastric: 50 cm
- small bowel: 80 cm
Protector Hood

Intubation / capture position

retrieval / extubation position

Protector Hood
Specific Scenarios

Food Bolus Impaction

• Most common: meat
• Techniques
  – Extraction – en bloc or piecemeal
  – “Push” technique
• Dilate or not dilate?
• Proteolytic enzymes
• Glucagon is safe

Food Impaction

Push Technique
Short Blunt objects

- > 2.5 cm should be removed
- Remove objects in stomach after 3 weeks
- Surgical consult if in small bowel after 1 week
- Retrieval net or baskets


Long Objects

- > 6 cms should be removed
- Gastric overtube (> 45 cm)
- Snare or retrieval baskets

Sharp-pointed Objects

- Fish bones, toothpicks, needles, dental bridgework
- Sharp pointed objects in the esophagus = emergency
- Direct laryngoscopy for above the cricopharyngeus
- Objects in stomach or SB should be removed
- Risk of complications of sharp objects 35%
- Jackon’s axiom: “Advancing points puncture, trailing do not” – reorient

Batteries

• Disk
  – Most common in children
  – Liquefactive necrosis and perforation if lodged in esophagus
  – Can observe batteries that have passed into stomach unless large diameter that have remained > 48 hrs
  – 85% pass within 72 hrs in small bowel (radiographs q 3-4 days)

• Cylindrical
  – Remove if remains in stomach > 48 hrs


Overtube
Magnets

- Can cause severe GI injury and death
- Should be removed if possible
- For those beyond, then surgical consultation for nonprogression through GI


Coins

- Can be observed unless symptomatic → emergent removal
- Once in the stomach, conservative management with serial radiographs

Narcotic packets

- Body Packing
- Rupture can be fatal and so endoscopic removal should not be attempted
- Surgical removal for those that fail to progress or s/s of obstruction


Small Bowel Objects

- Balloon enteroscopy
- Retrieval of retained video capsule
- Same principles utilized

Colon Objects

- Objects in colon ingested or inserted rectally
- Use overtubes, protector hoods or clear caps

Emergent Endoscopy

- Pts with esophageal obstructions
- Disk batteries in the esophagus
- Sharp pointed objects in the esophagus
Urgent Endoscopy

- Esophageal objects that are not sharp pointed
- Food impactions without complete obstructions
- Sharp pointed objects in stomach or duodenum
- Objects > 6 cm in length at or above the proximal duodenum
- Magnets within endoscopic reach

Nonurgent Endoscopy

- Coins in the esophagus can be observed for 12-24 hrs before endoscopic removal in asympt pts
- Objects in stomach with > 2.5 cm diameter
- Disk and cylindrical batteries in the stomach w/o signs of injury should be removed after 48 hrs
The End

Thank you