

Diseases of the Colon

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I have no disclosures

I work for the Curators of the
University of Missouri

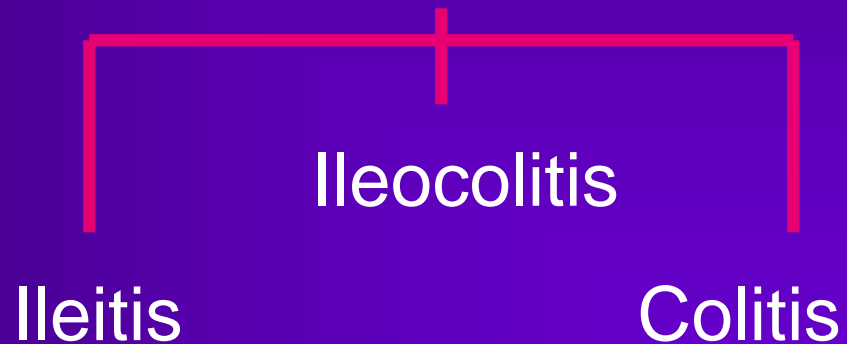
Inflammatory Bowel Disease

ULCERATIVE COLITIS

Mucosal Ulceration
in Colon

CROHN'S DISEASE

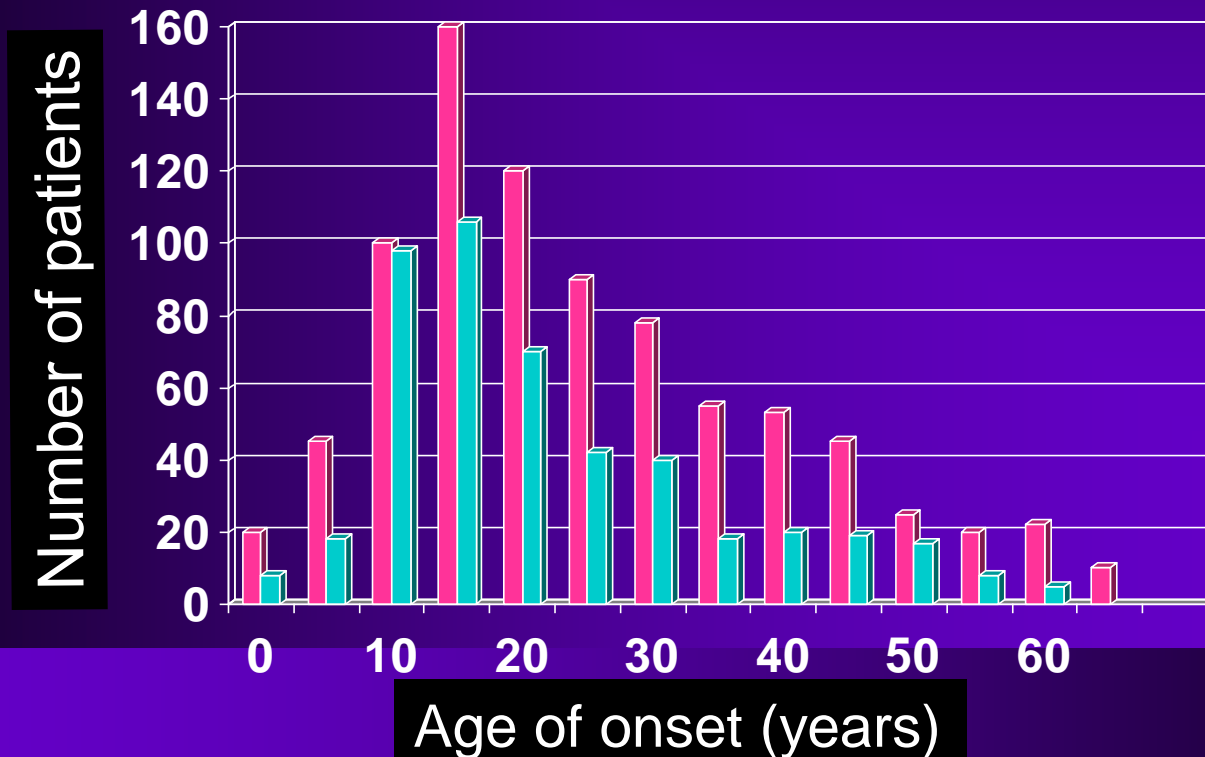
Transmural Inflammation



Inflammatory Bowel Disease Epidemiology

- Approximately equal incidence among males and females
- 10%-25% of relatives affected
- Strong concordance in disease type among family members

■ Ulcerative Colitis ■ Crohn's Disease



Inflammatory Bowel Disease

Etiology

- Smoking
 - Exacerbates Crohn's disease
 - Protects against ulcerative colitis
 - Reasons are unknown

Inflammatory Bowel Disease

Distinguishing Features

Ulcerative Colitis Crohn's Disease

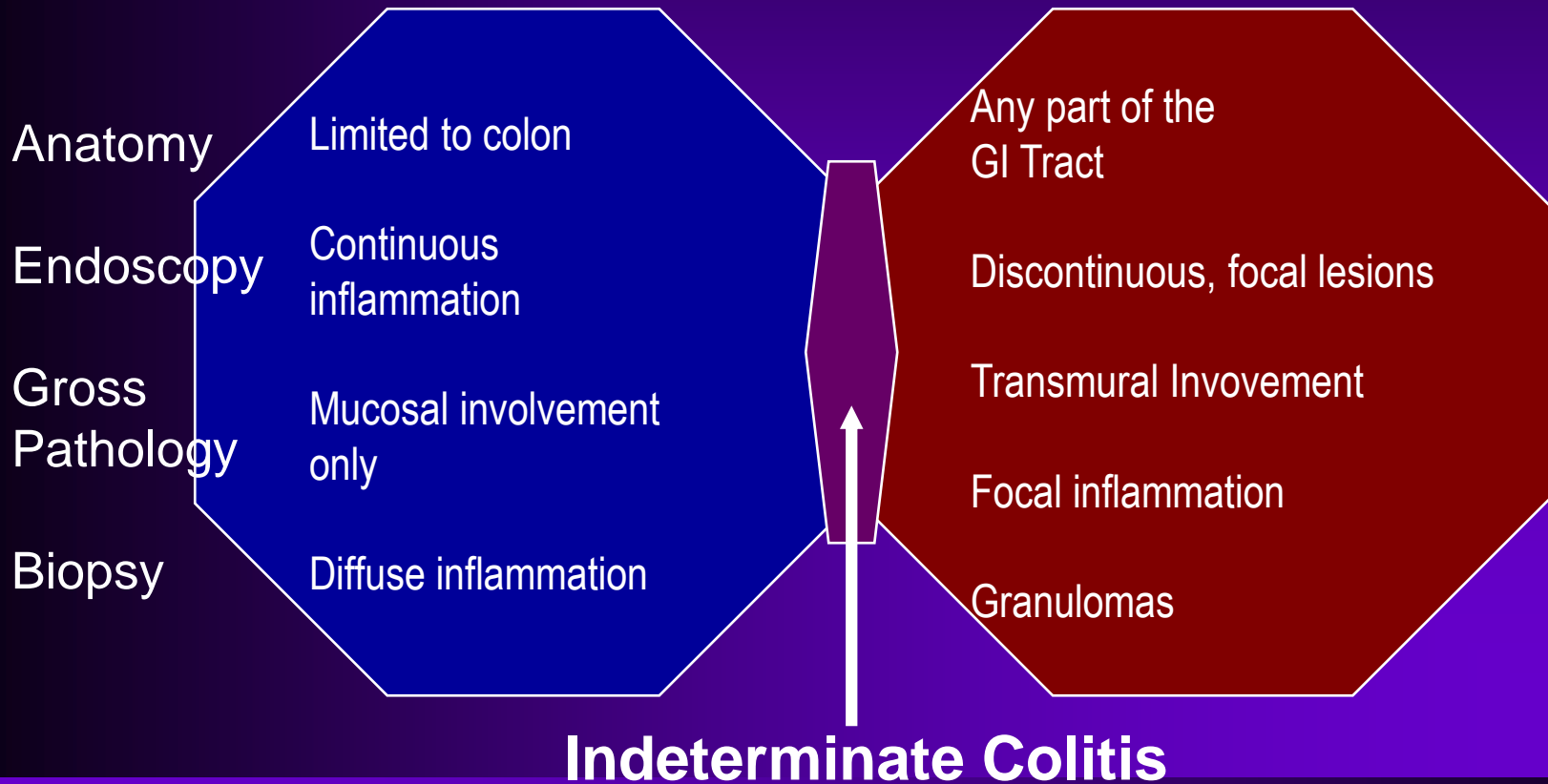
Bleeding	++++	+
Tenesmus	++++	++
Abdominal Pain	+	+++
Fever	+	++
Weight Loss	+	++
Perineal Disease	0	+++
Fistulas	0	+++

Inflammatory Bowel Disease

Distinguishing Features

Ulcerative Colitis

Crohn's Disease

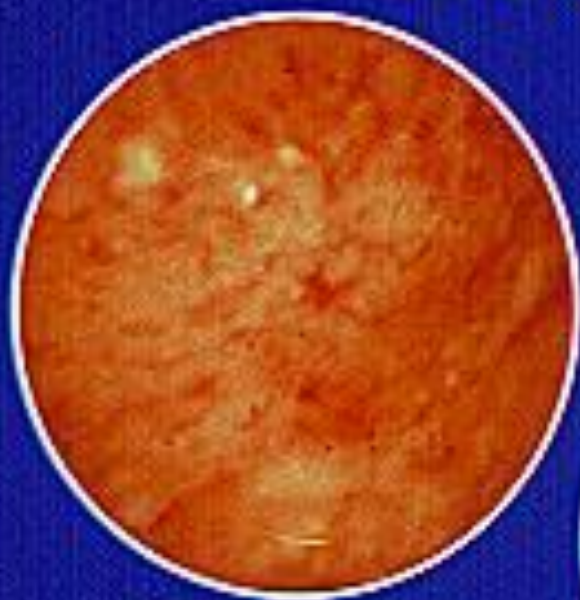


Ulcerative Colitis

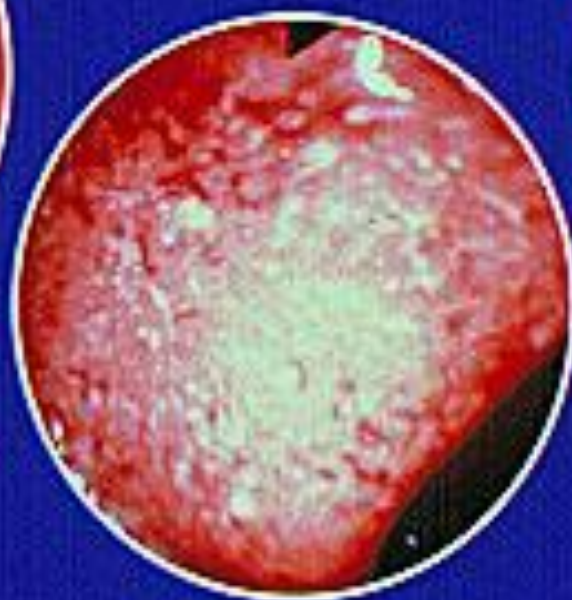
Diagnosis

- Endoscopic Features
 - Loss of vascular markings
 - Diffuse erythema
 - Exudate
 - Hemorrhage

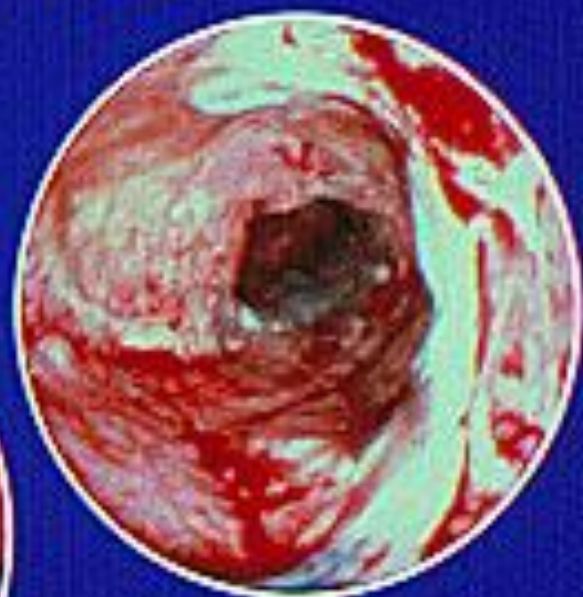
ENDOSCOPIC SPECTRUM OF PROCTOCOLITIS



Mild



Moderate



Severe

Ulcerative Colitis

Clinical Features

- Rectal bleeding
- Mucus
- Tenesmus
- Diarrhea
- Abdominal cramps

Crohn's Disease

Clinical Features

- Chronic abdominal pain
- Diarrhea
- Perineal disease
- Distension
- Weight loss
- Fever
- Rectal bleeding (variable)
- Growth failure

Crohn's Disease

Clinical Features

- Obstruction
- Appendicitis-like presentation
- Fistulas
- Abscesses
- Gallstones
- Nephrolithiasis
- Steatorrhea

Inflammatory Bowel Disease

Clinical Features

- Toxic Megacolon
 - Edema of the bowel wall

Inflammatory Bowel Disease

Clinical Features



Toxic Megacolon

- Edema of the bowel wall

Inflammatory Bowel Disease

Clinical Features

- Extraintestinal Manifestations
 - Skin
 - Joints
 - Eyes
 - Liver
 - Thromboembolic

Ulcerative Colitis

Systemic Complications in SKIN



Erythema Nodosum



Pyoderma Gangrenosum

Ulcerative Colitis

Colorectal Cancer

Distinguishing Features

- Multiple
- Arises from flat mucosa
- Infiltrates broadly
- Uniformly distributed
- Anaplastic
- Younger age

Ulcerative Colitis

Systemic Complications

Peripheral Arthritis

- Monoarticular
- Asymmetrical
- Large >small joint
- No synovial destruction
- No subcutaneous nodules
- Seronegative

Ulcerative Colitis

Indications for Surgery

- Exanguinating hemorrhage
- Toxicity and/or perforation
- Suspected cancer
- Significant dysplasia
- Growth retardation
- Systemic complications
- Intractability

Crohn's Disease

Intestinal Complications

Fistula

- Mesenteric
- Entero-enteric
- Entero-vesical
- Retroperitoneal
- Entero-cutaneous

Crohn's Disease

Endoscopic Appearances

- Aphthae
- Stellate Ulcer
- Longitudinal Ulcer
- Pseudopolyp

Crohn's Disease

Endoscopic Appearances

Aphthae



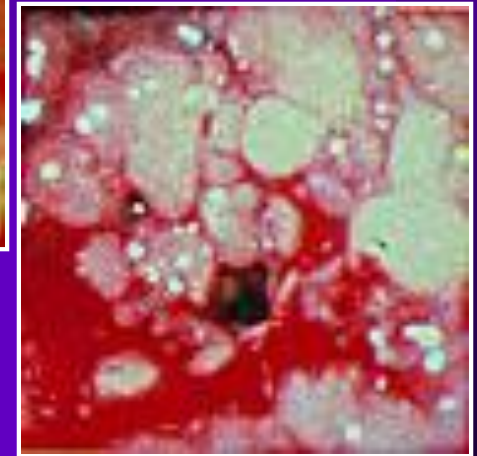
Stellate Ulcer



Longitudinal Ulcer



Pseudopolyps



CROHN'S DISEASE



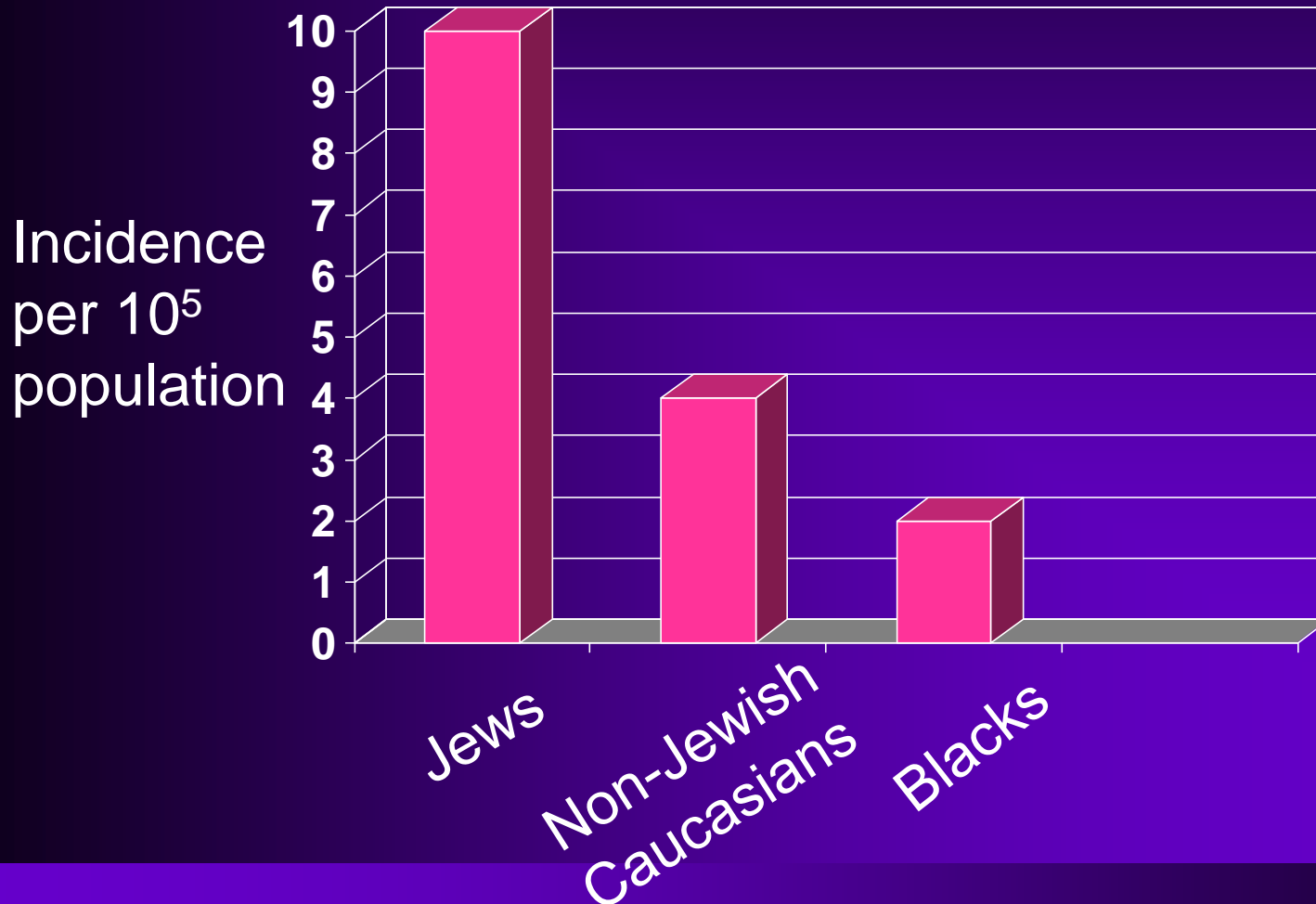
Ileitis



"String Sign"

Inflammatory Bowel Disease

Ethnic and Racial Incidence



Inflammatory Bowel Disease Management

■ Anti-inflammatories

➤ 5-ASA agents

- Sulfasalazine
- Mesalamine
- Olsalazine

➤ Corticosteroids

■ Immunosuppressives

- 6-Mercaptopurine
- Azathioprine

■ Antibiotics

- Metronidazole
- Quinolones

■ Antidiarricals

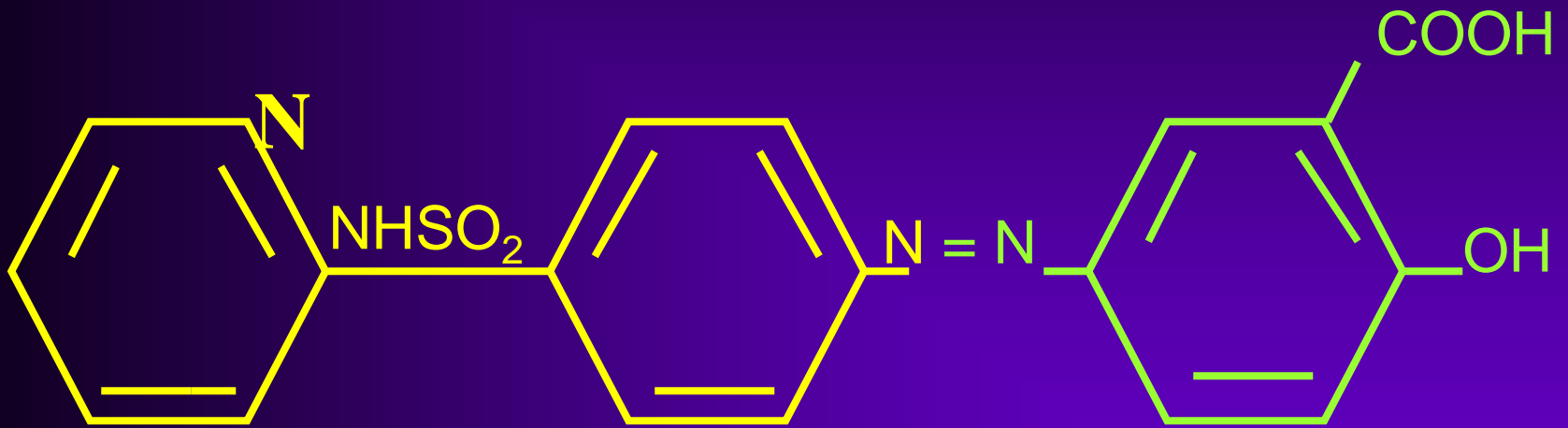
- Loperamide hydrochloride
- Diphenoxylate with atropine
- Cholestyramine

■ Biologics

Inflammatory Bowel Disease Management

- Proctitis
 - Mesalamine suppositories/enemas
 - Steroid foams/enemas
- Distal colitis
 - Mesalamine enemas
 - Steroid enemas
 - Sulfasalazine
 - Oral mesalamine

Sulfasalazine



SULFAPYRIDINE

5-AMINOSALICYLATE

Crohn's Disease

Management

Drug Therapy

Gastroduodenal

- ⌘ Prednisone
- ⌘ 6-Mercaptopurine (6-MP) /azathioprine
- ⌘ Omeprazole

Ileal

- ⌘ Budesonide
- ⌘ Prednisone
- ⌘ Sulfasalazine
- ⌘ Mesalamine
- ⌘ 6-MP/azathioprine

Colitis

- ⌘ Distal
 - 5-ASA enemas
 - Steroid enemas
- ⌘ > 60 cm
 - Sulfasalazine
 - Mesalamine
 - Metronidazole
 - Prednisone
- ⌘ Severe
 - Prednisone
 - parenteral steroids
 - Antibiotics

Perineal

- ⌘ Metronidazole
- ⌘ Ciprofloxacin
- ⌘ 6-MP

Remission

- ⌘ 6-MP/azathioprine
- ⌘ Oral Mesalamine
- ⌘ Methotrexate

Biologics

When to Use AZA/6-MP in IBD:

Evidence-based indications

- Steroid-dependent disease¹
- Steroid-resistant disease¹
- Relapse prevention²
- Perianal disease³
- Fistulizing disease³
- Post-operative recurrence prevention⁴
- Prevention of Colectomy for UC After Induction with CsA⁵

1. Sandborn W, et al. *Cochrane Database Syst Rev.* 2000;(2):CD001176.

2. Pearson DC, et al. *Cochrane Database Syst Rev.* 2000;(2):CD000067.

3. Sandborn WJ, et al. *Gastroenterology.* 1999;117:527-535.

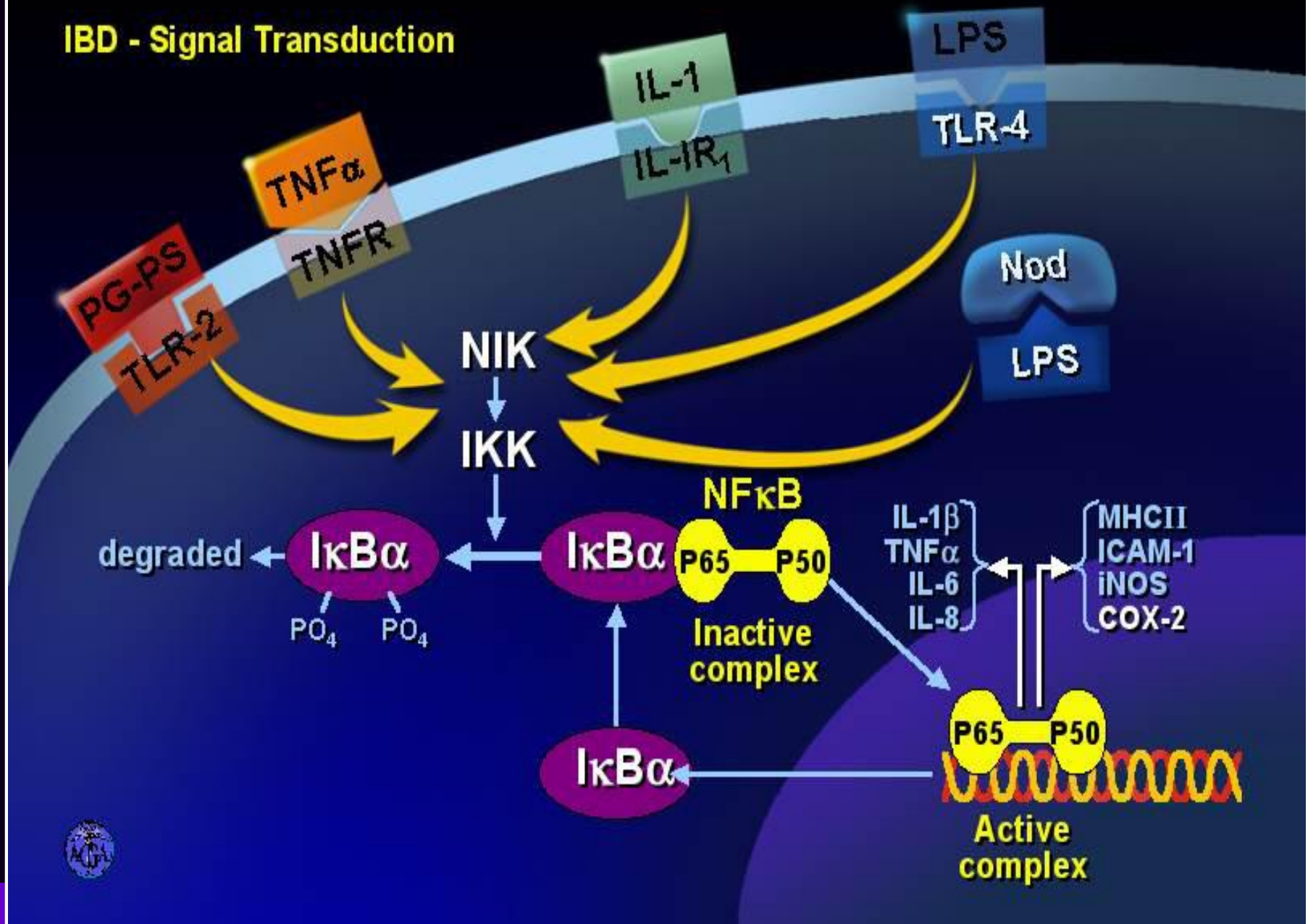
4. Korelitz BI, et al. *Am J Gastroenterol.* 1993;88:1198-1205.

5. Cohen RD, et al. *Am J Gastroenterol.* 1999;94:1587-1592.

TNF

- An early, pivotal mediator of inflammation
- A pro-inflammatory molecule that activates the “master switch” nuclear factor KB which lends to further production of other pro-inflammatory cytokines
- Recruitment of inflammatory cells by up-regulation of adhesion molecules (cell trafficking)

IBD - Signal Transduction

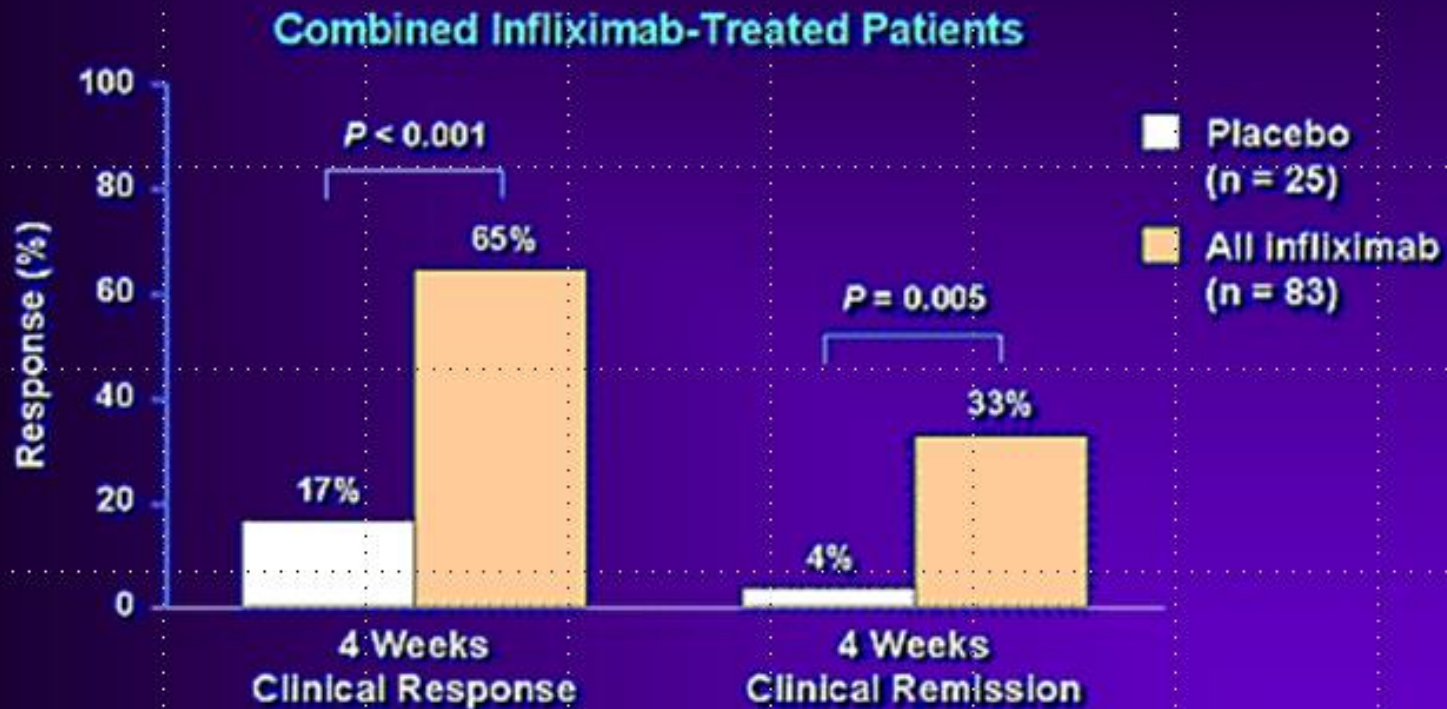


Infliximab

- IgG1 MAB
- Binds to TNF both soluble and transmembrane
- Accent I - conducted to determine whether maintenance Infliximab provides better long-term efficacy than no further treatment in people with Crohn's disease who responded to one dose

Infliximab

In Active Crohn's Disease



Clinical response defined as at least a 70-point reduction in CDAI.
Clinical remission defined as a decline of the CDAI below 150.

Targan S, et al. *N Engl J Med.* 1997;337:1029-1035.

Diarrhea is both a sign & symptom

■ As a Symptom

- ↑ Frequency
- ↑ Volume
- ↓ Consistency

■ As a Sign

- Stool weight > 150 to 200 g per 24 hr.
- Stool water > 150 to 200 ml per 24 hr.

History is helpful in evaluating patients with diarrhea

- History:
 - Duration, travel history, medications, patient age, diet
- Character:
 - Frequency, volume, blood, consistency
- Other manifestations:
 - Fever, weight loss, anorexia, nausea, vomiting, dehydration

Features of diarrhea provide clues to the pathophysiological process

■ Features

➤ Blood, pus in stool

➤ Large volume (>1 liter/day)

➤ Effects of fasting:

➤ Diarrhea persists

➤ Decrease in diarrhea

➤ Stool pH (<6)

■ Possible mechanism

➤ Colonic & rectal inflammation

➤ Active secretion

➤ Not a dietary factor

➤ Non-absorbed dietary solute

➤ Non-absorbed carbohydrate in children

Chronic and recurrent diarrhea should always be investigated

History & physical exam

- Stool exam:
 - Cultures, ova & parasites
 - Blood, leukocytes, microscopic fat
 - Quantitative volumes and fat studies as indicated
- Other studies:
 - Endoscopic examinations w/biopsy
 - Absorption studies
 - Special studies:
 - Imaging studies (CAT scans, ultrasound, etc.)
 - Barium studies
 - Stool and urine analyses for laxative & diuretics

Lower GI Bleeding

Yield of Urgent Colonoscopy

Massive Hematochezia

Colonoscopy

Endoscopic therapy

No lesion found
or Failed therapy

20-30% Controlled

60-70% continue bleeding

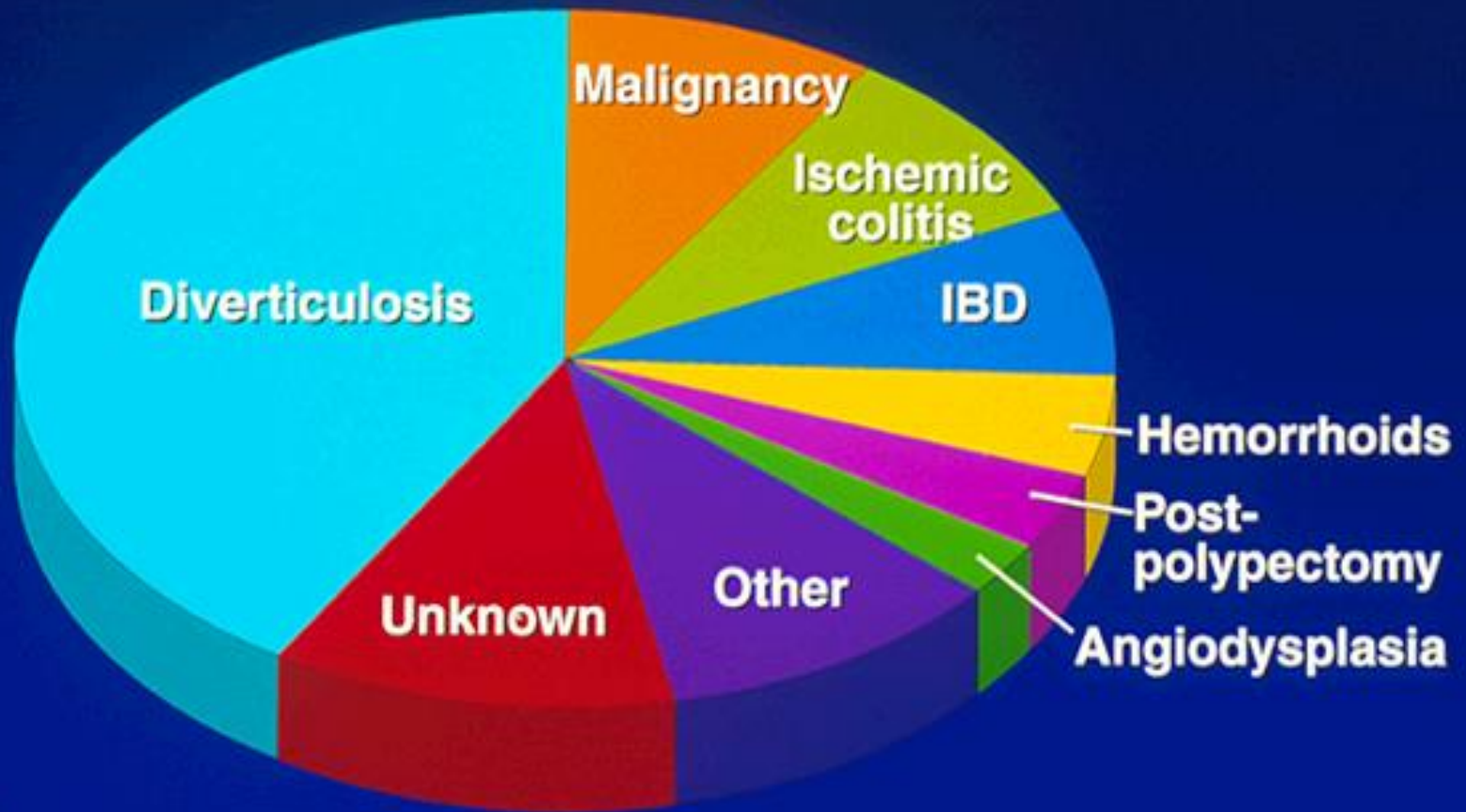
Stop spontaneously

Surgery

Controlled with angiography

LGI Bleeding

Etiology



Lower GI Bleeding Options

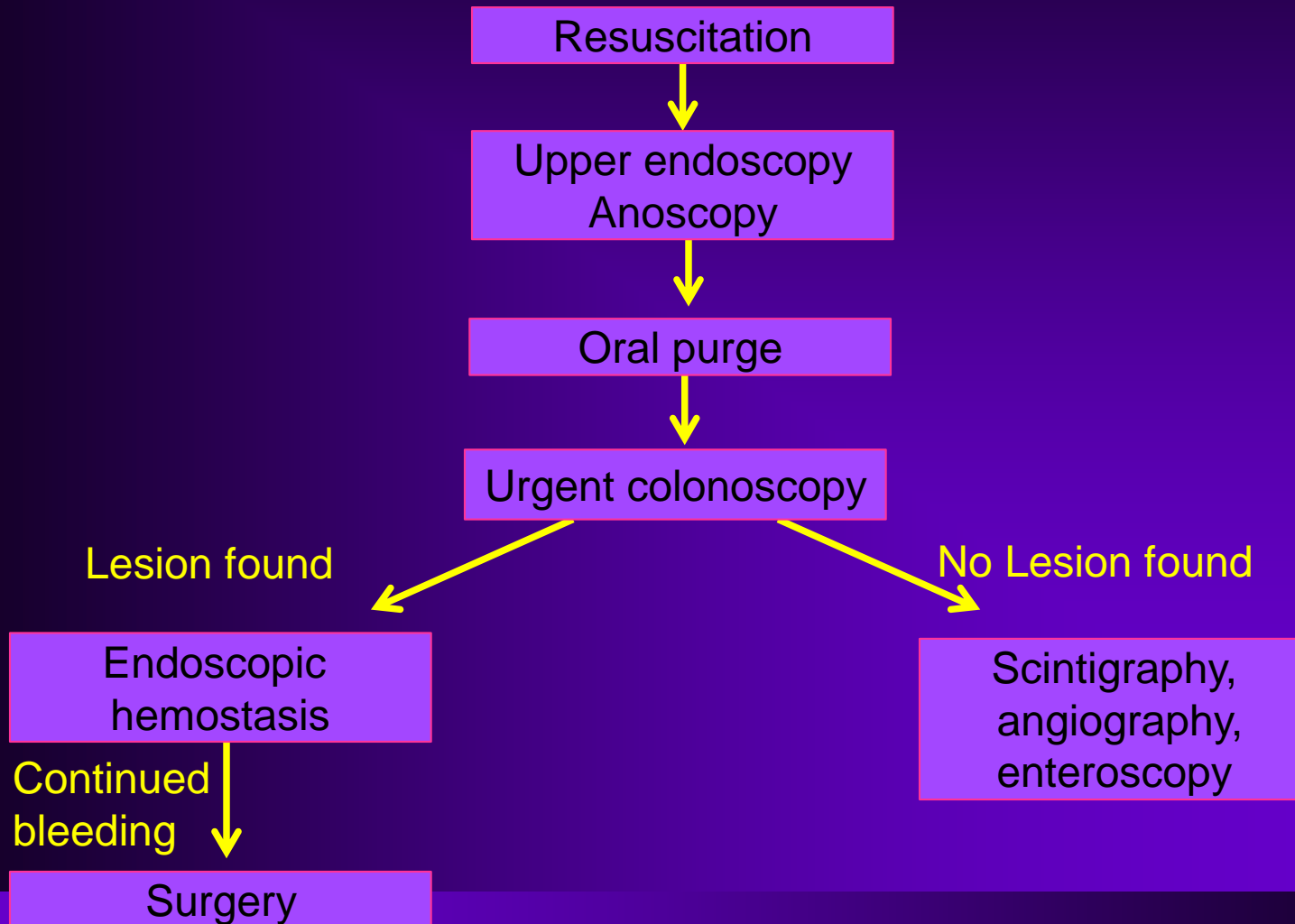
■ Diagnostic

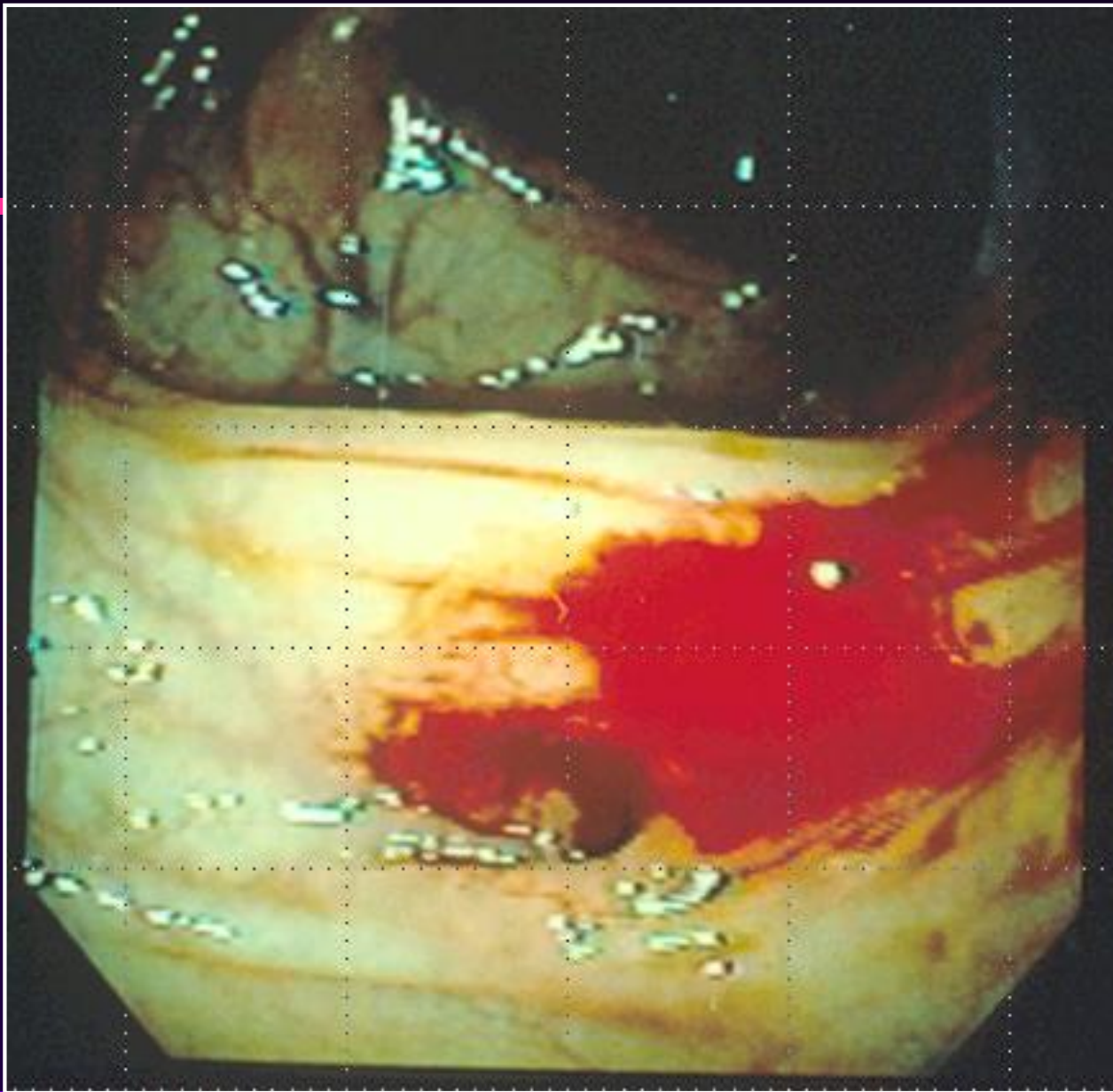
- Anoscopy
- Sigmoidoscopy
- Colonoscopy
- Balloon Enteroscopy
- Small Bowel x-ray
- Scintigraphy
- Angiography
- Intra-operative
Endoscopy

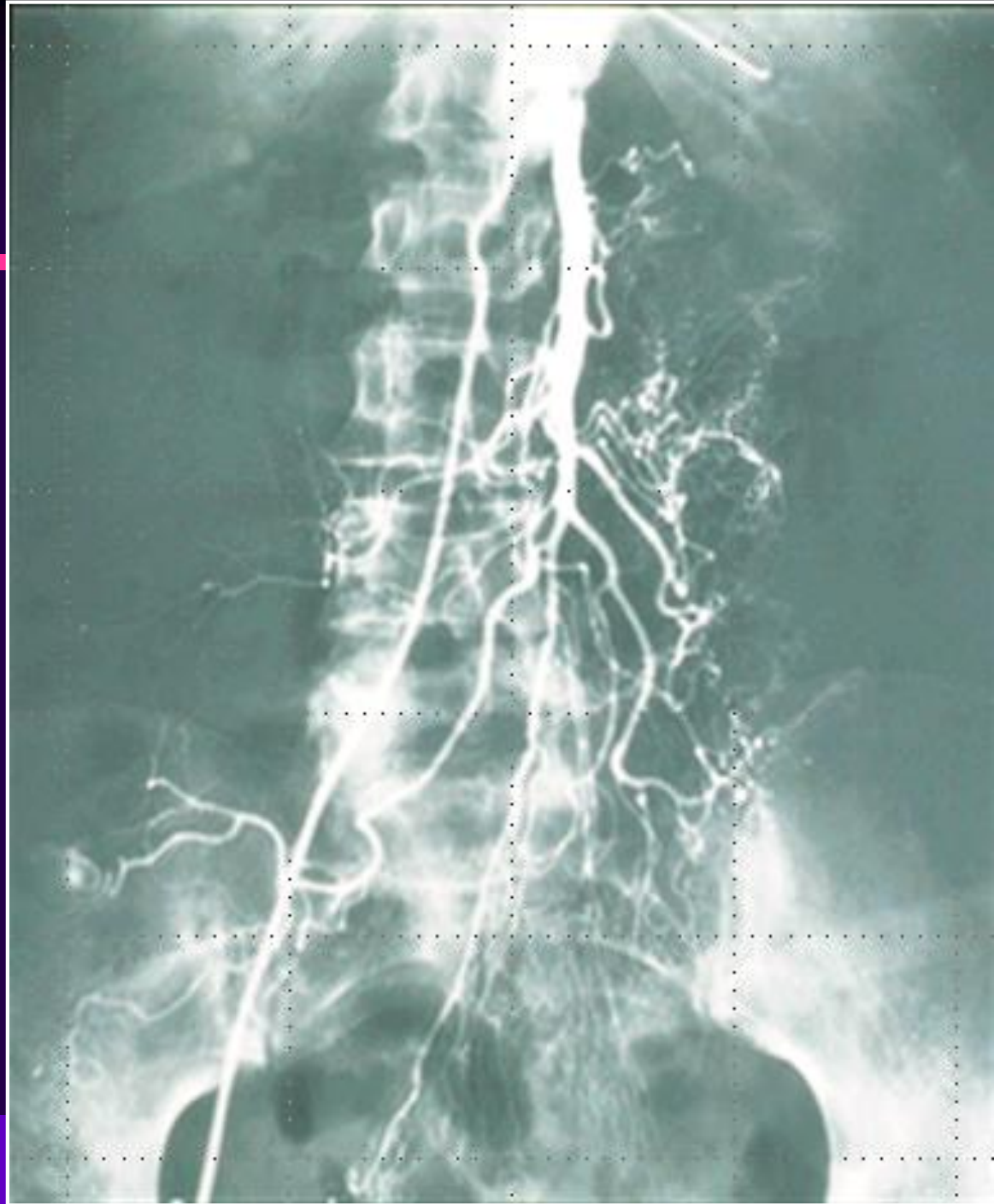
■ Therapeutic

- Endoscopic
 - Thermal
 - Injection
 - Polypectomey
 - Argon Plasma coag.
- Angioigraphic
 - Vasopressin
- Surgery

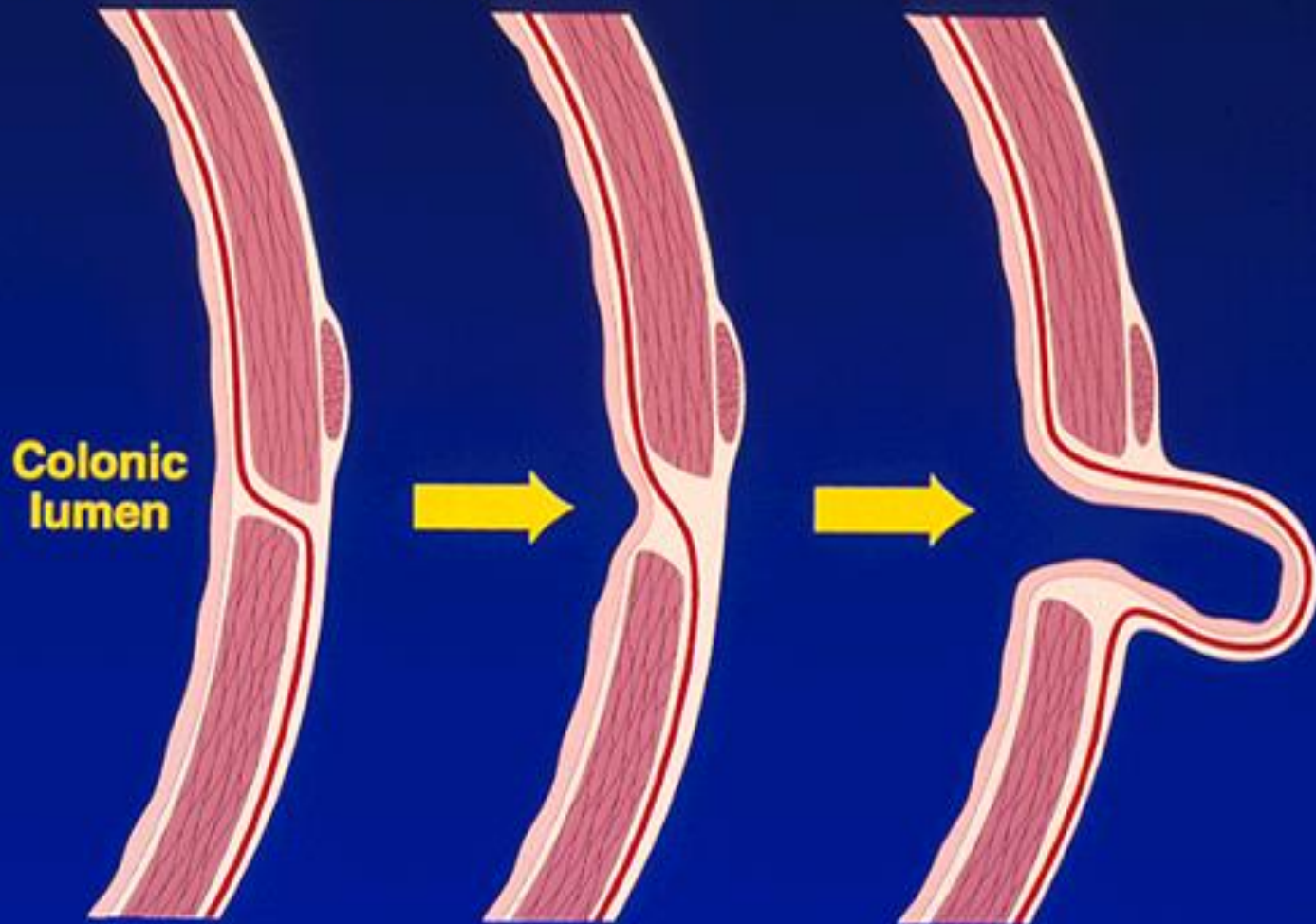
Lower GI Bleeding Massive

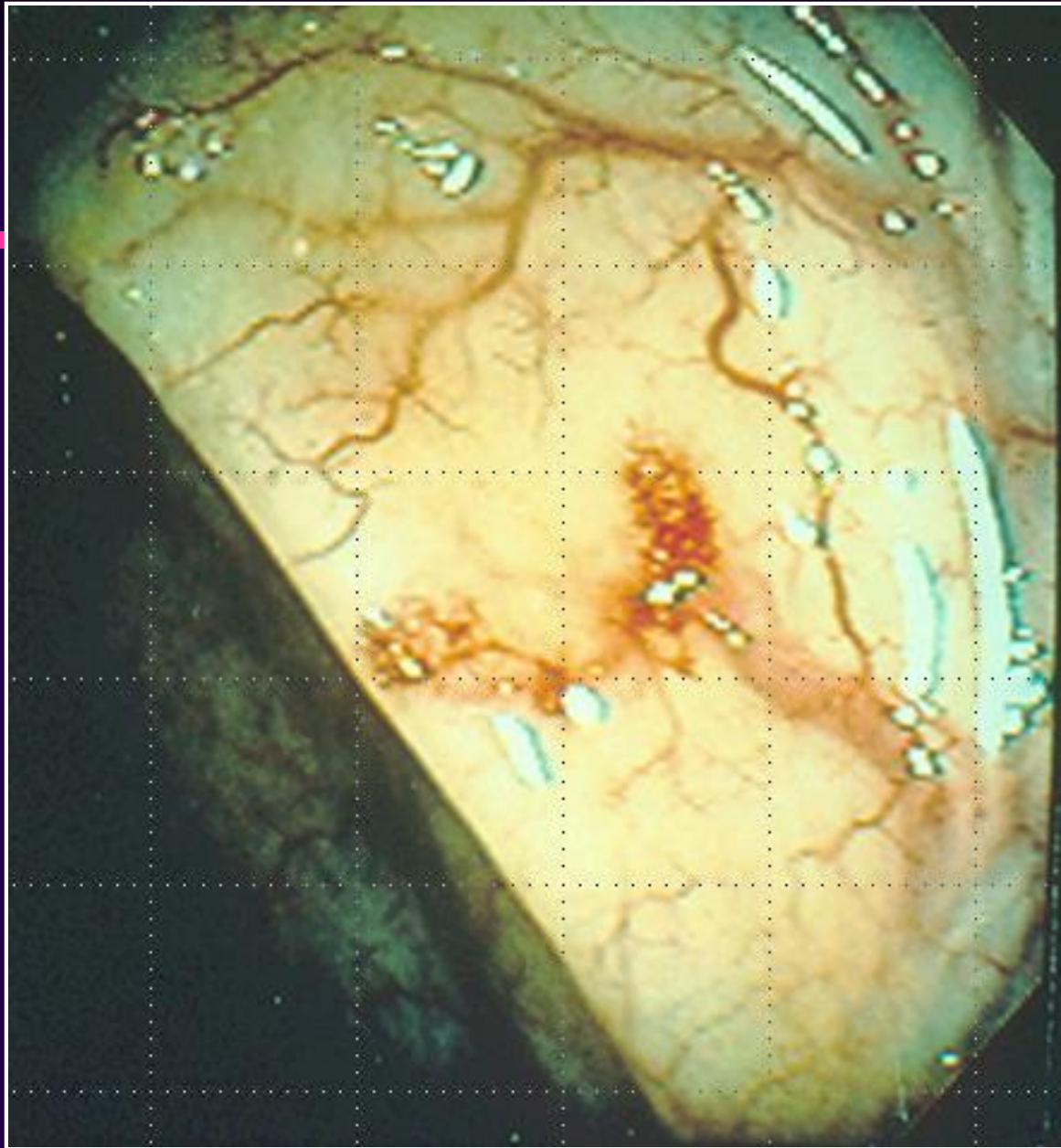


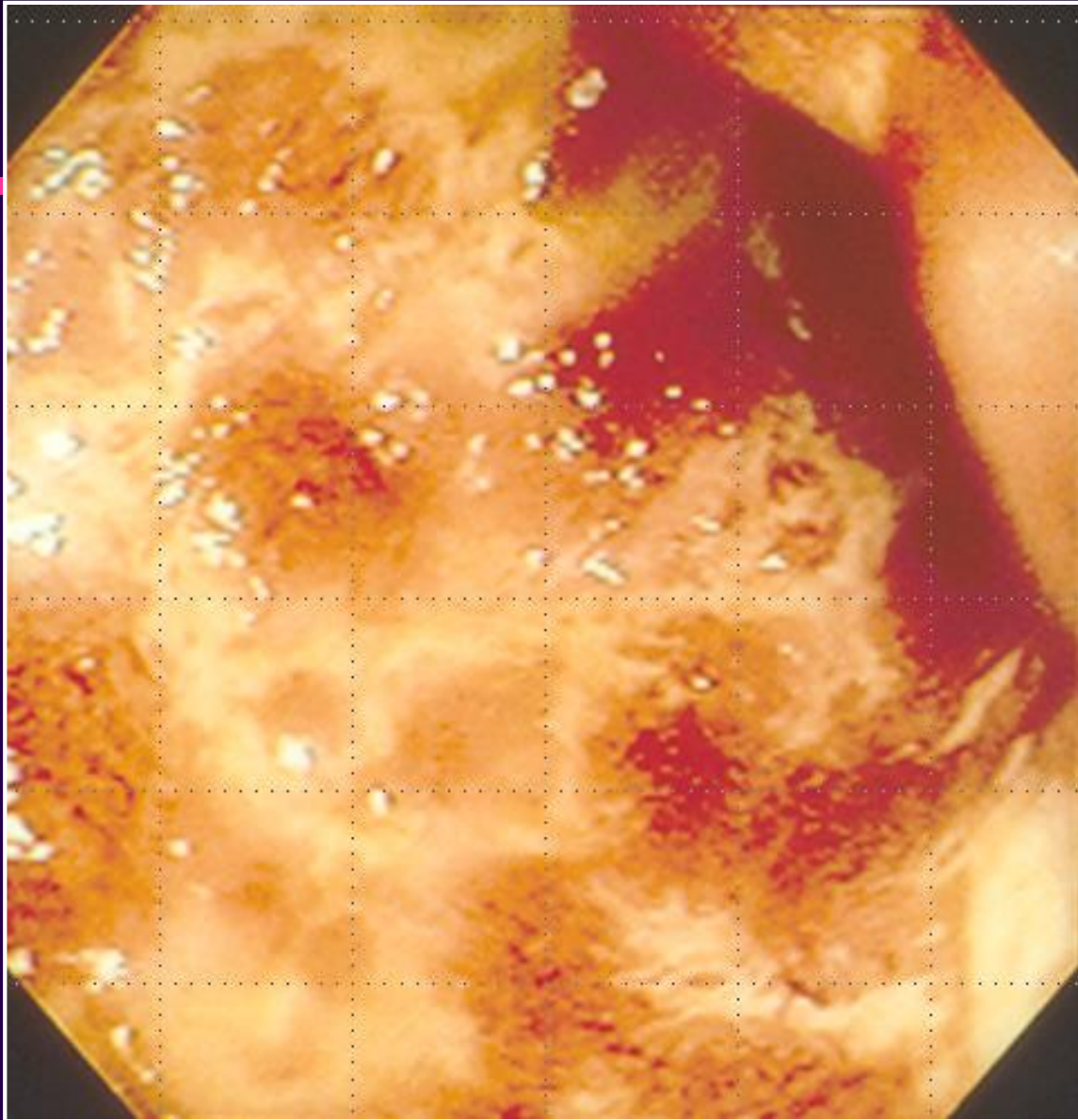


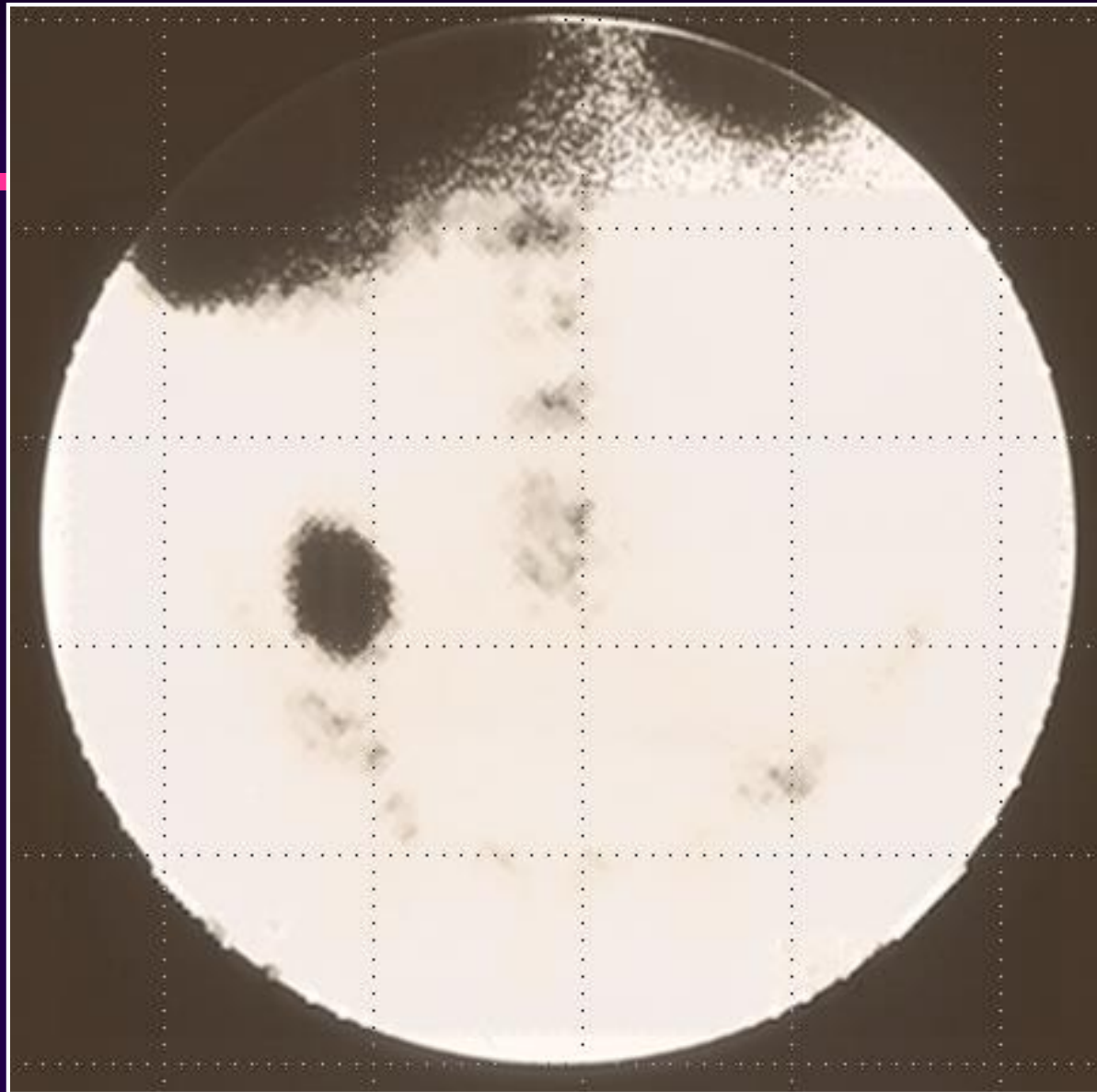


Diverticular Disease - Bleeding









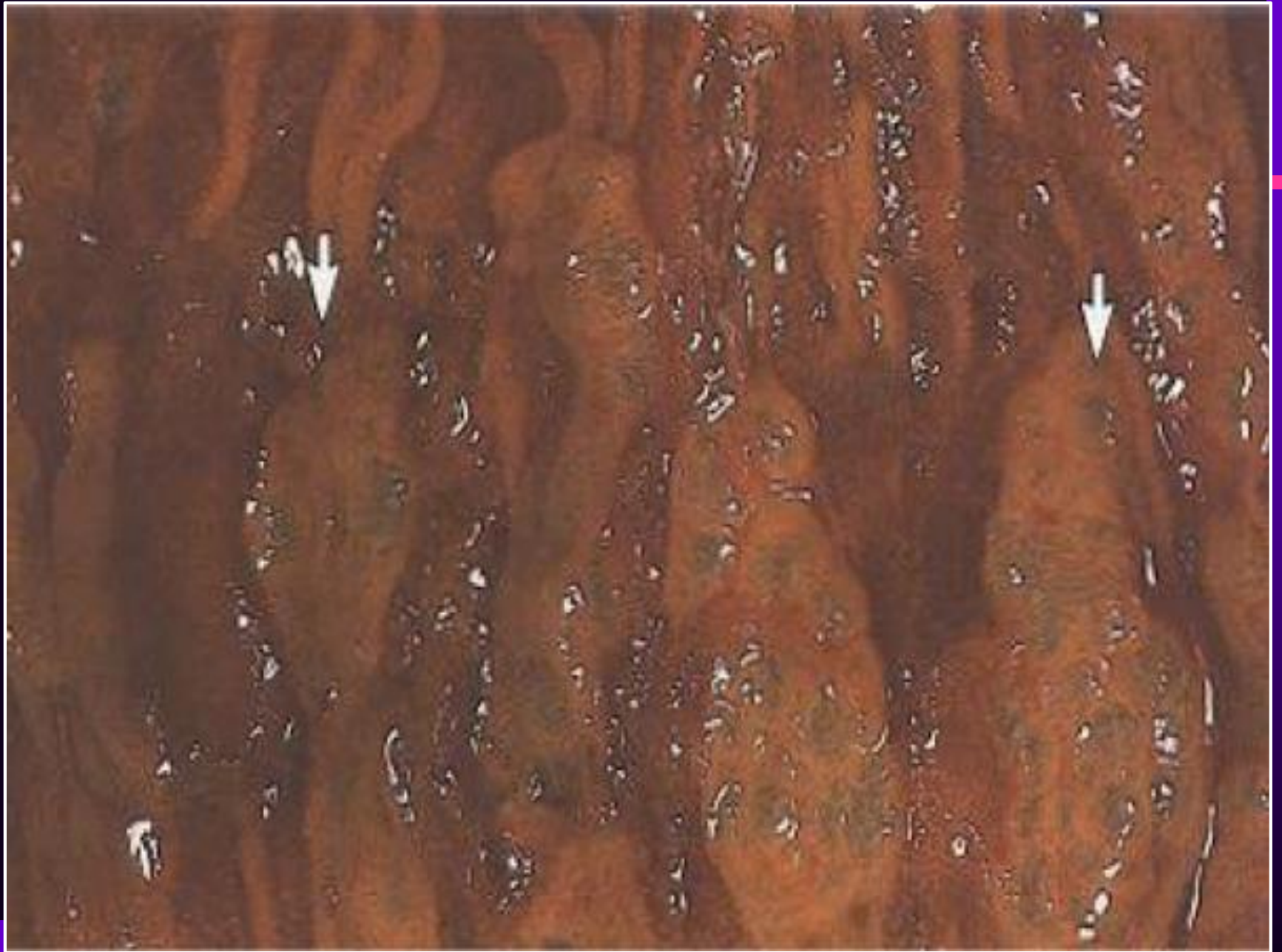
Microscopic Colitis

- Collegenous and lymphocytic
- Chronic watery diarrhea
- Normal endoscopic appearance
- Female, 50-70 years old
- Collagen band/lymphocyte infiltration
- Treatment - bismuth subsalicylate
- Treatment - budesonide

Pneumatosis Coli (Pneumatosis Cystoides Intestinalis)

- Multiple gas filled cysts in the sub mucosa of the gut
- Distinguish from pneumatosis linearis
- Most cases occur in small bowel
- 6% occur in the colon - usually left side
- Associated conditions - appendicitis, IBD, diverticulosis, c. diff., colitis, ileus, AIDS, steroids, COPD





Colitis Cystica Profunda

- Mucin-filled cysts located in sub mucosa of bowel
- 3 patterns
 - Localized with polypoid lesion
 - Diffuse with multiple polypoid lesions
 - Diffuse with a confluent sheet of cysts
 - Etiology: unknown, associated with diseases that predispose to ulceration – IBD, infections, or cancer
 - Presents with bleeding, mucus, diarrhea or prolapsed rectum
 - Endoscopy – may look like cancer, polyps, lipoma

Endometriosis (of the intestines)

- Usually involves the rectosigmoid, appendix or ileum
- Most asymptomatic, can bleed, cause pain
- Differential - IBD, diverticulitis, TB, ischemia, neoplasia

Solitary Rectal Ulcer Syndrome (SRUS)

- Disorder of evacuation
- Causes rectal ulceration, erythema or mass associated with straining, rectal prolapse
- Found on anterior wall or rectum
- Symptoms - constipation, mucus, blood
- Diagnosis is by histology
- Treatment - improve bowel habits, biofeedback