Surgical Management of Ulcerative Colitis

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Patient Presentation

- 54 y/o M h/o UC x16yrs last c-scope low grade dysplasia
- PMH UC
- PSH appendectomy
- All nkda
- Meds: prednisone, asacol, 6MP
- FH NC
- SH denies x3
**Patient Presentation**

- H/H 12/36.8
- Alb 3.9
- CXR wnl
- CT minimal thickening of ascending & descending colon w/ pericolonic lymphadenopathy consistent w/ chronic inflammation
- UGI series WNL
- C-scope pan colitis random Bx chronic inflam, cryptitis, low grade dysplasia
Patient Presentation

- Ex-lap, proctocolectomy, double-staple ileal J pouch anal anal anastomosis, intraop colonoscopy, diverting loop ileostomy

- Path: pancolitis, low grade dysplasia

- Now 1 month postop doing well
Surgical Management of Ulcerative Colitis
Epidemiology

- Incidence: 8-15/100,000
- Incidence lower in Asia, Africa, S. America, & nonwhite Americans
- Peaks in 3rd & 7th decades

Schwartz 9th ed, Maingot 11th ed
Etiology

- Geographic differences suggest environmental (diet/infection)
- Smoking, etoh, OCPs implicated
- Genetic? 10-30% have + FH
- Autoimmune

Schwartz 9th ed, Maingot 11th ed
Pathophysiology

- Poorly understood
- Intestinal mucosa continually exposed to environmental challenge
  - → chronic dysregulation of mucosal immunity
  - → uncontrolled inflammatory response
- IL-1B, 6, 8, TNF, prostaglandin (E2), leukotriene B4 exacerbate mucosal inflammation
- IL-4, 10 suppress intestinal inflammation

Maingot 11th ed
Sydney Australia; Neurogastroenterology Motility

Tachykinins, like substance P & neurokinin, hemokinin

Role in motility, secretion, and immune functions

Tachykinin receptor gene expression was 10-fold more abundant in colon mucosa of pts w/ UC compared to Control (p<0.01)

Liu et al, Feb 2011
Pathology

- Colonic mucosa & submucosa infiltrated with inflammatory cells
- Mucosal edema is the earliest manifestation
- Ulcers are linear & knifelike
- Atrophic mucosa & crypt abscesses common
- Mucosa is friable & may have inflammatory pseudopolyps
- TI may demonstrate inflammatory changes (backwash ileitis)
Gross Pathology

Mild Colitis

Severe Colitis
Lead Pipe Colon

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Symptoms

- Bloody diarrhea
- Abdominal cramping
- Tenesmus (proctitis)
- Fulminant colitis
  - Bloody diarrhea, severe abd pain, dehydration, high fever

Schwartz 9th edition
Diagnosis

- Colonoscopy
- Mucosal biopsy
Endoscopy

- Mild
- Moderate
- Severe

www.downstatesurgery.org
Indications for Emergent Surgery

- Life threatening hemorrhage (1%)
- Toxic megacolon (2.5%)
- Fulminant colitis (15%)
  * pts who fail to respond to medical therapy
  * deterioration or failure to improve w/in 24-48hrs
- Acute perforation
- Obstruction due to stricture (11%)
- Abdominal colectomy w/ ileostomy

Schwartz 9th ed, Maingot 11th ed
Indications for Elective Surgery

- Intractability despite maximal medical therapy
- High risk of complications from medical therapy
- Significant risk of developing colorectal Ca

Schwartz 9th ed, Maingot 11th ed
Risk for Colorectal Ca

- Increased w/ early age at Dx, increased duration, extent of Dz
- Increased w/ duration
  - 2% after 10yrs & increases 0.5-1% annually afterward
  - 8% after 20yrs
  - 18% after 30yrs

Risk for Colorectal Ca

- More likely to arise from areas of flat dysplasia making early Dx more difficult

- => pts undergo (40-50) random Bx during colonoscopy

- Annual surveillance after 8yrs for pts w/ pancolitis, 15 yrs for pts w/ L. colitis

- Ca may be present in up to 20% of pts w/ low grade dysplasia

Proctocolectomy & Ileostomy

- Single stage
- Curative
- Incontinent
- Use of collecting device
- 20% morbidity:
  - Hemorrhage, sepsis, neural injury

Maingot 11th ed
Subtotal Colectomy & Ileal-rectal Anastomosis

- No need for stoma
- Pelvic autonomic nerves are undisturbed
- Not curative, 20% → proctectomy
- Contraindicated in pts w/
  - Anal sphincter dysfunction, severe rectal Dz, rectal dysplasia, or malignancy

Maingot 11th ed
Continent Ileostomy/ Koch Pouch

- 45-50cm of terminal ileum is used
- The proximal 30-35cm is fashioned into a pouch
- The outflow tract is intussuscepted & sutured/stapled creating a nipple valve
- The reservoir is sutured to the peritoneum & fascia
- The efferent limb is externalized as a flush stoma
- Passing a soft plastic tube through the nipple valve empties the pouch

Maingot 11th ed
Continent Ileostomy/ Koch Pouch

- Offered a curative resection and continence
- Complicated by
  - Nipple valve failure requiring revision 60%
  - Enteritis, pouchitis, nonspecific ileitis
  - Fat & B12 malabsorption
  - Neural and perineal wound problems similar to that of standard proctocolectomy
- Still 2/3 are satisfied after 30 yrs

Maingot 11th ed, Lepisto et al 2003
Total Proctocolectomy w/ Ileal Pouch-Anal Anastomosis

- End to end ileal-anal anastomosis at the dentate line

Benefits
- Preserve parasympathetics
- Preservation of the anorectal sphincter
- Elimination of the perineal proctectomy
- Permanent ileostomy not required, maintains continence

- High stool frequency
- Diverting loop ileostomy

Maingot 11th ed
Total Proctocolectomy w/ Ileal Pouch-Anal Anastomosis

- R/O Crohn’s or other pathology preop
- Colonoscopy & biopsy
- UGI series
- Intraoperative palpation of SB
Operative Technique of IPAA

- Lithotomy
- Midline incision
- Colon mobilization
- Transect ileum ~1-2cm proximal to ICV
- Ileocolic A & colonic mesentery serially clamped, divided, & ligated
- Rectal mobilization to the levator ani sling
- Transect rectum 1-2cm above dentate line

Maingot 11th ed
Ileal Pouch Construction

A. J-pouch, B. S-pouch, C. Side-to-side isoperistaltic pouch, and D. W-pouch

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Ileal J-Pouch
Ileal J-Pouch

- 15-20cm of the stapled off TI is folded onto itself in the shape of a J.
- The distal/efferent limb is secured to the afferent limb.
- The pouch is formed using sequential firings of a 75-mm mechanical stapler applied through an enterotomy in the apex of the pouch.
- Pouch is filled with saline to check staple line (should hold 2-300cc).
- Mobilize the SB mesentery so the pouch can reach the pelvis with no tension.
Hand Sewn Ileal-ANAL Anastomosis

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Double-Staple Ileal-anal Anastomosis
Mucosectomy vs Double Staple

- Double Staple = retained rectal mucosa => potential for proctitis & Ca

- Double staple →
  - Increased anal resting pressure
  - Preservation of the rectoanal inhibitory reflex
  - Improved continence
  - Fewer septic complications

- Other studies have shown no difference

- => surgeon’s preference

Maingot 11th ed, Hallgren et al 1995
Salient Points

- Pathophysiology still poorly understood
- Emergent surgery
  - Hemorrhage, Toxic megacolon, Fulminant colitis, Perforation, Obstruction
  - Subtotal colectomy w/ ileostomy
- Elective surgery
  - Intractability of symptoms, complications from medications, risk of Ca
  - Total proctocolectomy w/ IPAA
- Total proctocolectomy w/ Ileal J pouch AA
  - R/O other pathology preoperatively
  - Provides curative surgery w/ continence
References

- Current Surgical Therapy, 9th Edition Cameron 2008
- Larson DW, Pemberton JH. Current concepts and controversies in surgery for IBD. Gastroenterology 2004;126:1611–1619
Medical Management - Salicylates

- Sulfasalazine
  - Inhibition of cyclooxygenase & 5-lipoxygenase in gut mucosa & => decrease inflammation
  - Pentasa(mesalamine), asacol, rowasa, canasa
  - → remission 80% @3g/day
  - Sulfapyraidine attached to 5-ASA which is cleaved by enteric bacteria → inflammatory side effex
  - Oral, topical, or combo
  - Drug of choice for mild to moderate disease
Medical Management

- Steroids
  - Moderate to severe
  - HTN, hyperglycemia, cataracts, osteoporosis, osteomalacia
  - Budesonide, beclomethasone undergo rapid hepatic degradation to limit systemic toxicity
Medical Management

Immunosuppressive Agents

- **Azathioprine, 6-MCP**
  - Interfere w/ nucleic acid synthesis
  - Good for those who failed salicylate Tx or are dependent on steroids (6-12 wk onset of axn)

- **Cyclosporine**
  - Interferes w/ T cell function
  - Helps acute flares 80%

- **Methotrexate**
  - Folate antagonist

- **Infliximab (Remicade)**
  - Monoclonal Ab against TNF alpha
  - >50% w/ moderate to severe Dz respond
Extraintestinal Manifestations

- Liver most common: fatty liver 40-50% reverse by med or Sx, cirrhosis (2-5%) irreversible
- Primary sclerosing cholangitis strictrs of intra & extrahepatic ducts (40-60% have UC) only effective therapy is liver transplant
- Cholangiocarcinoma rare but pts r ~20yrs younger than typical pts w/ it
- Arthritis improves w/ meds or Sx but sacroiliitis or ankylosing spondylitis does not
- Erythema nodosum 5-15%, W:M 3-4:1, raised red & on lower legs & pyoderma grangenoseum some may improve w/ Sx
Post-IPAA

- Barium enema & flex sig
  - Evaluate anal sphincter tone
  - Loop ileostomy reversed