Diverticular Disease of the Colon
EPIDEMIOLOGY

- Overall prevalence - 12% to 49%
- Increases with age
  - < 10% in those younger than 40 years
  - > 50% to 66% of patients 80 years
- As common in men and women
- Men - higher incidence of diverticular bleeding
- Women - more episodes of obstruction or stricture
Disease of Western civilization

- Extraordinarily rare in rural Africa and Asia
- Highest prevalence rates - United States, Europe, and Australia
- Increase with urbanization
### Factors That Influence the Risk for Diverticulosis

**Increased Risk**

<table>
<thead>
<tr>
<th>Risk Factor</th>
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<tbody>
<tr>
<td>Increasing age</td>
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<tr>
<td>Dietary meat intake</td>
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<tr>
<td>Living in Western countries (e.g., United States, Western Europe, Australia)</td>
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<td>Connective tissue diseases</td>
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**Decreased Risk**

<table>
<thead>
<tr>
<th>Risk Factor</th>
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<tbody>
<tr>
<td>High dietary fiber intake</td>
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<tr>
<td>Living in predominantly rural Asian or African countries (e.g. Kenya, Jordan, Thailand)</td>
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Pseudodiverticula

Conspicuously absent from the portion of colon between the two antimesenteric taenia
Location

- In Western countries - left colon
  - 90% -- sigmoid
  - 15% have right-sided

- In Asian countries -- right-sided
Spectrum

• UNCOMPLICATED DIVERTICULOSIS
  (A) ASYMPTOMATIC DIVERTICULOSIS
  (B) SYMPTOMATIC UNCOMPLICATED DIVERTICULAR DISEASE (SUDD)

• COMPLICATED DIVERTICULOSIS
  (A) DIVERTICULITIS
    - UNCOMPLICATED DIVERTICULITIS - localized phlegmon
    - COMPLICATED DIVERTICULITIS - abscess, free perforation with peritonitis, fistula, or obstruction
  (B) BLEEDING
## Hinchey Classification of Colonic Diverticular Perforation

<table>
<thead>
<tr>
<th>I</th>
<th>Confined pericolic abscess</th>
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<tr>
<td>II</td>
<td>Distant abscess (retroperitoneal or pelvic)</td>
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<tr>
<td>III</td>
<td>Generalized peritonitis caused by rupture of a pericolic or pelvic abscess (<em>not communicating</em> with the colonic lumen because of obliteration of the diverticular neck by inflammation)</td>
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<tr>
<td>IV</td>
<td>Fecal peritonitis caused by free perforation of a diverticulum (<em>communicating</em> with the colonic lumen)</td>
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Diagnosis

- **Plain Films** - abnormal in 30% to 50%
- **Contrast Enema Examinations** - only water-soluble contrast enemas, such as Gastrografin, should be used
- A gentle, **single-contrast study** should be performed and terminated once findings of diverticulitis are discovered,
- Findings -- extravasated contrast material with or without the outlining of an abscess cavity, an intramural sinus tract, or a fistula
Computed Tomography-

- Diagnostic procedure of choice for acute diverticulitis
- Because diverticulitis is mainly an extraluminal disease
- CT criteria for diverticulitis-
  - presence of diverticula
  - with pericolic infiltration of fatty tissue (often appearing as fat stranding),
  - thickening of the colon wall
  - and formation of abscesses
Endoscopy

- Suspected acute diverticulitis - endoscopy generally is avoided (risk of perforation, either from the instrument itself or from air insufflation)
- Once the acute phase has passed (one to three months later), a colonoscopy should be electively performed to exclude competing diagnoses, particularly neoplasia
Treatment - Uncomplicated diverticulitis
Outpatient management – When?

- Mild symptoms
- No peritoneal signs
- The ability to take oral fluids
- Supportive home network
- **These patients should be treated with a clear liquid diet and antibiotics.**
- Mixed aerobic and anaerobic organisms
  
  \((Escherichia\ coli,\ Streptococcus\ species,\ and\ Bacteroides\ fragilis)\)
Hospitalization - When?

- Elderly
- Immunosuppressed
- Severe comorbidities
- High fever / significant leukocytosis
- Bowel rest / Intravenous fluid
- Broad-spectrum intravenous antibiotics should be started
• If improvement continues, patients may be discharged, but they should complete a seven- to 10-day course of oral antibiotics.

• Failure to improve with conservative medical therapy warrants a diligent search for complications, consideration of alternative diagnoses, and surgical consultation
COMPLICATED DIVERTICULITIS

• Abscess

• Small pericolic abscesses (Hinchey stage I)
  • Noninterventional management- with broad-spectrum antibiotics and bowel rest
  • Continued of abscesses should be considered only in stable patients who demonstrate unequivocal improvements in pain, fever, tenderness, and leukocytosis over the first few days of therapy.

• Percutaneous catheter drainage
Hinchey stage II - surgery

- Single operation (resection with primary anastomosis) have become the preferred surgical approaches
- Two-stage management - *Hartmann procedure*
• CT-guided percutaneous drainage of abdominal abscesses has assumed a prominent complementary role to surgery
• It often eliminates the need for a multiple-stage surgical procedure with colostomy
Hinchey stages III or IV

• Surgical emergency and requires urgent operative intervention
Fistula

- Fewer than 5% of patients
- Single-stage operative resection with fistula closure and primary anastomosis could be performed in 75% of patients
• Obstruction
• Obstruction can accompany diverticular disease either acutely or chronically
DIVERTICULAR HEMORRHAGE

• Most common identifiable cause of significant lower gastrointestinal bleeding
• (30% to 40% of cases)
• Western patients/ Asian patients - right-sided
• Intimal thickening and medial thinning of the vasa recta as it coursed over the dome of the diverticulum.
• Segmental weakening of the artery, thus predisposing to its rupture.
Nonsteroidal anti-inflammatory drugs (NSAIDs) have been implicated in lower intestinal, and specifically diverticular, bleeding.
CLINICAL FEATURES

• Abrupt, painless hematochezia
• Arterial, the volume of blood usually is moderate or large
• Patients often pass red or maroon clots; melena is unusual
• Neither a positive fecal occult blood test nor iron-deficiency anemia should be attributed to diverticular hemorrhage
• Bleeding ceases spontaneously in 70% to 80% of patients
• Rebleeding rates range from 22% to 38%.
DIAGNOSIS AND TREATMENT

- Resuscitation
- If bleeding is massive or if the patient remains unstable after attempted resuscitation, early angiography to attempt bleeding localization and surgical consultation should be obtained.
• A stable patient with suspected active or recent diverticular bleeding should undergo bowel preparation for a colonoscopy
• If diverticula are found but bleeding has stopped and no other colonic causes are found, a presumptive diagnosis of diverticular hemorrhage is made and the patient should be instructed to avoid NSAIDs and anticoagulants, if possible.
• As noted, most patients with diverticular hemorrhage do not rebleed
• The endoscopic identification of active bleeding
• Stigmata of recent hemorrhage stigmata—visible vessel or adherent clot within a diverticulum
• The use of epinephrine injection alone or in combination with other therapies such as heater probe coagulation, bipolar coagulation endoclips, fibrin sealant, and band ligation
• If endoscopic therapy is not effective or durable, localizing the site facilitates directed therapy with angiography or segmental surgical resection
• When active bleeding is present but colonoscopy fails to allow localization or treatment of a bleeding source, further evaluation with nuclear scintigraphy (tagged red blood cell scan) or angiography can be undertaken
• Surgery for lower intestinal bleeding usually is avoided unless endoscopic or angiographic therapies are unavailable or fail