Colon, Rectum, and Anus

South College PA Surgical Course
Colon and Rectum

- Terminal portion of GI tract
- Two functions
  - Absorption of water, electrolytes
  - Storage of feces
- Biologically not essential
- Disease is very common
Anatomy

- Multiple parts
- Retroperitoneal and peritoneal portions
- External longitudinal muscle layers—teniae coli
- Rectum—15 cm, external layer continuous
- Anus—3-4 cm from dentate line to anal verge
- Above dentate line—insensate
Anatomy

- Blood supply to colon from superior and inferior mesenteric arteries
- Junction—relatively poor blood supply
- Rectum—three sources—IMA, internal iliac, internal pudendal
- Venous drainage of rectum to IMV/portal and to systemic circulation
- Connected by venous cushions--rrhoids
Diagnosis

- Digital rectal exam
- Endoscopy—routine after 50, q 3-5 years
- Abdominal series—pneumoperitoneum, obstruction, volvulus
- Contrast studies
- CT scan
- Angiography/nuclear study
Terminology

- **Ostomy**—external opening
  - Colostomy, ileostomy
- **Distal segment**
  - Mucus fistula, Hartmann’s pouch, loop
- **-ectomy**—resection
  - Colectomy, proctocolectomy, abdominoperineal resection (APR), low anterior resection
The rectal stump remains in place

End colostomy

This part of the large bowel is removed
Diverticular Disease

- True diverticula—all layers, rare in colon
- Acquired (false or pseudo-) diverticula—mucosal herniation through muscle
  - Related to diet, straining, age
- Diverticulosis—presence of diverticula
- Diverticulitis—infectious process
Diverticulosis

- Multiple false diverticula of colon
- Most commonly in sigmoid
- 80% asymptomatic finding on BE, other study
- Symptoms—LLQ pain, change in bowel habits, bleeding
- Treatment—high fiber diet
Diverticulitis

- Obstructed, infected diverticula
- Micro or macro perforation
- 1/6 of patients with –osis will have –itis
- Pain, change in bowel habits, possible mass, fever, white count, peritoneal signs
- Complications—44% perf or abscess, 8% fistula, 4% obstruction
- Diagnosis—CT, BE, scope later
- Treatment—antibiotics, hydration, NPO
- Surgery for severe complication or repeated bouts
Fistula formation

- Colovesical most common (4%)
  - UTI, fecaluria, pneumaturia
  - Other causes—cancer, Crohn’s, radiation, trauma

- Diagnosis—contrast—BE, cysto, IVP, methylene blue

- Treatment--surgical
Diverticular Bleeding

- Bleeding primary symptom in 5-10%
- Occasionally massive (>4 units in 24 hours)
- Bleeding distal to Ligament of Treitz—70% diverticular, 25% is massive
- Differential—angiodysplasia, solitary ulcers, varices, cancer, rarely IBD
- Diagnosis—endoscopy, angio
Colonic Polyps

- Inflammatory polyps (pseudopolyps)—IBD
- Hamartomas (juvenile polyps, Peutz-Jehgers syndrome)—benign, may regress
- Adenomas—premalignant, esp. >2-3 cm
  - Tubular-7%, tubulovillous-20%, villous-33%
- Pedunculated—on stalk, remove by scope
- Sessile (flat)—remove surgically
- Familial polyposis or Gardner’s syndrome—total abdominal colectomy, mucosal proctectomy, ileoanal pullthrough
Colon Cancer

- 55,000 deaths annually
- 140,000 new cases each year
- More occur on lower left side?
- Synchronous (simultaneous) in 5%
- Metachronous (second develops after resection) in 3-5%
- Peak at 70, start in 4th decade
- Familial polyposis, Gardner’s, UC, Crohn’s, polyps
Colon Cancer

- 5 year survival—60%

- Effective screening

- Effective screening strategies, based on risk
  - Mild risk factors—age, diet, physical inactivity, obesity, smoking, race, alcohol
  - Intermediate risk factors—personal history of colon cancer or adenoma or strong family history
  - High risk factors—familial polyposis, Gardner’s, patients with UC or Crohn’s for > 10 years
Screening—Mild Risk

- Beginning at age 50, one of below:
  - Yearly fecal occult blood test plus flexible sigmoidoscopy q 5 years
  - Flex sig q 5 years
  - Yearly fecal occult blood test
  - Colonoscopy q 10 years
  - Double contrast BE q 5 years
Screening—Greater Risk

- Intermediate risk
  - Begin at 40
  - Do more frequently—q 3-5 years
- High risk—function of duration
  - Blood tests for familial polyposis, HNPCC
  - Screening begin in teens
  - UC/Crohn’s for 10 years, annual colonoscopy
  - Consider prophylactic total colectomy
Colon Cancer—Signs and Symptoms

- **Right-sided**—occult blood loss, anemia
- **Left-sided**—obstruction, macro bleeding
- **Rectal**—bleeding, obstruction, alternating diarrhea and constipation
- **Change in bowel habits and/or bleeding:**
  - Rectal exam, occult blood test
  - BE or colonoscopy
Colon Cancer—Preop Evaluation

- Colonoscopy—synchronous lesions
- CT-- + or -
- CEA blood test
- Treatment—surgery to remove primary, evaluate extent of spread, allow staging and plan further therapy
Colon Cancer--Staging

- Dukes-Astler-Coller System
- TMN Staging
- Both evaluate extent of penetration through colon, nodal involvement, and distal mets
- Adjuvant chemotherapy—5FU, others
- Radiation, especially in pelvis
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Curative resection, no adjuvant therapy indicated
- Monthly exam, bimonthly CEA, scope or BE q 6 months for first two years
- PET scan
- CT scans
IBD—Ulcerative Colitis

- Mucosa and submucosa of colon and rectum
- Bimodal distribution—2/3 occur at 15-30, remainder at 55
- 10/100,000 population
- Family history in 20%
- Rectum involved in >90% with proximal extension
Ulcerative Colitis

- Presentation—variable
  - Watery diarrhea with blood, pus, mucus
  - Cramping, abdominal pain, tenesmus, urgency
  - Weight loss, dehydration, pain, fever
  - Fulminant—toxic megacolon, sepsis, shock
  - Extraintestinal signs: ankylosing spondylitis, peripheral arthritis, uveitis, pyoderma gangrenosum, sclerosing cholangitis, pericholangitis, pericarditis
  - Complications: toxic megacolon, colon perforation, massive hemorrhage, anorectal complication, cancer
IBD—Crohn’s Disease

- Transmural disease, anywhere in GI tract
- Minority—limited to colorectal
- Also bimodal distribution
- Commonly in terminal ileum
- Differs from UC: rectal sparing, skip lesions, aphthous sores, linear ulcers
Colon Obstruction

- 10-15% of intestinal obstructions
- Most commonly sigmoid
- Adenocarcinoma—65%, diverticulitis scarring—20%, volvulus—5%
- Inflammatory disorders, benign tumors, foreign bodies, fecal impaction
- Adhesive bands—rare in colon
Colon Obstruction

- Presentation—abdominal distention, cramping abdominal pain, nausea and vomiting, obstipation
- Radiographs—distended proximal colon, air-fluid levels, no rectal air
- Barium enema or scope may define area of obstruction
- IV fluids, NPO, NG suction
- Emergent lap for cecum > 12 cm or peritoneal signs
 Colon Obstruction

- Ogilvie’s syndrome—nonobstructive dilation
- Volvulus—rotation on axis of mesentery
  - 5-10% of large bowel obstructions
  - Sigmoid—70%
  - Cecal—30%
- More common in elderly
Cecal Volvulus
Sigmoid Volvulus
Anus and rectum

- Pain, protrusion, bleeding, discharge
- Everyone complains of hemorrhoids
- Must examine, but be gentle
- Inspection—fissures, skin tags, hemorrhoids, fistulae, tumors, dermatologic or infectious conditions
- Digital exam—tumors, polyps, sphincter weakness
Rectal Prolapse

- Procidentia
- Full thickness intussusception of rectum through anal opening
- More common in thin women
- Symptoms—rectal pain, mild bleeding, incontinence, mucous discharge, moisture
Hemorrhoids

- Precipitated by constipation, straining, pregnancy, increased pelvic pressure (ascites, tumor), portal hypertension, diarrhea
- Found in 3 positions: left lateral, right anterior, right posterior
- Internal—above dentate line, external below
Hemorrhoids

- Presentation—protrusion, bleeding, pain
- Protrusion—4 degrees, 1\(^{st}\) don’t, 2\(^{nd}\) do with stool, then reduce, 3\(^{rd}\) must be reduced, 4\(^{th}\) won’t reduce
- Bleeding usually minimal, coats stool
- Pain with thrombosis, ulcer, gangrene
Pain in the -

- Perianal or perirectal abscesses—pain, fever, swelling
- Fistula-in-ano—connection between anus and skin—chronically drain pus
- Anal fissures—most common cause of anorectal pain
  - Linear tears in lining of anal canal
  - Worse with defecation
  - Sphincter spasm
Other Anorectal Conditions

- Anal malignancy—3-4% of colorectal CA
  - Epidermoid CA or malignant melanoma
- STD’s—anal condyloma (HPV), Chlamydia and lymphogranuloma venereum, gonorrhea, herpes simplex