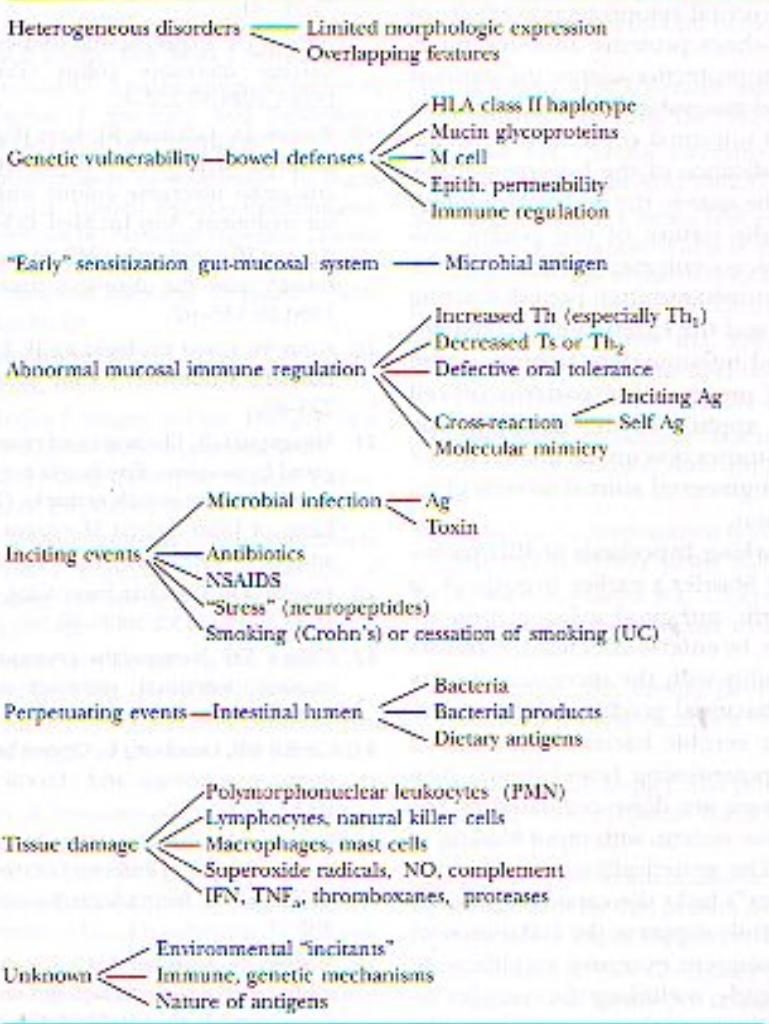


Table 4.1. Classification of inflammatory bowel diseases.

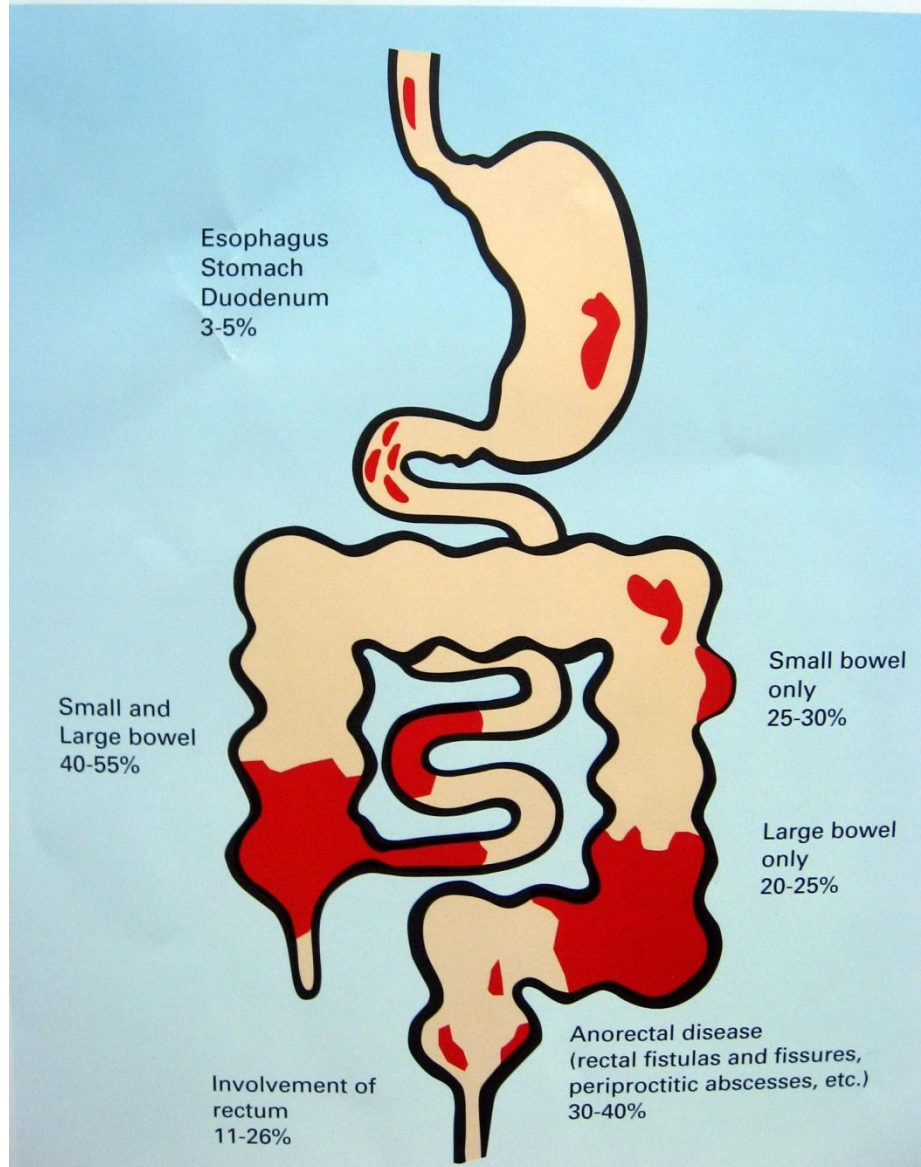
Idiopathic	Ulcerative colitis/proctitis, Crohn's disease
Infective	Viral, chlamydia, bacteria, spirochetes, fungi, protozoa, nematodes, trematodes
Inflammation	Diverticular disease, Solitary rectal ulcer syndrome, Systemic disease (e.g., Behcet's), Iatrogenic—diversion, ostomies, reservoirs, GVH
Ischemia	Low/no flow, mechanical, trauma, sterocoral, drug-related, radiation, vasculitis
Descriptive colitides	Pseudomembranous, hemorrhagic, collagenous, follicular, eosinophilic, granulomatous, microscopic/lymphocytic etc.
Drugs, chemicals and foodstuffs	NSAID's, Gold, penicillamine, sulfasalazine, Me-DOPA, antibiotics, antifungal, Cytotoxics, kayexalate Oral contraceptives, metals, enemas/laxatives, food allergens

Table 1.1. Inflammatory bowel diseases—possible pathogenetic events.



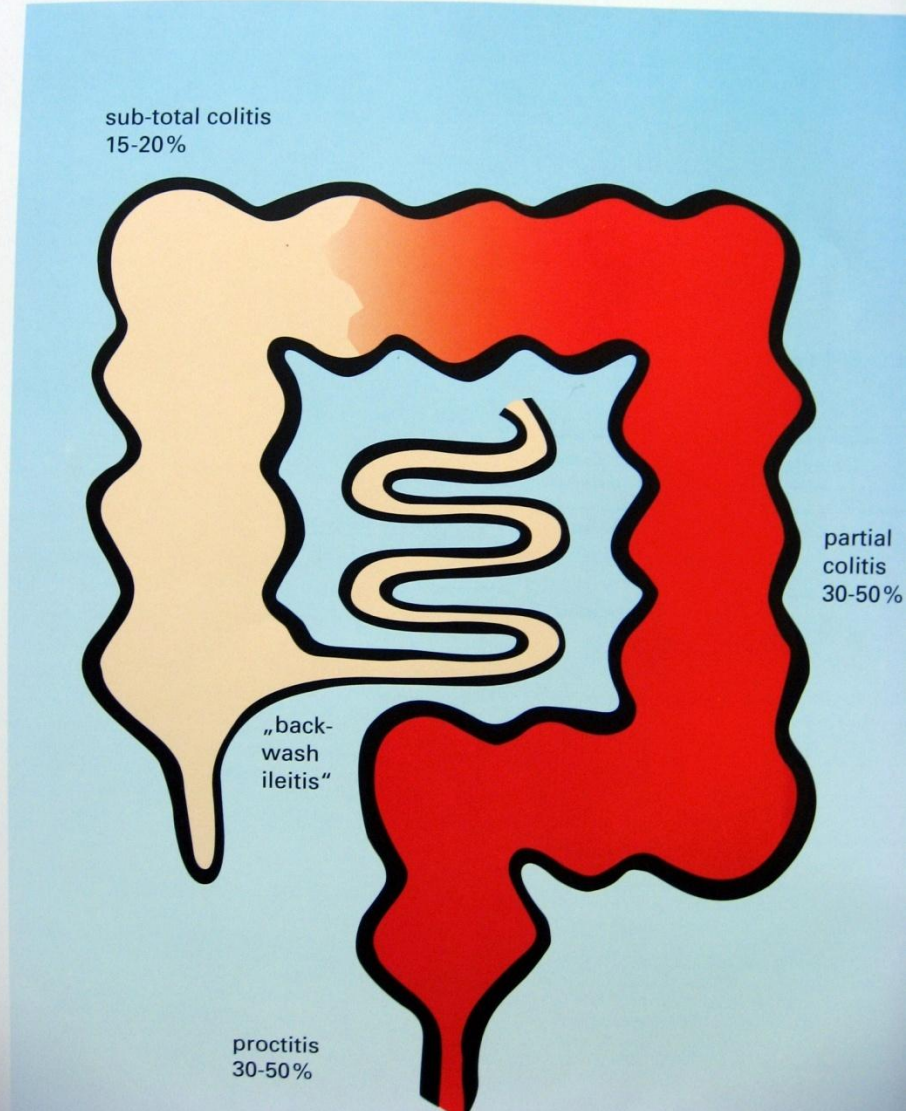
Crohn's

Localization



UC

Localization of ulcerative colitis at time of diagnosis



Crohn's

Epidemiology

Incidence (new cases):
2-4 cases/100,000 inhabitants per year

Prevalence (patients):
30-50 cases/100,000 inhabitants

Aspects of etiopathology

Bacteria?

- Mycobacteria, atypic
- Pseudomonas
- "inner milieu" of physiologic and/or patho-genetic intestinal flora

Viruses?

Food allergy?

- refined sugars
- food additives
- foreign proteins
- low-fiber diet

Environmental factors?

- smoking
- industry

Effect as antigens in the gut

Pathologic immune response of the gut

defect of immune system, regulatory disorder, lowered immune tolerance

Genetic factors
(familial occurrence, accumulation in ethnic groups)

Chronic mucosal inflammation

Psychological factors

precipitation of acute attacks?
exacerbation of symptoms?

UC

Epidemiology

Incidence (new cases):
4-10 cases/100,000 inhabitants per year

Prevalence (patients):
40-117 cases/100,000 inhabitants

Aspects of etiopathology

Genetic factors
i.e. familial occurrence

Dietetic factors?
food allergy

Infectious agents?
bacteria
viruses

Environmental factors?

Defect of immune system?
regulatory disorder
pathological immune tolerance

Primary mucosal lesion

Immunological response

Chronic mucosal inflammation

Psychological factors?

precipitation of acute attacks
exacerbation of symptoms
stress such as separation,
loss of family member

Clinical features

Acute attacks change with asymptomatic or low-symptomatic intervals

Intestinal symptoms:

abdominal pain,
especially postprandial
diarrhea
blood in stool (rare)
signs of malabsorption
anal lesions

Extraintestinal symptoms:

anemia, fever
general feeling of illness
weight loss
arthritis
erythema nodosum
secondary amenorrhea
stomatitis aphthosa
eye symptoms

Clinical findings

tenderness, abdominal pain caused by palpation
palpable resistance
conglomeratic tumor
anal fistulas, periproctitic abscesses
gallstones (involvement of the small bowel)

rare: amyloidosis, association with ankylosing spondylitis

Clinical features

Acute attacks change with asymptomatic intervals;
chronic continuous type is very rare.

1. Intestinal symptoms:

diarrhea with macroscopic visible blood and mucus
abdominal pain, possibly tenesmus
tenderness, abdominal pain caused by palpation, most often in the left lower abdomen

2. Extraintestinal symptoms:

anemia, fever
weight loss, feeling of illness
arthritis
erythema nodosum
eye symptoms

3. Concomitant diseases:

primary sclerosing cholangitis
amyloidosis, liver diseases
association with ankylosing spondylitis

Crohn's

Laboratory findings

1. Disease activity:

ESR after Westergren ↑
leukocytes ↑
hemoglobin ↓
total protein ↓, electrophoresis
acute-phase proteins
C-reactive protein ↑
orosomucoid (acid α_1 -glycoprotein ↑)

2. Deficiencies:

albumin ↓
iron ↓, ferritin ↓, (transferrin ↑)
vitamin B₁₂ ↓, folate ↓, zinc ↓, magnesium ↓
electrolytes

3. Exclusion of infectious causes:

serologic demonstration of infectious agents (antibody titers)
direct demonstration of infectious agents in stool culture, mucosal smear, and mucosa biopsies

4. Special investigations:

⁷⁵Se-HCAT test (bile acid absorption)
hydrogen breath test (lactose intolerance?)
Gordon test (luminal protein loss)
Schilling test (vitamin B₁₂ absorption)

UC

Laboratory findings:

1. Disease activity:

ESR after Westergren ↑
leukocytes ↑
hemoglobin ↓
total protein ↓, electrophoresis
acute-phase proteins ↑
C-reactive protein ↑
orosomucoid (acid α_1 -glycoprotein ↑)

2. Deficiencies:

albumin ↓
hemoglobin ↓, reticulocytes
iron ↓, ferritin ↓, (transferrin ↑)
electrolytes

3. Exclusion of infectious causes:

serologic demonstration of infectious agents (antibody titers)
direct demonstration of infectious agents in stool culture, mucosa smear, and mucosa biopsies

Crohn's

Differential diagnosis

- **enterocolitis caused by infectious agents:** Campylobacter jejuni/coli, Yersinia enterocolitica, Salmonella, Shigella, Ameba, Chlamydia
- pseudomembranous colitis (Clostridium difficile)
- ischemic colitis
- radiation colitis
- **ulcerative colitis**
- collagenous colitis
- drug-induced colitis
- acute appendicitis
- malignancy of the gut

UC

Differential diagnosis

- colitis caused by infectious agents: Salmonella, Shigella, Campylobacter jejuni/coli, Yersinia, Ameba, Chlamydia
- pseudomembranous colitis (Clostridium difficile)
- **Crohn's disease of the colon**
- ischemic colitis, radiation colitis, collagenous colitis
- drug-induced colitis/proctitis
- colon carcinoma

Crohn's

UC



Therapy

Medical therapy of acute inflammatory attack

Symptoms and clinical findings, laboratory parameters
Crohn's Disease Activity Index (CDAI) (Best) >150

Mild to moderate attack:

mesalazine (5-ASA)

1 g 3-4 x daily orally
(in mild attack: if possible
monotherapy)

and/or

budesonide 9 mg/day orally

– in ileocecal localization
– no extraintestinal symptoms
or manifestations

involvement of the rectum and
distal colon:

local treatment with
mesalazine (5-ASA)
suppositories or enemas
steroid-foam or enemas **or**
budesonide enemas

Moderate to severe attack:

prednisone orally (seldom
intravenously necessary)

week 1 60 mg

week 2 40 mg

week 3 30 mg

week 4 25 mg

week 5 20 mg

week 6 15 mg

Dosage reduction according to
clinical improvement

week 7 - week 26: 10 mg/day,
if free from symptoms,
to prevent recurrences

from week 27:
tapering of dosage

if necessary additional local
treatment

Therapy

Drug treatment of acute inflammatory attack

Mild attack:

mesalazine (5-ASA)

0.5-1 g 3-4 x daily orally

or

olsalazine 0.5 g 3-4 x daily

or

sulfasalazine 1 g 3-4 x daily

alternative local treatment

if rectum and distal colon is involved:

proctitis: mesalazine (5-ASA) suppositories or sulfasalazine
suppositories and/or steroid rectal foam

left-sided colitis: mesalazine (5-ASA) enemas or sulfasalazine
enemas and/or budesonide enemas (2 mg) or
steroid enemas

Moderate attack:

Treatment: see mild attack, plus

oral **prednisone** 40-60 mg daily, with weekly reduction of the daily
dose for 10 mg and later on for 5 mg according to clinical improve-
ment (without budesonide or steroid enemas and rectal foam)

Severe attack:

prednisone 100 mg initially or higher dosage, possibly at night, if
necessary intravenously. Dosage dependent on clinical features and
response (mesalazine or olsalazine or sulfasalazine orally if oral
uptake of tablets is possible).

Total parenteral nutrition, substitution of electrolytes, albumin,
blood transfusions, coagulation factors, intensive care.

In septic-toxic situation, if necessary antibiotics with special regard
to anaerobes, i.e. ciprofloxacin

	Mild	Severe	Fulminant
Stool frequency /day	<4	>6	>10
Blood in stool	Intermittent	Frequent	Continuous
Temp (°C)	Normal	>37.5	>37.5
Pulse (per min)	Normal	>90	>90
Haemoglobin	Normal	<75% Normal	Transfusion required
ESR (mm/Hr)	<30	>30	>30
Clinical signs	-	Abdominal tenderness	Abdominal tenderness/ Distention
Abdominal Xray-colon features	-	Oedematous wall, thumbprinting	Dilatation

Table 1: Severity of Ulcerative Colitis

Based on the criteria of Truelove and Witts. Moderate disease includes features of both mild and severe disease

CDAI Calculator

Crohn's Disease Activity Index (CDAI) calculator

CDAI Online Calculator

Crohn's Disease Activity Index

$$\text{CDAI} = 2 \times 1 + 5 \times 2 + 7 \times 3 + 20 \times 4 + 30 \times 5 + 10 \times 6 + 6 \times 7 + (\text{weight factor})_8$$

The purpose of this crohn's disease activity index (CDAI) calculator is to gauge the progress or lack of progress for people with crohn's disease. The reference article says "generally speaking, CDAI scores below 150 indicate a better prognosis than higher scores." (See Reference at bottom).

However, since the original study, other researchers use a 'subjective value' of 200 to 250. Therefore, this just reinforces the fact that the purpose is to gauge Your Progress i.e. compare readings from one week to the next to determine if you are getting better or worst. Bottom line is that you need to use the CDAI on a regular basis and view it as a personal gauge. Watch for changes in your score (your gauge).

This 'indicator' does NOT predicts the outcome of the disease. Crohn's disease conditions vary for each victim. This calculator is only a 'gauge' of progress i.e. not a prognosis tool!

1. Number of liquid or very soft stools in one week

Input:

Total For One Week

2. Sum of seven daily abdominal pain ratings:
(0=none, 1=mild, 2=moderate, 3=severe)

Overall Rating: ☒ 0 ☐ 1 ☐ 2 ☐ 3

3. Sum of seven daily ratings of general well-being:
(0=well, 1=slightly below par, 2=poor, 3=very poor, 4=terrible)

Rating: ☒ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4

4. Symptoms or findings presumed related to Crohn's disease
Select each set corresponding to patient's symptoms:

- ☐ arthritis or arthralgia
- ☐ iritis or uveitis
- ☐ erythema nodosum, pyoderma gangrenosum, aphthous stomatitis
- ☐ anal fissure, fistula or perirectal abscess
- ☐ other bowel-related fistula
- ☐ febrile (fever) episode over 100 degrees during past week

5. Taking Lomotil or opiates for diarrhea

☒ No ☐ Yes

6. Abnormal mass

0=none; 0.4=questionable; 1=present

☒ None ☐ Questionable ☐ Present

7. Hematocrit [(Typical - Current) x 6]

Normal average: For Male = 47 For Female = 42

VIP: skip this section if typical and current are unknown.

Enter 'YOUR' typical value and the current value

If you want to include this calculation ☒

☐ Male ☐ Female

Enter Typical = Current =

8. $100 \times [(\text{standard weight} - \text{actual body weight}) / \text{standard weight}]$

Crohn's disease activity index: in remission if < 150 ;
extremely severe disease if > 450

Crohn's

UC

Alternative drugs:

Azathioprine 1.5-2 mg/kg body weight
(effective after 3-6 months)

- in steroid-dependent or steroid-refractory diseases
 - in chronic active disease and in chronic fistulas
- elemental diet ("astronaut's diet") for 4-12 weeks (only small bowel involvement) by a naso-duodenal feeding tube
- metronidazole 500-1000 mg/day (no longer than 4 weeks)
- antibiotics, i.e. ciprofloxacin
- methotrexate

Alternative drugs:

azathioprine 1.5-2 mg/kg body weight
(effective after 3-6 months)

- in steroid-dependent or steroid-refractory diseases
 - strict indication only with special regard to curative surgical measures
- cyclosporin A** in fulminant colitis, 4 mg/kg body weight for 1 week

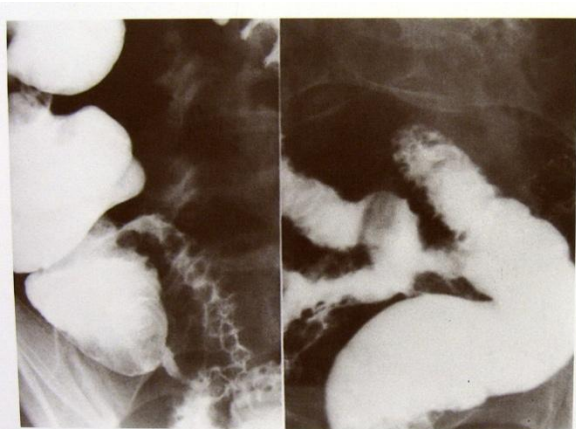
Therapy during remission:

- maintenance therapy with mesalazine (5-ASA, 1.5-2g/day orally) to prevent recurrences (especially postoperatively)
- continuation of a primary effective treatment with azathioprine without steroids
- fiber-rich, wholesome diet (cave stenoses!!)
- replacement of deficiencies (vitamin B₁₂, folate, iron, zinc, fat soluble vitamins)
- cholestyramine in chologenic diarrhea
- antidiarrheal agents (codeine, lomotile, loperamide)
- lactose-free diet in case of lactose intolerance
- cessation of smoking

Therapy during remission:

- maintenance therapy with mesalazine (5-ASA, 1.5-2 g/day orally) to prevent recurrences
 - or olsalazine 2 x 0.5 g/day
 - or sulfasalazine 2 x 1 g/day(suppositories and enemas also effective in proctitis/left-sided colitis)
- fiber-rich, wholesome diet
- replacement of deficiencies, most of all iron
- antidiarrheal agents (codeine, lomotile, loperamide)

Crohn's



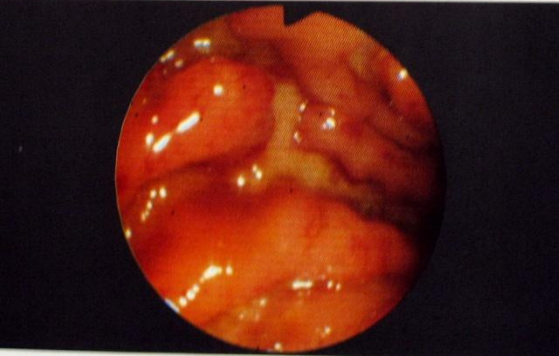
Radiology:

ulcers (aphthous lesions)
cobblestone relief
reduced distension
of the gut
distance phenomenon
(thickening of the wall)
shrinkage of the mesenteric root with asymmetry
fistulas
narrowing of the lumen, stenoses (filiform)
segmental, discontinuous spread within the bowel

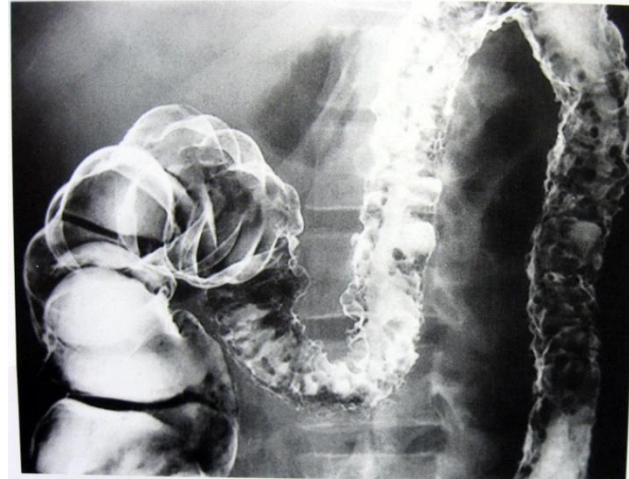


Endoscopy:

aphthous lesions and ulcers in normal or inflamed mucosa
fissural ulcers
cobblestone relief
narrowing of the lumen
stenosing
segmental, discontinuous spread within the bowel
rectum spared (80%)



UC



Radiology:

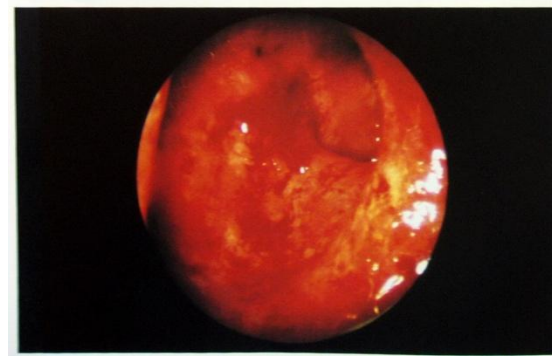
granulated mucosa
spiculae
ulcers, collar-button ulcers
pseudopolyps
loss of haustral pattern



Endoscopy:

active stage:

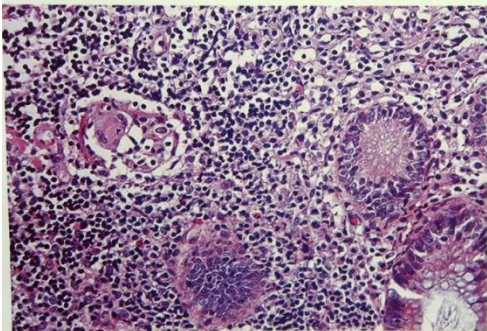
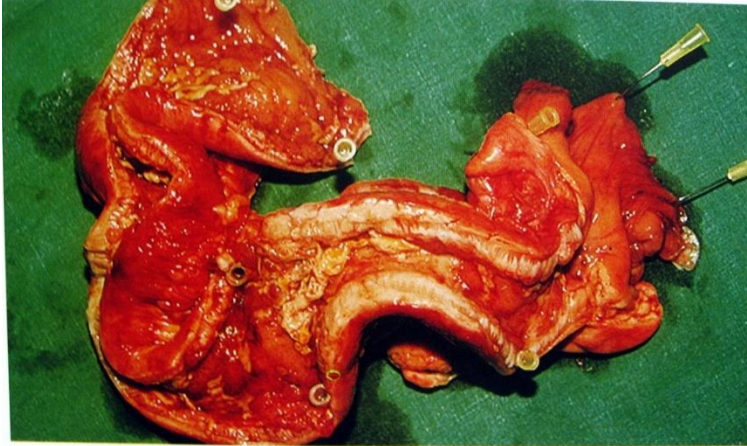
reddening, loss of mucosal vascularity
mucosal granularity
contact susceptibility, petechiae, hemorrhage, mucus, pus
flat, confluent, shallow mucosal ulcers
pseudopolyps (inflammatory, non-neoplastic)
continuous extension from the rectum to proximally
"back-wash ileitis"



inactive stage:

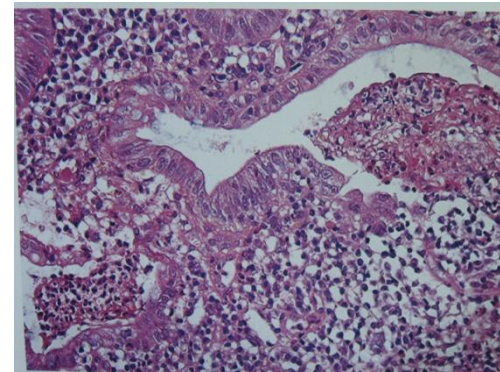
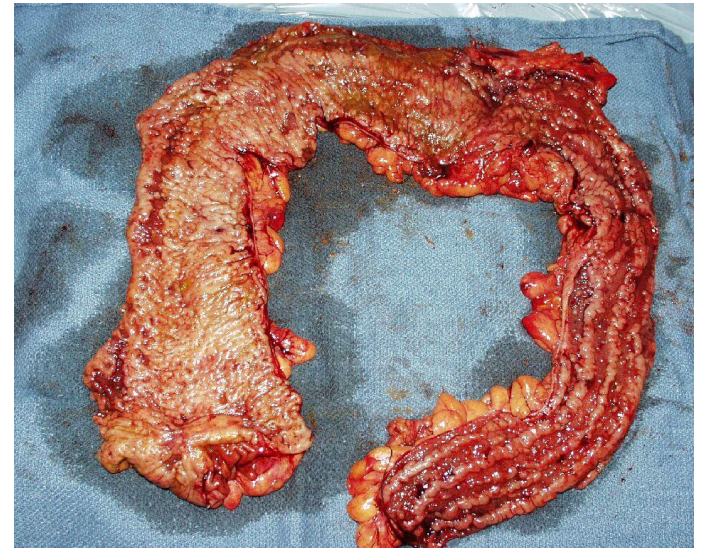
pale atrophic mucosa with sporadic pseudopolyps

Crohn's



Histology:
lymphocytic infiltration,
transmural, discontinuous
extension
focal lymphoid hyperplasia
fibrosis of all layers of the
wall
fissures
epithelioid cell granulomas
(30-60%) in the submucosa
crypt abscesses (rare)
goblet cells unchanged
(colon)

UC



Histology:
continuous polymorpho-
nuclear infiltration,
limited to mucosa
crypt abscesses
reduction of goblet cells

Crohn's

Complications in the course of Crohn's disease:

frequently: stenoses with following acute complete ileus or chronic subileus
perforation and peritonitis
abscess formation in the abdomen, loop abscess
septic-toxic situation
resistance to drug treatment

rarely: severe bleeding
toxic megacolon
ureteral obstruction
severe extraintestinal symptoms and accompanying diseases
colon carcinoma (small bowel?)

fistulas: viscero-visceral
viscero-cutaneous
viscero-vesical (urinary tract infections)
rectovaginal

Surgical therapy:

Macroscopic resection of involved small or large bowel; resection should be performed "gut-sparing" in the healthy
end-to-end anastomosis
strictureplasty
exstirpation of fistulae

UC

Complications in the course of ulcerative colitis:

perforation
toxic megacolon (2-13%), sometimes with perforation
massive bleeding from the colon

resistance to drug treatment with

- severe impairment of the patient
- septic-toxic situation
- severe extraintestinal symptoms

development of colon carcinoma, risk factors:

- ulcerative colitis >10 years
- extensive involvement of the colon, many attacks
- proof of dysplasia

Surgical therapy:

- colectomy with rectal mucosectomy, ileoanal anastomosis and construction of a pelvic enteric pouch
- proctocolectomy with permanent ileostomy
if possible, continent ileostomy with ileal loop reservoir (Kock)
- colectomy and deep ileo-rectal anastomosis – need for lifelong endoscopic examination (carcinoma)

Pathology

- Granulomas (CD), Crypt abscesses (UC)
- Surveillance – Dysplasia, DALMs
- How much sampling is required? 3-4 samples every 10cm (30-35 total)
- Cancer risk – CD (small and large bowel) vs UC
- Smoking – CD (worsen) vs UC (better)
- Appendicectomy – CD (higher risk 2-3X) vs UC (lower risk up to 50X)

Operative Strategies

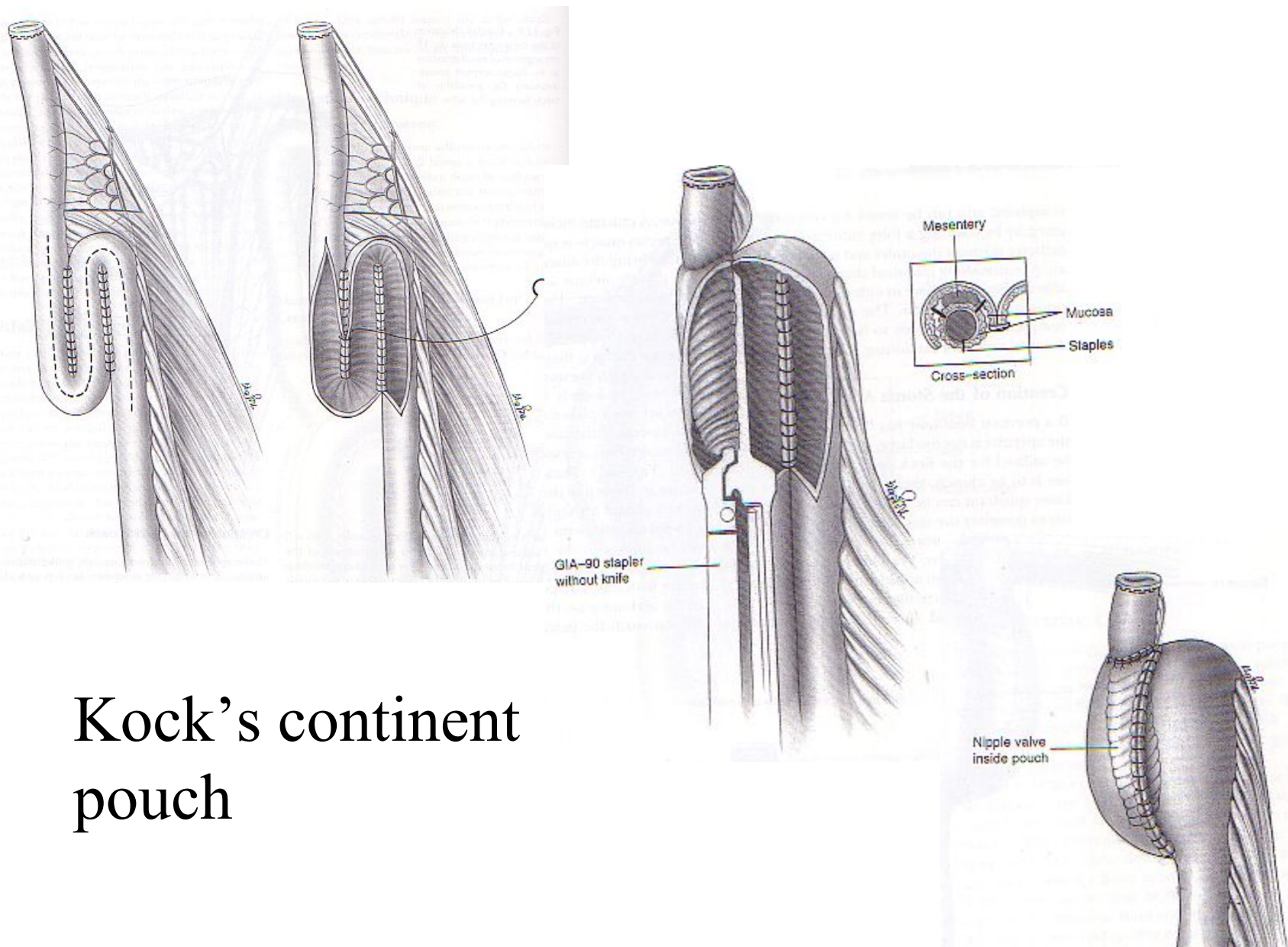
• Indications

Table 8.2. Crohn's disease: indications for surgical treatment.

-
- Failure of medical treatment
 - Persistence of symptoms despite corticosteroid therapy for longer than six months
 - Recurrence of symptoms when high-dose corticosteroids tapered
 - Worsening symptoms or new onset of complications with maximal medical therapy
 - Occurrence of steroid-induced complications (Cushingoid features, cataracts, glaucoma, systemic hypertension, aseptic necrosis of the head of the femur, myopathy, or vertebral body fractures)
 - Obstruction
 - Intestinal obstruction (partial or complete)
 - Septic complications
 - Inflammatory mass or abscess (intraabdominal, pelvic, perineal)
 - Fistula if
 - Drainage causes personal embarrassment (eg. enterocutaneous, enterovaginal fistula, fistula-in-ano)
 - Fistula communicates with the genito-urinary system (eg. entero- or colo-vesical fistula)
 - Fistula produces functional or anatomic bypass of a major segment of intestine with consequent malabsorption and/or profuse diarrhea (e.g., duodenocolic or entero-rectosigmoid fistula)
 - Free perforation
 - Hemorrhage
 - Carcinoma
 - Growth retardation
 - Fulminant colitis with or without toxic megacolon
-

Table 8.1. Ulcerative colitis: indications for surgical treatment.

-
- Failure of medical treatment
 - Persistence of symptoms despite corticosteroid therapy
 - Recurrence of symptoms when high-dose corticosteroids are tapered
 - Worsening symptoms or new onset of complications while on maximal medical therapy
 - Occurrence of steroid-induced complications (Cushingoid features, weight gain, systemic hypertension, diabetes, steroid myopathy, osteopenia, compression fractures, aseptic necrosis of femoral head, increased irritability, cataracts)
 - Fulminant colitis with acute abdomen
 - Without toxic megacolon
 - With toxic megacolon
 - With walled-off perforation
 - With free perforation
 - Malignant transformation
 - Carcinoma
 - Dysplasia
 - DALM
 - Hemorrhage
-



Kock's continent
pouch

Restorative Proctocolectomy

Table 10.1. Indications for elective restorative proctocolectomy in ulcerative colitis.

Intact and properly functioning anal continence mechanism and:

- Disease intractability
 - Unacceptable complications or side effects of medical therapy
 - Presence or serious risk of colorectal carcinoma (dysplasia)
 - Age less than 65 (relative)
-

Table 10.2. Contraindications to restorative proctocolectomy in ulcerative colitis.

Absolute

- Acute, fulminant colitis, especially with clinical toxicity, peritonitis, or perforation of the colon
- Known Crohn's disease at time of operation
- Severe anal sphincter dysfunction
- Carcinoma of the distal rectum

Relative contraindications

- Morbid obesity
- Severe malnutrition or debility
- Age > 65 years
- Psychologically impaired or patients at high risk for noncompliance

Restorative Proctocolectomy

Controversies

- Pouch design – J, S, W
- Single vs multistage – with/without protective ileostomy
- Stapled vs hand-sewn (mucosectomy)
- What if the pouch does not reach? S pouch 2cm more, ileocolic root ligation, mobilise ileal mesen. to duodenal sweep, releasing incisions on mesen, construct pouch/leave in pelvis and come back 6 months later
- Indeterminate colitis
- Pouch failure UC 2%, IC 12%, CD 37%

Restorative Proctocolectomy

Table 10.3. Differences among ileal pouch styles.

Pouch style	J	S	W	H
Advantages	Simple	Large volume	Largest capacity	Can use to convert straight ileanal to pouch without disconnecting ileanal anastomosis
	Reaches in nearly all patients	May give additional 1–2 cm reach to anal canal compared to "J"	?Better earlier postop functional results	
	Functional result as good as other designs after 6–12 months	Large volume pouch immediately after operation	Empties well	
Disadvantages	Smallest volume (first 6 months)	Takes longer to make at operation (must be hand-sewn)	May be quite bulky in narrow pelvis	Complex
	May not reach as well in unusual cases	Can have efferent limb (emptying) problems	Sutured, thus takes lots of time to construct	Used by few surgeons
				Can have efferent limb problems like the S-pouch

	Advantage	Disadvantage
Hand-sewn	All disease removed, ?no need for surveillance Outcome is equivalent to that of stapled pouch (45,70,71)	?Decreased functional result ?Increased risk of complications
Stapled	Simpler, faster Improved functional outcome Decreased complication rate (38,72–74)	"Strip" colitis (rare) Risk of cancer, need for surveillance

Acute Fulminant Colitis vs Toxic Megacolon

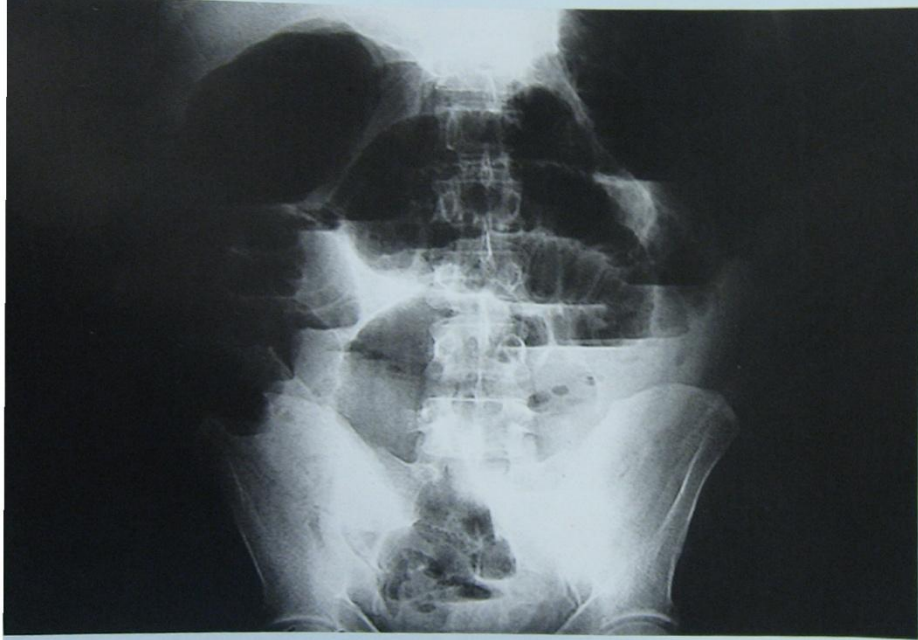
Acute Fulminant Colitis – severe colitis with 2 of 4

-Tachycardia $>100/\text{min}$

-Temp >38.6 degrees C

-TW $> 10\ 500$

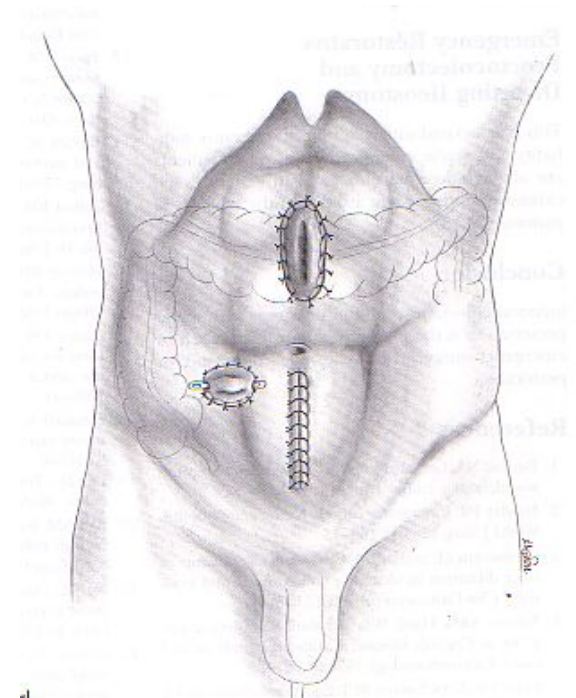
-Albumin < 3.0



Toxic megacolon in ulcerative pancolitis

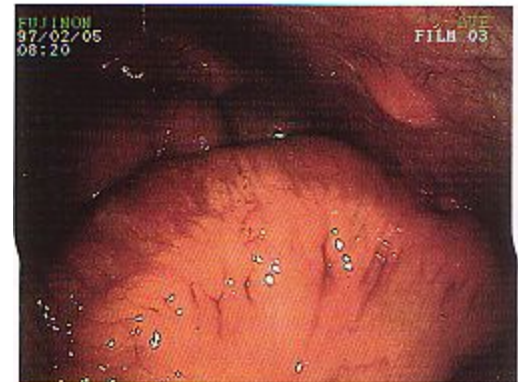
Toxic Megacolon – Fulminant Colitis
with trans colon $>5.5\text{cm}$ in supine
AXR

Subtotal/Total colectomy with ileostomy
vs Blow-holes stomas



Crohn's Disease

- Resection
- Bypass
- Strictureplasty
- Segmental colectomy
- Appendicetomy
- Perianal disease



Crohn's Disease

Operative Strategy

- Incision
- Extent of disease/resection
- Bowel conservation
- Temporary stomas
- Early reoperation

Crohn's Disease

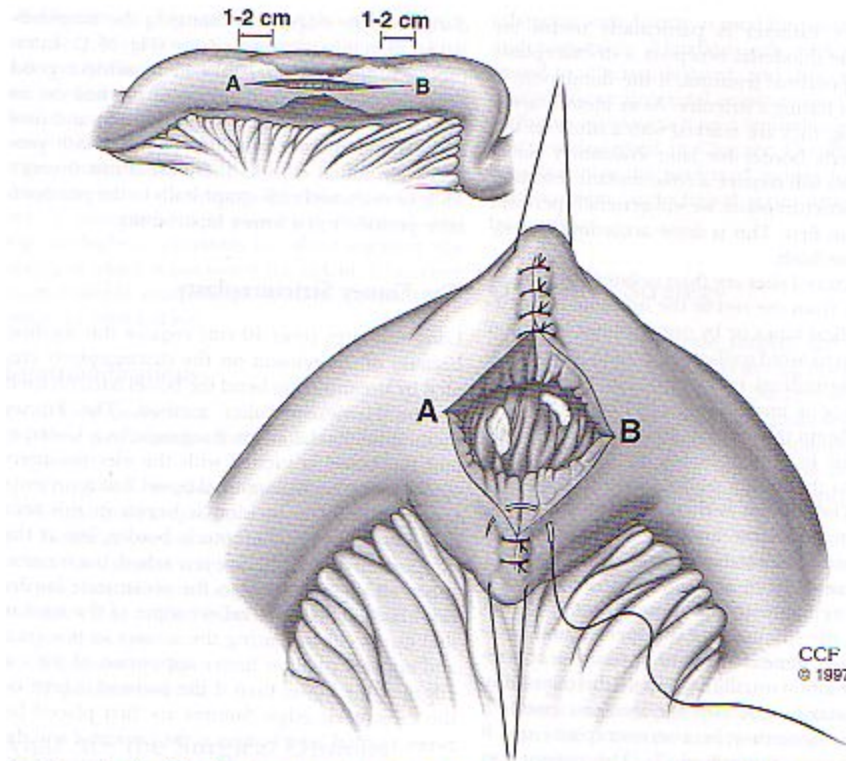
Operative Technique

- Recognition of extent/choosing level of resection — 2cm vs 12cm
- Detecting strictures — 5ml Foley balloon, 2cm ball-bearing
- Dividing small bowel mesentery — overlapping clamps with oversewing
- Stoma construction — avoid full thickness bites causing implant fistulation
- Anastomoses — stapled side-side vs handsewn end-end
- Laparoscopy

Ileocecal Resection

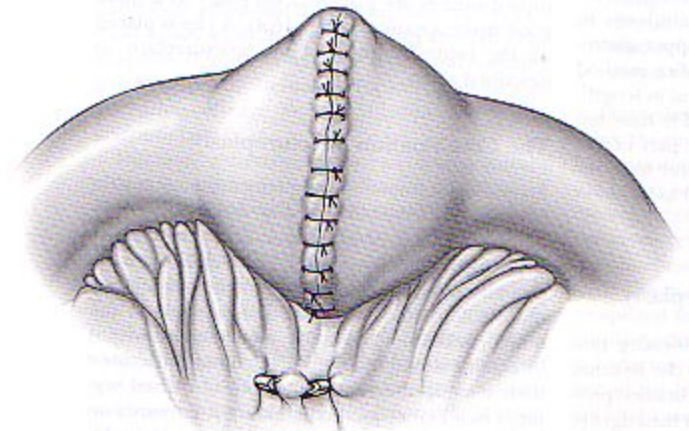
Specific Problems

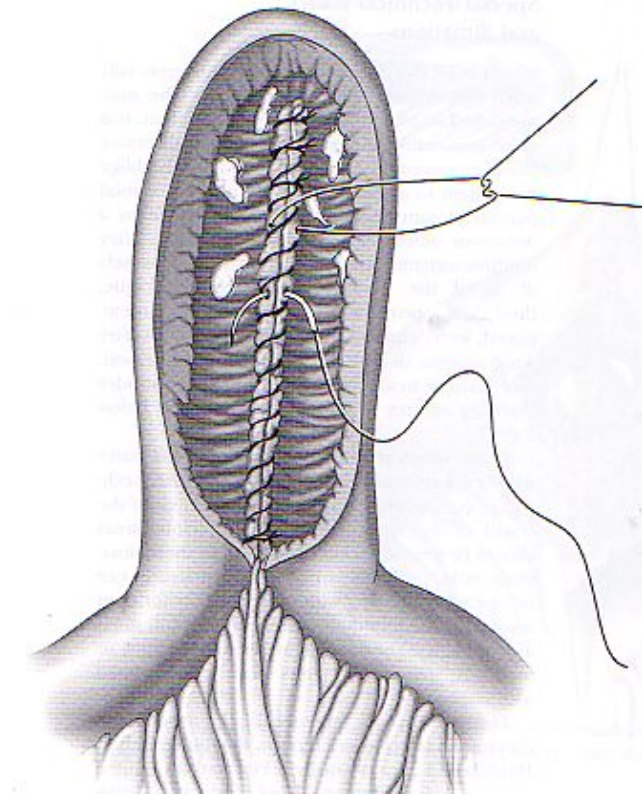
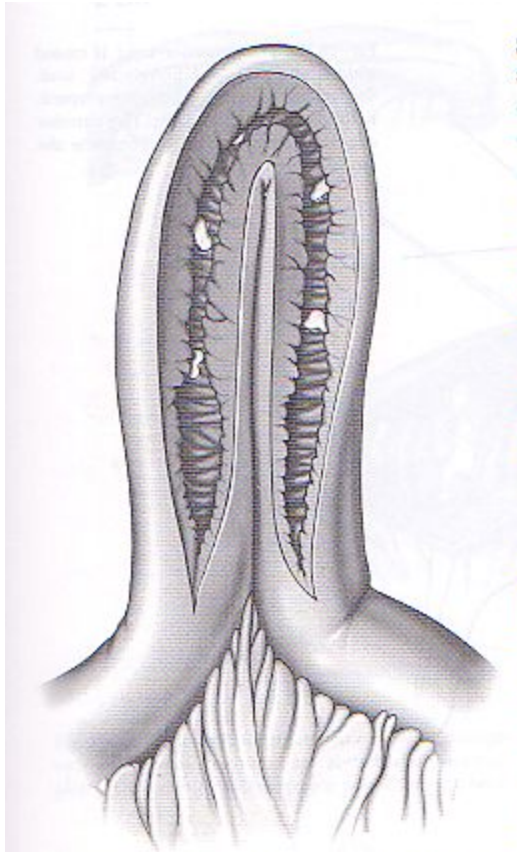
- Damage to ® ureter
- Mesen. Hematoma
- Damage to duodenum
- Ileocolic anas next to duodenum
- Strictures, fistulas
- Psoas abscess
- Anas. dehiscence



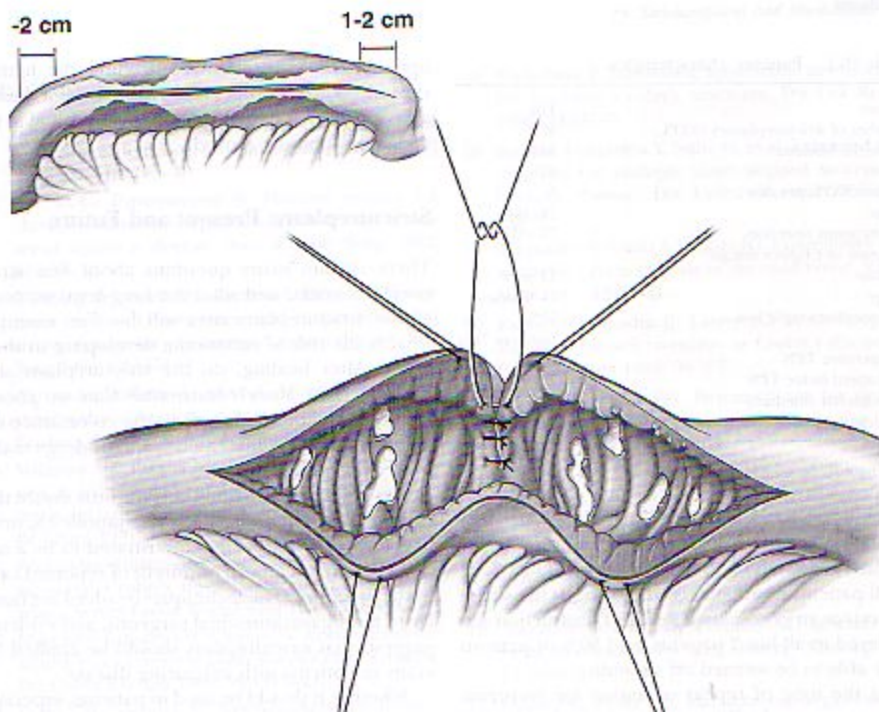
Strictureplasty – Heineke Mikulicz

1. Diffuse jejunoileitis causing significant obstruction that has failed to respond to medical management—especially single or multiple short fibrotic strictures.
2. Patients with multiple prior intestinal resections presenting with recurrent stricturing disease, at risk for development of a short bowel syndrome.
3. Recurrence of strictures within twelve months of a previous resection.
4. Isolated and limited ileocolonic anastomotic strictures.
5. Selected duodenal strictures.



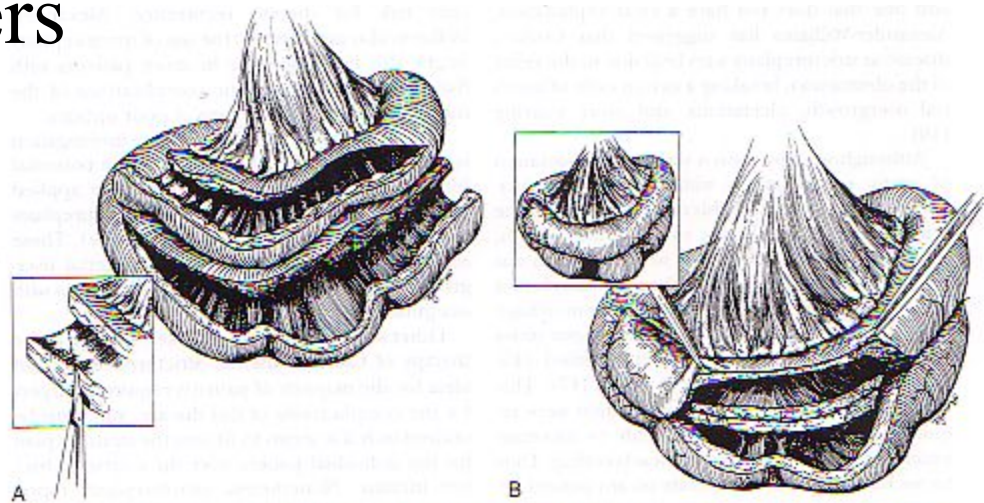


Strictureplasty - Finney

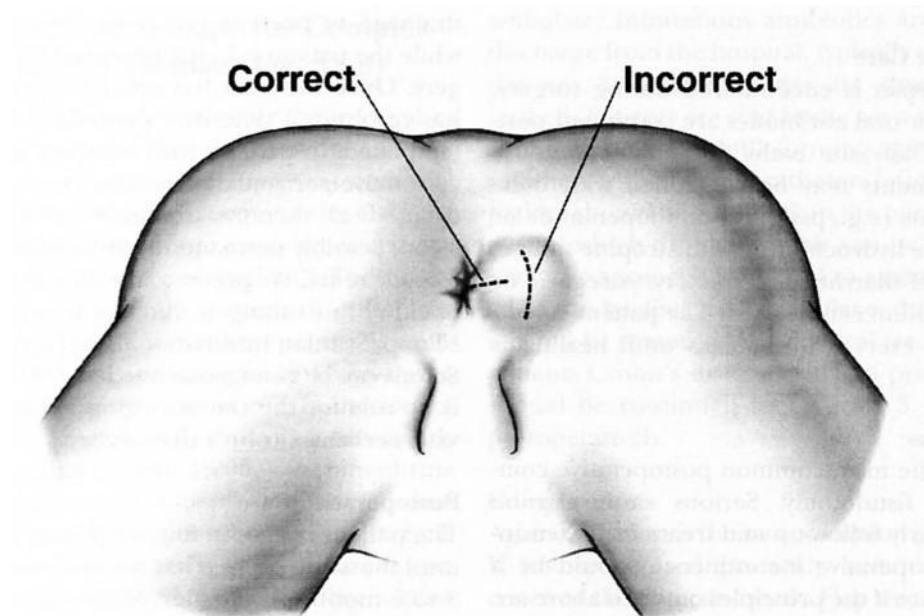


Strictureplasty - Jaboulay

Under-running ulcers







Drainage of perianal abscess

Remicade

Infliximab - a chimeric IgG1 kappa monoclonal antibody vs TNF

- Severe active Crohn's disease - CDAI 300 or more or at least 8 to 9 on the Harvey-Bradshaw Index.
- Treatment with immunomodulators and corticosteroids has not worked, or has caused side effects that make it impossible or unsafe.
- Because of the person's condition, surgery would not be the right form of treatment.

Can be repeated in those who responded to the initial treatment but whose condition then got worse.

Remicade



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Infliximab Maintenance Therapy for Fistulizing Crohn's Disease

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Conclusions Patients with fistulizing Crohn's disease who have a response to induction therapy with infliximab have an increased likelihood of a sustained response over a 54-week period if infliximab treatment is continued every 8 weeks.

Serum Antibodies for the Diagnosis of Inflammatory Bowel Disease

pANCA (perinuclear anti-neutrophilic cytoplasmic antibodies) as a confirmatory test for ulcerative colitis and ASCA (anti-Saccharomyces cerevisiae antibodies) as a confirmatory test for Crohn's disease.

- In this setting the sensitivity remains in the low to moderate range (39-78%, pooled average 60%), and the average specificity of pANCA and ASCA is 90% and 94% respectively

Paradigm shift

- **Infliximab**

Many trials (SONIC, PROTECT, ACCENT, COMMIT, GAIN) suggest should be started early to alter natural history of Crohn's disease (decrease need for op and postop recurrence), rather than as rescue.

- Mucosal healing rather than symptom control should be the new end-point of medical treatment.

- **Capsule Endoscopy**

Diagnostic evaluation of Crohn's