Project: Ghana Emergency Medicine Collaborative

Document Title: Bowel Obstruction

Author(s): Ryan LaFollette, MD (University of Cincinnati), 2013

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BOWEL OBSTRUCTION

Ryan LaFollette MD

University of Cincinnati

Emergency Medicine R2

OBJECTIVES

- Mechanisms
- H&P
- Imaging Modalities
- Initial Management

CASE 1 – WRONG WAY ON A ONE WAY

- 50y F presents with 2 weeks of abdominal pain with increasing nausea/vomiting, being cared for at OSH, sent to you after becoming hypotensive and altered
- VS – HR 110, BP 95/50, Temp 38.3, RR 25, O2 Sat 97% RA
- Exam – Tense peri-umbilical hernia, +rebound, +guarding

MECHANICAL OBSTRUCTION

- Risk Factors
  - Past abdominal surgeries (adhesions)
    - 4% of surgeries, 16% in setting of traumatic perforation
    - History of multiple obstructions predicts future obstructions
  - Hernias (Midline, umbilical, inguinal, femoral)
  - Inflammatory etiologies (Crohn's, Ulcerative Colitis, diverticulitis, etc)
  - Obstruction
    - Tumor, hematoma, intussusception, foreign body ingestion, gallstones
    - Ascaris lumbricoides (typically children, vomiting may contain worms)

MECHANISMS

- Volvulus
  - Gastric
  - Cecal
  - Sigmoid
- Functional
  - Medications (Opiates)
  - Infections (perforations)

- Contents continue to move – so proximal dilation, distal collapse
- Closed loop vs single
  - CT Whirl sign
- Acute vs chronic or acute on partial

EPIDEMIOLOGY

- Functional or Mechanical
- 80% Small Bowel
- 300,000 surgeries in US yearly
- 7-42% with associated ischemia

DIFFERENTIAL

- Anything that causes vomiting…
- Pseduoobstruction
  - Ogilvie's Syndrome (Nausea/Vomiting/Diarrhea with distension/pain) more often colon

COLONIC OBSTRUCTION

- Most often tumor
- Cecal Volvulus
  - Right hemicolectomy
- Sigmoid Volvulus
  - De-torsion and decompression if early

HOW TO RECOGNIZE

History

- Abdominal Pain (>90%)
  - Vague peri-umbilical pain
  - Evolution to peritoneal focal pain indicates poor prognosis
- Vomiting (>80%)
  - Bilious
- Difficulty with flatus (>90%)
- Constipation (>80%)
- Hematochezia (think tumor, inflammation, ischemia, intussusception)
- Proximity to surgery
  - No return of function – think adynamic ileus
  - Cessation of function after return – think adhesive disease

None of these rule in or rule out the diagnosis!

HOW TO RECOGNIZE

Physical Exam

- Abdominal Distension / Tympanic
  - Indicates a more distal obstruction
- High pitched bowel sounds
  - More likely mechanical obstruction
  - Become hypoactive with distension
- Abdominal Tenderness
  - Rebound suggests peritonitis
  - SURGICAL EMERGENCY
- Constipation (>80%)

None of these rule in or rule out the diagnosis!

IMAGING

- XR
- Upper GI Series
- Barium Enema
- CT
- Ultrasound

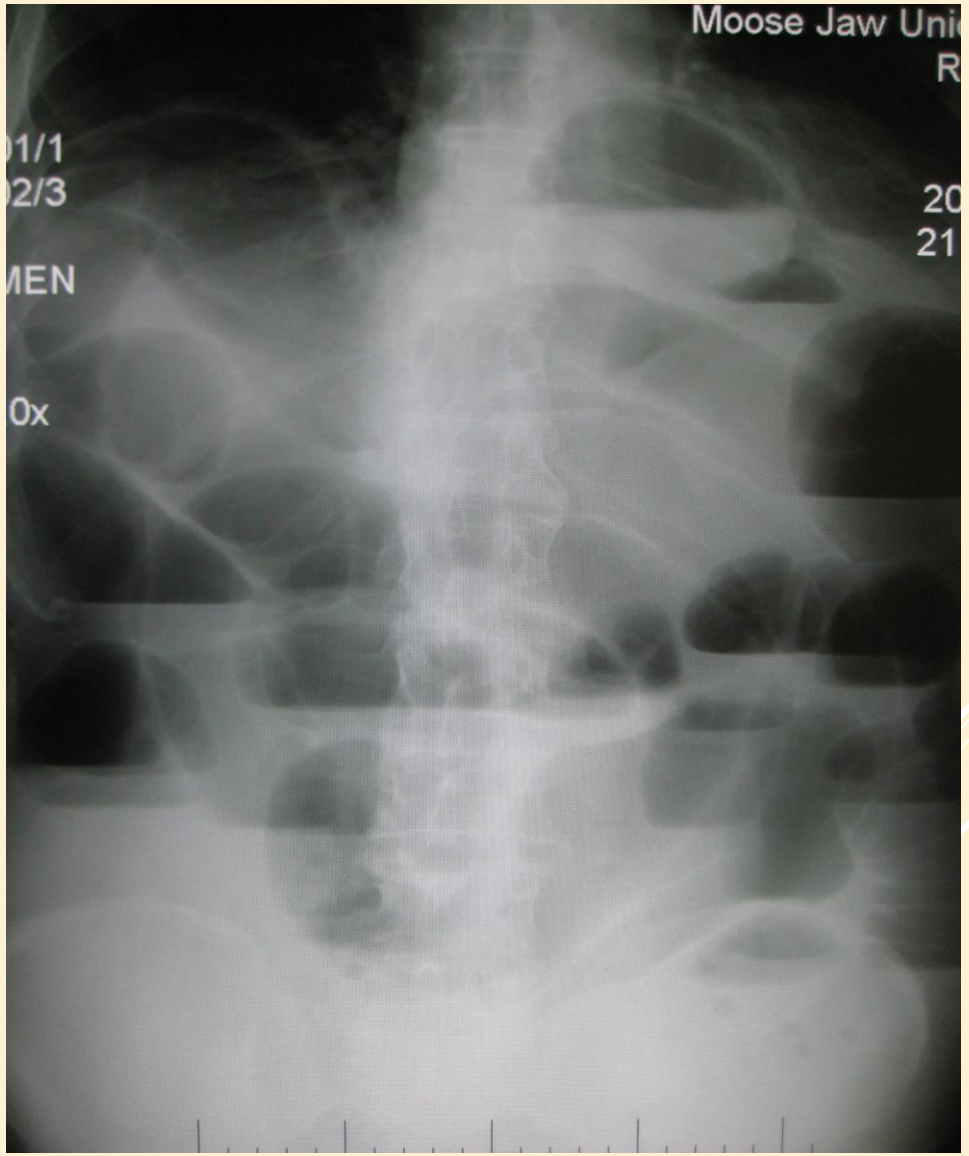
LABS

- CBC
- Electrolytes
- Lactate
- +/- ABG

XRAY

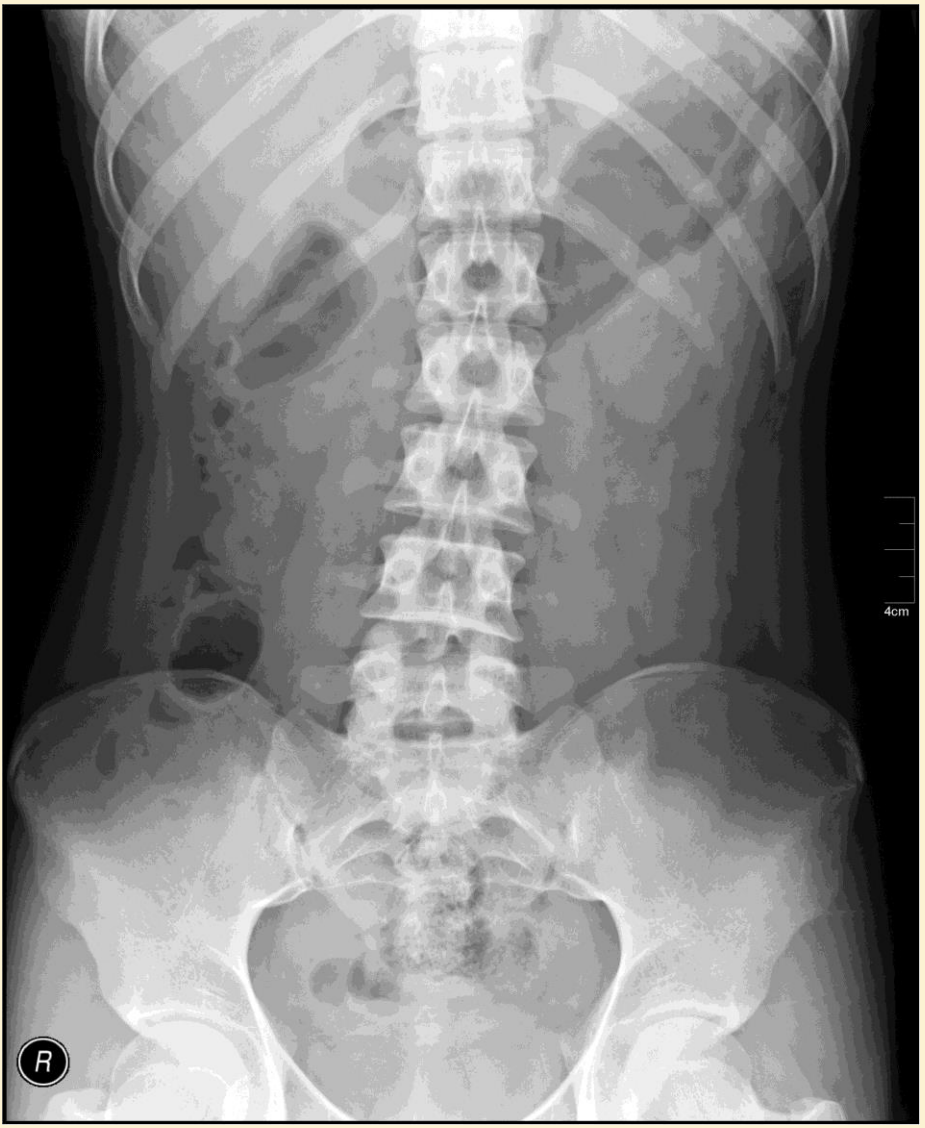
- Supine, upright/decubitus
- Volvulus, free air
- 2.5cm small bowel
- ‘football sign’ on supine
- Psoas sign in retroperitoneal
  - Ascending, descending, duodenum
- Sensitivity – 79-83%
- Specificity – 67-83%
- Accuracy – 64-82%

Air-fluid



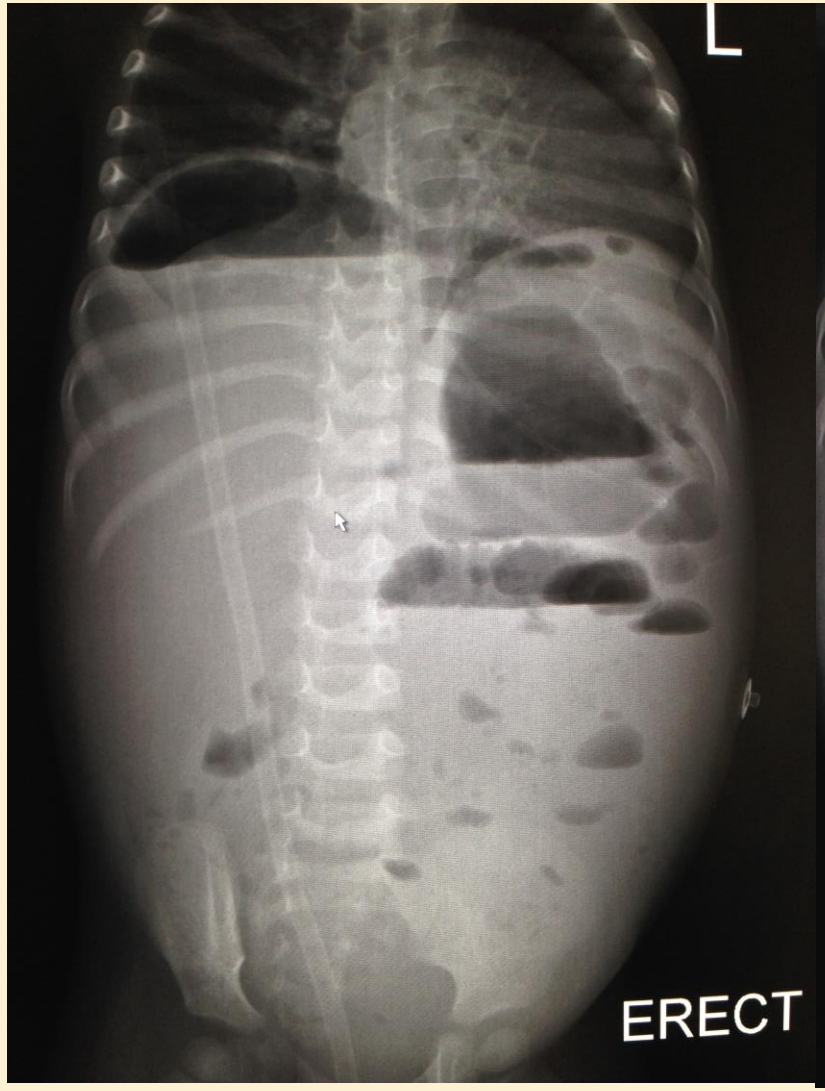
Source Undetermined

Retroperitoneal
Psoas Sign



PD-INEL Source Undetermined

Abdominal Free Air



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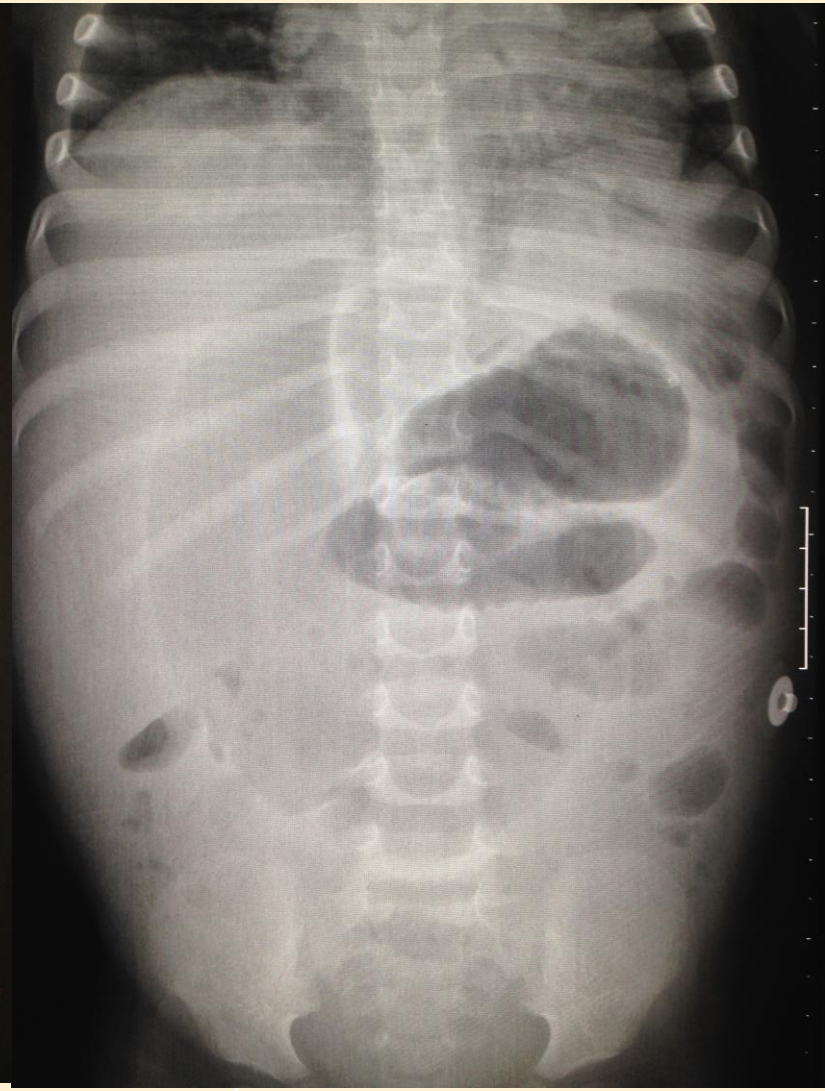

PD-INEL Source Undetermined

CT

- Can identify transition point and complete vs partial (60-70% surgical correlation)
  - Inability to visualize not shown to effect need for surgery
- Again – proximal dilation and distal collapse
- Also may see bowel thickening >3mm, target sign
- Contrast improves transition point visualization but may blunt visualization of ischemia
- Signs of ischemia
  - Venous free air
  - Pneumotosis Intestinalis
  - Edema
- Sensitivity – 93%
- Specificity – 100%

ULTRASOUND

- Sensitivity – 75%
- Specificity – 75%
- Jang et al 2011
  - 10 minute training and 5 SBO scans
  - Positive if >25mm bowel loops or absent or decreased peristalsis
  - Bilateral paracolic gutters, suprapubic, epigastrum
  - Sensitivity – 91%, Specificity – 84%

PEDIATRICS

- Malrotation
  - Cecum in RUQ with peritoneal adhesions compressing duodenum (Ladd bands)
  - May present with volvulus
  - Small Bowel follow through
- Duodenal atresia

MANAGEMENT

- Early Surgical Evaluation
- NG decompression
- Anti-emetics

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