Small Bowel Obstruction

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Background

- Variety of pathological processes
- Partial or complete
- Simple or strangulated
- Multiple different causes
Differential Diagnosis

- Most common reason in developed countries
  - Adhesions
- Extrinsic
- Intramural
- Intraluminal
Pathophysiology

- Proximal dilatation, due to accumulation of GI secretions and swallowed air
- dilatation stimulates cell secretory activity
- distention – increased peristalsis
- strangulation – twist vs venous congestion
- bacterial overgrowth – translocation
Burden of Illness

- SBO – 20% of surgical admissions
- strangulated obstructions – MR 8%, 25% if OR delayed beyond 36h
History

- Pain – colicky vs. constant (change)
- Vomiting – bilious vs. feculent
- Diarrhea (early, incomplete)
- Obstipation
- Fever and tachycardia
- History of previous surgery, radiation, IBD, or CA
Physical Exam

- Abdominal distension
- hyperactive bowel sounds
- hypoactive bowel sounds
- hernia
- rectal exam
- masses
- fever, tachycardia, peritonitis
Investigations

- lytes, creatinine, BUN, CBC
- UA
- X Rays
  - 3 views
  - enteroclysis
  - CT
How to Read Abdominal X-rays

- Technical features
  - date, age, name, gender
  - supine, erect, decubitus

- Intraluminal gas
  - amount and distribution

- Size of loops
  - SB < 3 cm
  - colon < 5 cm
  - cecum < 9 cm
Reading X-rays ctd...

- Differentiating LB SB
  - LB peripheral, haustrae
  - SB central – plicae circularis

- Extrainalinal gas
  - under diaphragm
  - both sides of bowel
  - bowel wall
  - biliary tree
  - portal venous
Reading X-rays ctd...

- Soft tissue and bone
  - major organs (liver, spleen, kidneys)
  - vertebrae
  - pelvis
  - psoas stripe
Reading X-rays ctd...

- Calcification
  - mesenteric arteries
  - pancreas
  - kidneys
  - GB
  - phleboliths
Treatment

- NG tube
- Foley catheter
- IV fluids
- Surgery
  - when?
Stomach and Duodenum

Anatomy - Stomach

- Fundus and body - parietal cells - produce acid
- Antrum - G cells - produce gastrin
- Blood supply - celiac axis
- Innervation - Vagus
- 3 muscular layers: inner circular, longitudinal, then oblique

Anatomy - Duodenum

- 4 parts with 2nd and 3rd retroperitoneal
- Forms a C shape
- Blood supply from celiac (gastroduodenal) and SMA (inferior pancreaticoduodenal)
- 2nd portion contains ampulla of Vater
Physiology

Gastric Juice 500–1500cc/day
  Mucous
  Pepsinogen (chief cells)
  Intrinsic Factor (parietal cells)
  Electrolytes (HCl – parietal cells)

Regulation of Acid Secretion
  Cephalic phase (thinking) – vagal mediation
  Gastric phase (eating) – proteins stimulate gastrin, presence of food stimulates vagus
  Intestinal phase (digestion) – stimulation by food in intestine
Peptic Ulcer Disease (PUD)

Erosion of vulnerable mucosa by acid
Symptoms – pain, dyspepsia, bleeding
  pain may be relieved by food or antacids
  back pain may be associated with posterior penetration
Complications – perforation, hemorrhage, obstruction

Investigations
  UGI Barium
  Endoscopy (biopsy for H. pylori)
  Must repeat endoscopy for gastric ulcers because of
  risk of malignancy

Role of H. pylori
  associated with 90% of DU
  also associated with gastric ulcer and gastric cancer
PUD

Treatment
  PPI
  H. pylori eradication
  Surgery – for complications
Gastric Cancer

Adenocarcinoma (90%)
  less common – lymphoma, GIST
Risk Factors – smoking, ETOH, atrophic gastritis, H. pylori
Incidence 10/100 000 in NA, higher incidence in Asia
Symptoms:
  vague postprandial pain
  anorexia
  GOO
Treatment
  Surgery – resection with lymph nodes
  Poor overall prognosis (12% at 5 years)
Surgical Oncology

What is Surgical Oncology?
Surgical Treatment of Cancer

Principles of Surgery for Cancer:
En-bloc resection
Lymph node dissection for cancers which spread through lymphatics
  Eg. colon, stomach, breast, esophagus
Specific Tumours

Soft Tissue Sarcomas

1% of cancer diagnoses

usually present as asymptomatic mass (most common in limbs and retroperitoneum)

From a mesenchymal origin

liposarcoma, fibrosarcoma, leiomyosarcoma, desmoid

Some familial syndromes

Gardner's (desmoid), von Recklinghausen's (neurofibromatoses)

En bloc resection

Prognosis based on size and grade

Generally Spread via Hematogenous Route

Gastrointestinal Stroma Tumours (GIST) - Gleevec
Specific Tumours

Lymphoma
Hodgkin’s
  Presence of Reed–Sternberg cells
    lymphocyte predominant (best prognosis)
    lymphocyte depleted
    nodular sclerosing (most common)
    mixed
Ann Arbour
  I – one lymph node site
  II – 2 or more on same side diaphragm
  III – both sides diaphragm
  IV – disseminated or extranodal
Specific tumours

Lymphoma

Non-Hodgkin’s

B–cells, T–cells or histiocytes

Extranodal sites

mucosa, Bone marrow, skin

indolent or aggressive

indolent grow more slowly but less likely to be cured than aggressive
Scenarios

A 50-year-old man comes to the emergency room with a history of vomiting for three days' duration. His past history reveals that for approximately 20 years, he has been getting epigastric pain, lasting for two to three weeks. He remembers getting relief from pain by taking milk and antacids. Physical examination showed a fullness in the epigastric area with visible peristalsis, absence of tenderness and normal active bowel sounds. Which one of the following is the most likely diagnosis?
1) gastric outlet obstruction
2) small bowel obstruction
3) volvulus of the colon
4) incarcerated umbilical hernia
5) cholecystitis
Scenarios

A 68-year-old man presents with a chief complaint that solid food gets stuck in the middle of his chest. In addition, he admits to a 11 kg weight loss over the last 3 months. Which one of the following is the most likely diagnosis?

1) esophagitis
2) lower esophageal ring
3) esophageal carcinoma
4) cerebrovascular accident
5) myocardial infarction
Scenarios

Peptic ulcer patient complaints of pain radiating to back.
Diagnosis
a) perforation
b) penetration
c) hemorrhage
d) Gastric outlet obstruction
Scenarios

Gastric ulcer patient. Treated for 12 weeks. Asymptomatic now. When gastroscopy done ulcer is still present. Negative for malignancy and H.pylori. What to do?

a) treat for 8 more weeks
b) life long H2 receptor blocker
c) follow up only
d) partial gastrectomy with excision of ulcer