---Colon, Rectum, and Anus---

Basics

Large intestine (LI) dz more common than SI dz
Rectum = 15cm; anal canal = 3cm
Dentate line – longitudinal folds (rectal columns – perianal gland secretions here)
Hemorrhoidal arteries: superior (IMA), middle (int iliac A), inferior (int pudendal A)
Rectal veins: upper drains into IMV, middle into int iliac V, inferior into int pudendal V
Colon activity primarily controlled by regional reflexes from submucosal plexus (spinal cord transaction pts maintain fairly nl bowel fxn)
Colon lacks villi (less absorptive area vs SI)
Fxns of colon: 1. Water/electrolyte absorption 2. Storage of feces (non essential fxns)
Approx 800ml flatus/day (mostly N2 from swallowed air)
Transit thru colon 18-48 hours (vs 4 hours in SI)
#1 anaerobe: Bacteroides fragilis; #1 aerobe: E coli/Enterococci

Diagnostics

XR: abdom series = flat and upright films
Barium enema: good for dx of tumor, volvulus, divertic, LBO
Flex sig: visualizes last 30-60 cm; also for evac of excess gas
Colonscopy: most accurate for entire colon
Angio: good for finding source of rapid (but not slow) bleed

Diverticular Dz

True diverticuli (congenital) are rare
False diverticuli are common (mucosal herniation thru muscular wall)
Diverticulosis
- 80% ASx; Sx: alternating diarrhea/constipation, Δ in bowel habits, pain, bleed
- Rx: increased fiber
- #1 cz (70%) of massive lower GI bleed (primary sx in 5-10% pts, bleed=massive in 25%)
- Dx/Rx: NGT, rectal exam, bowel prep, colonoscopy, angio (if bleed continues)
- DDx: angiodysplasia, cancer, IBD, hemorrhoids

Diverticulitis
- 1/6 pts w/ diverticulosis develop it
- Obstruction of divertic by fecalith→ microperf→ abscess in mesentery→ fistula/perf
- Sx: LLQ pain, Δ in bowel habits, fever, palp mass
- Recurrent UTI w/ fistula (colovesicular #1 w/ divertic); dx w/ methylene blue dye
- Life threatening cx: 44% w/ perf/abscess, 8% w/ fistula, 4% LBO
- No barium enema in acute dz
- Rx: Most pts respond to NPO + ABX
- Surgical indications: 2 severe attacks, perf, LBO, bleeding, fistula

If no bowel prep, perform Hartmann's proced {partial sigmoid resection + colostomy (mucous fistula) + rectal stump} d/t hi infxn/leak risk

Colorectal Cancer

Polyps

50% rectosigmoid, 50% are multiple
Hyperplastic common, benign
Inflammatory w/ IBD, benign
Hamartoma: low malignant potential
Tubular: 10% of adults, 7% malignant
Villous: common in elderly, 33% malignant (esp >3cm)

ASA and other PG inhibitors may decrease polyp formation and cancer risk

Rectal ca more common in males; colon ca more common in females

5 yr survival 60%

2x ↑ risk if 1st degree relative w/ colorectal ca (6x ↑ if 2 relatives)

Screening: start at 50 – colonscopy Q10yrs or annual FOBT + flex sig Q 5yrs
Intermediate risk pts: start at 40, colonscopy Q 3-5yrs
FAP/HNPCC: start in teens
Pts w/ IBD >10yrs
CEA to follow for recurrence (poor screening test)

Sx: R sided: usu exophytic, palp mass, anemia
L sided: usu annular, invasive, rectal bleed, obstruction
Nodal involvement in 50%
#1 organ w/ mets = Liver

Rx: Tumors in upper/middle 1/3 of rectum: low ant resection {resect lower sigmoid + ½ rectum + primary anastamosis}
Tumors in lower 1/3 of rectum: abdominoperineal resection {removal of lower sigmoid/rectum/anus (permanent colostomy)}
En bloc resection if cancer outside of bowel
5-FU w/ leucovorin decreases mortality in Dukes' stage C tumors
Rectal tumors that penetrate wall: hi recurrence (20%); use RT + 5-FU
Postop RT shown to increase survival

Px:

Dukes' classification		
Stage	Description	5 yr survival %
A	Mucosa only	90
B1	Into muscularis, LN neg	70
B2	Thru muscularis, LN neg	60
C1	B1 w/ pos LN	30
C2	B2 w/ pos LN	25
D	Distant mets	<5

LN involvement = most important for Px
Most recurrences w/in 18-24 months, follow CEA

Ulcerative Colitis

Peak onset 15-30 y.o. and 55 y.o.
+ FHx in 20%
Uncommon in blacks
Sx: bloody diarrhea, abd pain, cramps, urgency, tenesmus (urge to defecate w/o needing to)
55% mild course, 30% moderately severe, 15% life threatening course
Toxic megacolon d/t destruction of myenteric plexus
"Lead pipe" colon on barium xray d/t loss of haustra
Rx: Meds successful in 80% pts
Mild: fiber, antidiarrheal meds (loperamide)
Moderate: add sulfasalazine
Severe: add steroid
Toxic megacolon: NGT, ABX, d/c anticholinergic meds
If UC >10yrs, risk of cancer increases 1-2% per year: Rx = total colectomy

LBO

Approx 10% of all instestinal obstruction
Etiology: cancer 60%, divertic 20%, volvulus 5%
If ileocecal valve intact (75% pts) = closed loop obstruction
If complete LBO, no flatus or stool for >8 hours
If cecum >12cm but no definite lesion: ex lap
No barium if suspect LBO (czs impaction)
Colonscopy for Rx of Ogilvie's synd (w/ decomp tube) or volvulus
May try IV neostigmine if colonscopy fails
Cecal perf has 30% mortality
Volvulus
70% sigmoid, 30% cecal
Usu d/t elongation of sigmoid
Common in pts >65 yo
AXR shows "kidney bean" shape w/ sig volv
Rx: rectal tube for sig volv + subsequent resection; cecal volv always reqs surgery

Anus & Rectum

Rectal Prolapse
Intuss of full thickness portion of rectum thru anal opening
Usu in thin females
Sx: pain, bleed, discharge, incontinence, prolapse after BMs (needs manual reduction)
Concentric, circumfrential folds in true prolapse (radial folds in mucosal prolapse)
Rx: sigmoid resection, rectopexy (suture bowel to fascia)
Hemorrhoids
Vascular cushions that protrude or bleed (coats stool), esp after constipation/straining
Location: L lateral, R ant, R post
Dentate line separates int from ext
External hemorrhoids painful when thrombosis occurs (self limiting, resolves in 10 d)
Rx: Sitz bath + NSAIDs
No classification for ext hemorrhoids (present or absent only)

Internal Hemorrhoids		
Degree	Description	Rx
1st	Bulge, no protrusion	Fiber, water
2nd	Protrude w/ BM, reduce spont	Add band ligation
3rd	Protrude w/ BM, reduce manually	Poss hemorrhoidectomy
4th	Perm protrusion, incarcerated	Hemorrhoidectomy

Anorectal abscess
- Begin w/ obstruction of perianal glands in intersphincteric space and spreads
- Perianal and ischiorectal abscesses are most common (70%)
- S/Sx: pain, swelling, redness
- Rx: drainage; No ABX needed

Fistula-in-Ano (communication b/t anus and skin)
- Develops in 50% of pts after abscess drainage
- S/Sx: chronic drainage of pus/stool from skin
- Goodall's rule: if fistula opening is ant to anus, likely to have straight tract (post=curved)
- Rule is less reliable w/ increasing distance b/t anus and opening
- Rx: Never heal spontaneously; req fistulotomy (unroof tract, heal by secondary intention)
  - Avoid cutting sphincter muscle!

Anal fissures
- #1 localized anorectal cz of severe pain (bleeding is minimal)
- Linear tear of anal canal
- Usu located posteriorly, may be ant in females (weak muscle support ant and posteriorly)
- Often d/t constipation or excessive diarrhea
- Rx: symptomatic; lateral internal sphincterotomy if req'd (decreases spasm)

Anal malignancy
- Rare: 3-4% of all anorectal ca
- 2 types: epidermoid (squamous cl, etc) and malignant melanoma
- S/Sx: pain, bleed, mass
- Melanoma: often p/w mets (inguinal LN); lack of pigment (amelanotic) = delayed Dx
- Rx: RT + 5-FU + mitomycin C, surgery if residual tumor remains
  - For melanoma pts, abdominoperineal resection if good risk pts
- Px: 85% 5 yr survival for treated epidermoid types; very poor Px for melanoma

Anal condylomas
- HPV
- S/Sx: pain, bleed
- High recurrence rate, even w/ Rx

Chlamydia proctitis, lymphogranuloma venereum
- Vesicles progress to ulcers; inguinal adenopathy, tenesmus, pain
- Rx: tetracycline or doxycycline

Herpetic proctitis
- HSV 2
- S/Sx: pain, burning worsened by BMs
- Rx: symptomatic; acyclovir in acute phase or relapse