General signs and symptoms of abdominal diseases

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Symptoms

• A. Abdominal pain
• B. Gastrointestinal hemorrhage
• C. Malabsorption
• D. Diarrhea.
Abdominal pain/Origin

- Stretching of a hollow organ or tension in the wall of an organ
- Inflammation
- Ischemia
- Referred pain to extraabdominal sites (sympathetic pathways—spinal sensory neurons also receive input from peripheral nonpain neurons)
Abdominal pain/Patterns

• Visceral-dull poorly localized
• Parietal peritoneum inflammation-intense, well localized
• Referred- superficial, inervated by the same spinal segment
## Abdominal pain/Acute

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>DISEASES</th>
<th>PAIN QUALITY/CHARACTERISTICS</th>
<th>PAIN REFERRAL</th>
<th>PAIN PROGRESSION</th>
<th>ASSOCIATED FINDINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Onset Pain</td>
<td>Perforated duodenal ulcer</td>
<td>Severe; may have history of chronic ulcer pain</td>
<td>Back</td>
<td>Rapidly progresses over the entire abdomen</td>
<td>Abdominal guarding, Free air in peritoneal cavity on x-ray, Fever</td>
</tr>
<tr>
<td></td>
<td>Acute cholecystitis</td>
<td>Colicky or steady</td>
<td>Tip of scapula</td>
<td>Pain intensity steadily increases over hours</td>
<td>Localized tenderness, Gallstones visible on ultrasound examination, ⁹⁹ᵐ⁻TeHIDA scan fails to visualize gallbladder</td>
</tr>
<tr>
<td></td>
<td>Acute pancreatitis</td>
<td>Steady Boring</td>
<td>Back</td>
<td>Pain localizes to right upper quadrant</td>
<td>Nausea and vomiting, Epigastric tenderness</td>
</tr>
<tr>
<td>Periumbilical</td>
<td>Small bowel obstruction</td>
<td>Cramping</td>
<td>Back</td>
<td>Peritoneal signs may appear later in severe cases</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Appendicitis</td>
<td>Cramping Steady</td>
<td>Back or groin in some cases</td>
<td>Pain localizes to right lower quadrant</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Intestinal infarction</td>
<td>Severe aching May be diffuse</td>
<td>Back</td>
<td>Progresses to peritonitis</td>
<td>—</td>
</tr>
<tr>
<td>Lower quadrants</td>
<td>Dissecting aortic aneurysm</td>
<td>Sudden, severe Boring, tearing May be periumbilical Steady</td>
<td>Flank, Inguinal regions</td>
<td>—</td>
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</tr>
<tr>
<td></td>
<td>Diverticulitis</td>
<td>Sudden, severe Aching</td>
<td>Back</td>
<td>Abdominal bruit, Abdominal pain, Palpable inflammatory mass</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Colon obstruction</td>
<td>Sudden, severe Aching</td>
<td>Back</td>
<td>Constipation, Fever, leukocytosis, Vomiting, Constipation (sometimes diarrhea), Abdominal distention</td>
<td>Hyperactive bowel sounds, Nausea and vomiting, Dilated bowel loops with air-fluid levels on x-ray, Abdominal distention, Localized tenderness on abdominal and rectal examination, Occult blood in feces, Decreased or absent bowel sounds, Initial examination may be unimpressive, Lactic acidosis, shock, Shock, Abdominal distention, Hyperactive bowel sounds</td>
</tr>
</tbody>
</table>
Free abdominal air
Bowel obstruction
### Abdominal pain/chronic

<table>
<thead>
<tr>
<th>Chronic Pain</th>
<th>Subternal</th>
<th>Epigastric</th>
<th>Periumbilical</th>
<th>Lower quadrants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Reflux esophagitis</strong></td>
<td><strong>Duodenal ulcer</strong></td>
<td><strong>Intestinal angina</strong></td>
<td><strong>Irritable bowel syndrome</strong></td>
</tr>
<tr>
<td></td>
<td>Burning</td>
<td>Gnawing, burning</td>
<td>Colicky</td>
<td>Cramping</td>
</tr>
<tr>
<td></td>
<td>Often after meals or at night</td>
<td>Often between meals and at night</td>
<td>Aching</td>
<td>Aching</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>Occasionally to the back</td>
<td>—</td>
<td>May be diffuse, lower quadrants</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
<td>Occurs after meals</td>
<td>—</td>
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<td>—</td>
<td>—</td>
<td>Pain remits in 1-2 hours</td>
<td>—</td>
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<tr>
<td></td>
<td>—</td>
<td>—</td>
<td>Weight loss</td>
<td>—</td>
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<tr>
<td></td>
<td>Bitter or sour fluid in the mouth</td>
<td>Relief with food or antacids</td>
<td>Occasional relief with food or antacids</td>
<td>Alternating constipation and diarrhea</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
<td>Some relief by antacids</td>
<td>Bloating, “gassy” sensation</td>
</tr>
</tbody>
</table>
Abdominal pain and nausea, vomiting

- Obstruction
- Motility disorders
- Peritoneal irritation
- Drugs, gastric mucosa irritants
- Other-intracranial pressure increase, psychogenic, pregnant, alcoholics
Abdominal pain/ Management

- **Potential lethal problems** - need for prompt surgical or medical intervention
- **Rule out extraabdominal causes:**
  - Thorax - pneumonia, inferior myocardial infarction
  - Spine - radiculitis
  - Genitalia - torsion of the testis
  - Metabolic causes: uremia, diabetic ketoacidosis, porphyria, lead poisoning
  - Neurogenic causes: herpes zoster, tabes dorsalis
Abdominal pain/Management

- History, associated symptoms
- Observation: restlessness, or immobile
- Palpation: tenderness-guarding, rigidity-signs of peritoneal irritation, presence of masses or incarcerated hernias
- Percussion: fluid in the abdomen, bowel distension
- Auscultation: bowel sounds
Abdominal pain/ Management

- Rectal digital examination
- Laboratory tests: Ht, wbc, differential, glucose, bilirubin, electrolytes, BUN, transaminase, amylase, lipase, urinalysis, stool for occult blood or pus
- Imaging procedures: plain films-free air, intestinal gas pattern, stones US, TcHida
- Endoscopic procedures
Acute appendicitis with stone
Acute appendicitis US
Gallbladder stones
Necrotizing colitis
Obstructive uropathy
Tc-HIDA
Gastrointestinal hemorrhage

- Acute, chronic
- Hematemesis: vomiting of bright red blood or coffee grounds gastric contents- bleeding site is proximal to the lig. of Treitz
- Melena: passage of black tarry stool/blood loss is greater than 500ml- cause most often upper GI bleeding
- Hematochezia: passage of bright red or maroon-colored stools- cause most often lower GI bleeding
## Gastrointestinal hemorrhage/ Causes

<table>
<thead>
<tr>
<th>UPPER GI</th>
<th>UPPER OR LOWER GI</th>
<th>LOWER GI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duodenal ulcer</td>
<td>Neoplasms</td>
<td>Hemorrhoids</td>
</tr>
<tr>
<td>Gastric ulcer</td>
<td>Arterial-enteric fistulas</td>
<td>Anal fissure</td>
</tr>
<tr>
<td>Anastomotic ulcer</td>
<td>Vascular anomalies</td>
<td>Diverticulosis</td>
</tr>
<tr>
<td>Esophagitis</td>
<td>Angiodysplasia</td>
<td>Ischemic bowel disease</td>
</tr>
<tr>
<td>Gastritis</td>
<td>Arteriovenous malformations</td>
<td>Inflammatory bowel disease</td>
</tr>
<tr>
<td>Mallory-Weiss tear</td>
<td>Hematologic disease</td>
<td>Meckel’s diverticulum</td>
</tr>
<tr>
<td>Esophageal varices</td>
<td>Elastic tissue diseases</td>
<td>Solitary colonic ulcer</td>
</tr>
<tr>
<td>Hematobilia</td>
<td>Pseudoxanthoma elasticum</td>
<td>Intussusception</td>
</tr>
<tr>
<td></td>
<td>Ehlers-Danlos syndrome</td>
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<tr>
<td></td>
<td>Vasculitis syndrome</td>
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</tbody>
</table>
Recognition of hemorrhage and assessment of severity

↓

Hemodynamic resuscitation

↓

History and physical
Pass nasogastric (NG) tube

Hematemesis, or blood in NG aspirate, or melena only
Hx: peptic ulcer disease, analgesics, alcohol, signs of cirrhosis)

NO

YES

Hematochezia
Hx: hemorrhoids, polyps, diverticulitis, rectal mass

NO

YES

GI endoscopy
Melena only, no lesion or bleeding seen

Anoscopy
Proctosigmoidoscopy

Bleeding minimal or stopped

Elective colonoscopy
Negative

Consider:
Small bowel series
Meckel's scan
Arteriography

Consider:
Red cell radionuclide scan
Arteriography

Urgent bowel prep and colonoscopy
Gastric ulcer bleeding
Bleeding from colonic diverticulum
Malabsorption

• Early manifestations: change in bowel habits, more bulky or oily stools, flatulence

• Late manifestations: edema, weight loss, paresthesias, anemia, petechiae, hematuria, glossitis, abdominal distension, borborygmi
Correlation of data in maldigestion and malabsorption

<table>
<thead>
<tr>
<th>CLINICAL FEATURES</th>
<th>LABORATORY FINDINGS</th>
<th>PATHOPHYSIOLOGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wasting, edema</td>
<td>↓ Serum albumin</td>
<td>↑ Albumin loss (gut), ↓ protein ingestion, ↓ protein absorption</td>
</tr>
<tr>
<td>Weight loss, oily bulky stools</td>
<td>↑ Stool fat excretion, ↓ serum carotene</td>
<td>↓ Ingestion and absorption fat, CHO, protein</td>
</tr>
<tr>
<td>Paresthesias; tetany</td>
<td>↓ Serum Ca(^{++}), ↑ alkaline phosphatase, ↓ mineralization bones (x-ray), ↓ serum Mg(^{++})</td>
<td>↓ Absorption Ca(^{++}), vitamin D, Mg(^{++})</td>
</tr>
<tr>
<td>Ecchymoses, petechiae, hematuria</td>
<td>↑ Prothrombin time</td>
<td></td>
</tr>
<tr>
<td>Anemia</td>
<td>Macrocystosis, ↓ serum vitamin B(<em>{12}), ↓ absorption vitamin B(</em>{12}) and/or folic acid, microcytosis, hypochromia, ↓ serum iron, no iron in marrow</td>
<td>↓ Absorption vitamin K</td>
</tr>
<tr>
<td>Glossitis</td>
<td>↓ Serum vitamin B(_{12}), folic acid</td>
<td>↓ Absorption vitamin B(_{12}) and/or folic acid</td>
</tr>
<tr>
<td>Abdominal distention, borborygmi, flatulence, watery stools</td>
<td>↓ Xylose absorption, ↓ disaccharidases in intestinal biopsy, fluid levels, small intestine (x-ray)</td>
<td>↓ Absorption B vitamins, ↓ Hydrolysis, disaccharides and ↓ absorption, monosaccharides and amino acids</td>
</tr>
</tbody>
</table>
Malabsorption / Causes

**Inadequate Digestion**
- Pancreatic exocrine deficiency
  - primary—e.g., chronic pancreatitis, cystic fibrosis, carcinoma of the pancreas
  - secondary—gastrinoma with acid inactivation of pancreatic lipase
- Intraluminal bile salt deficiency
  - liver disease—especially biliary cirrhosis
  - disease or bypass of the terminal ileum—impaired recycling mechanism
- Bacterial overgrowth syndrome—increased deconjugation of bile salts
- Specific abnormalities—disaccharidase deficiencies

**Inadequate Absorption**
- Inadequate absorptive surface—e.g., short bowel syndrome, bypass fistulas, extensive Crohn's disease
- Specific mucosal cell defects
  - genetic—abetalipoproteinemia, Hartnup disease, cystinuria, monosaccharide absorptive defects
  - acquired—hypovitaminosis D
- Diffuse disease of the small intestine
  - immunologic or allergic injury—celiac disease (gluten-sensitive enteropathy), eosinophilic enteritis, Crohn's disease
  - infections and infestations—Whipple’s disease, giardiasis, tropical sprue, bacterial overgrowth syndrome
  - infiltrative disorders—lymphoma, mastocytosis, amyloidosis
  - fibrosis—systemic sclerosis, radiation enteritis

**Lymphatic Obstruction**
- Lymphangectasia
- Whipple’s disease
- Lymphoma

**Multiple Mechanisms**
- Postgastrectomy steatorrhea
- Bacterial overgrowth syndrome
- Disease or bypass of the distal ileum
- Scleroderma, lymphoma, Whipple’s disease
- Diabetes mellitus

**Drug-induced Malabsorption**
- Neomycin, cholestyramine, antacids, ethanol, chronic ingestion of laxatives, biguanides

**Hyperabsorptive “Malabsorption”**
- Hemochromatosis, hypervitaminosis D
- Enteral hyperoxaluria
Diarrhea

• Increase in stool liquidity and weight (more than 200gm/day)
• Associated with increased stool frequency, urgency perianal discomfort and/or fecal incontinence
Table 34-8. Classification of Diarrhea

<table>
<thead>
<tr>
<th>TYPE</th>
<th>MECHANISM</th>
<th>EXAMPLES</th>
<th>CHARACTERISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Secretory</td>
<td>Increased secretion and/or decreased absorption of Na⁺ and Cl⁻</td>
<td>Cholera, VIP-secreting tumor, Bile salt enteropathy, Fatty acid–induced diarrhea, Lactose intolerance (lactase deficiency), Generalized malabsorption (particularly carbohydrates, Mg²⁺-containing laxatives)</td>
<td>Large volume, watery diarrhea, No blood or pus, No solute gap, Little or no response to fasting, Watery stool, no blood or pus, Improves with fasting, Stool may contain fat globules or meat fibers and may have an increased solute gap</td>
</tr>
<tr>
<td>2. Osmotic</td>
<td>Nonabsorbable molecules in gut lumen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Inflammatory</td>
<td>Destruction of mucosa, Impaired absorption, Outpouring of blood, mucus</td>
<td>Ulcerative colitis, Shigellosis, Amebiasis, Bowel resection, Enteric fistula</td>
<td>Small frequent stools with blood and pus, Fever, Variable</td>
</tr>
<tr>
<td>4. Decreased absorptive surface</td>
<td>Impaired reabsorption of electrolytes</td>
<td>Hyperthyroidism, Irritable bowel syndrome</td>
<td>Variable</td>
</tr>
<tr>
<td>5. Motility disorder</td>
<td>Increased motility with decreased time for absorption of electrolytes and/or nutrients, Decreased motility with bacterial overgrowth</td>
<td>Scleroderma, Diabetic diarrhea</td>
<td>Malabsorption</td>
</tr>
</tbody>
</table>

*Diarrhea is, in many instances, due to a combination of mechanisms. The diarrhea of generalized malabsorption, for example, is attributable to osmotic and secretory diarrhea as well as to decreased absorptive surface.