Diseases of the Colon

Jack Bragg, D.O., F.A.C.O.I.

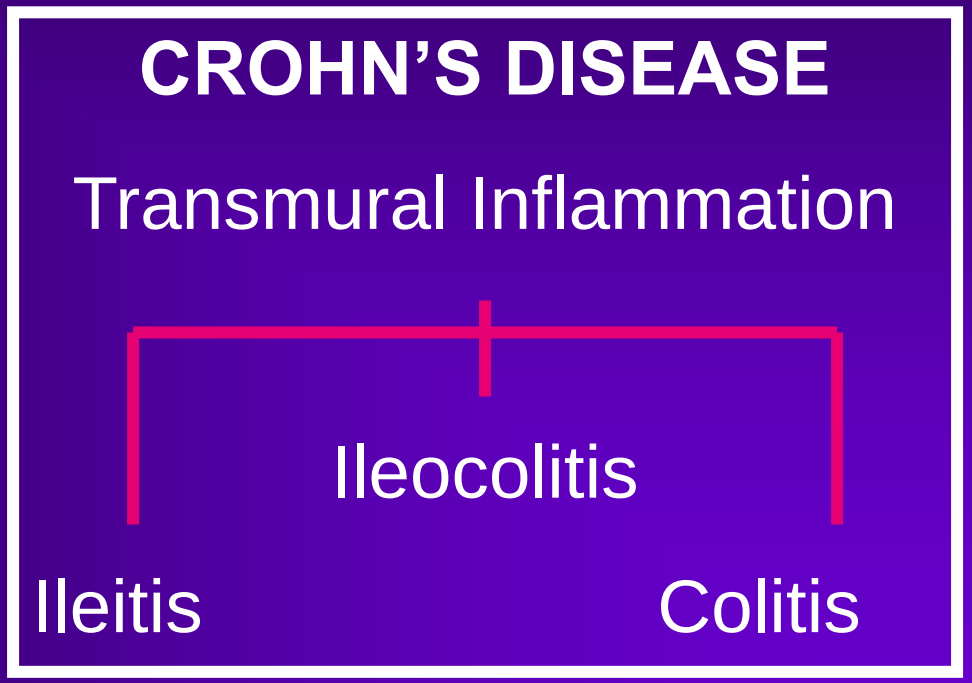
I have no disclosures

I work for the Curators of the University of Missouri

Inflammatory Bowel Disease

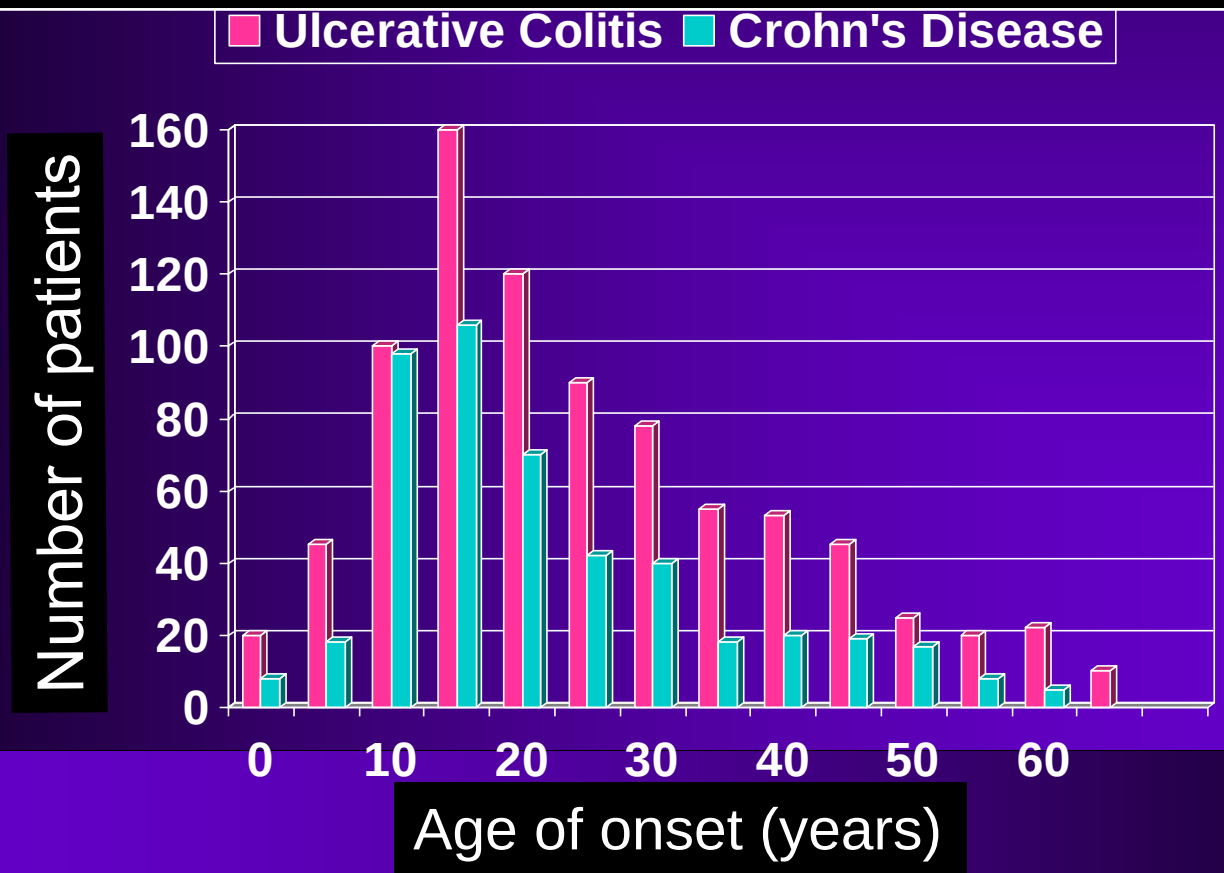
ULCERATIVE COLITIS

Mucosal Ulceration in Colon



Inflammatory Bowel Disease
Epidemiology

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



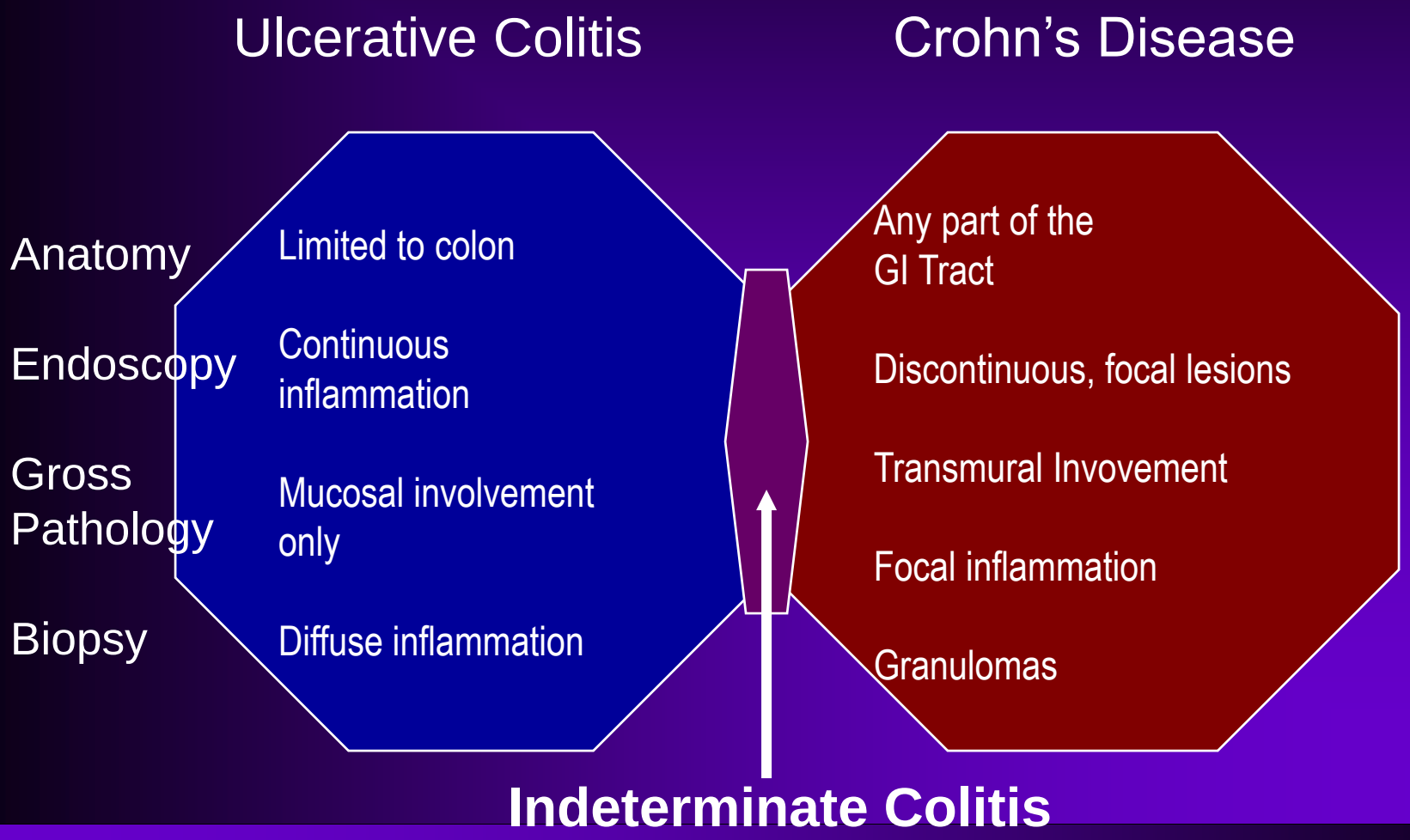
Inflammatory Bowel Disease
Etiology

- 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	+++

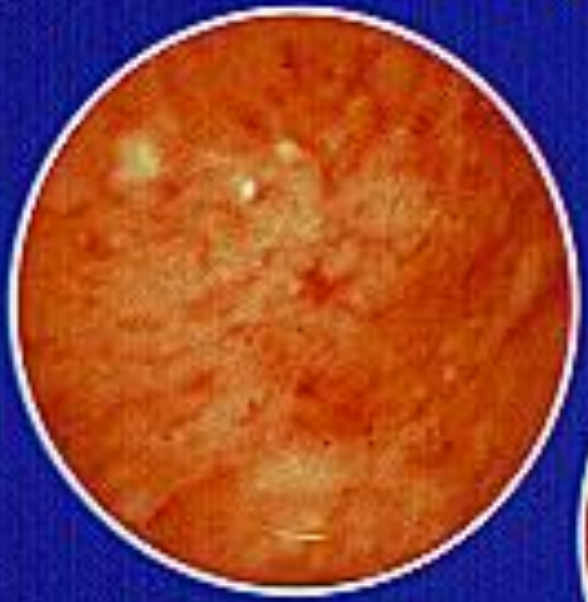
Inflammatory Bowel Disease
Distinguishing Features



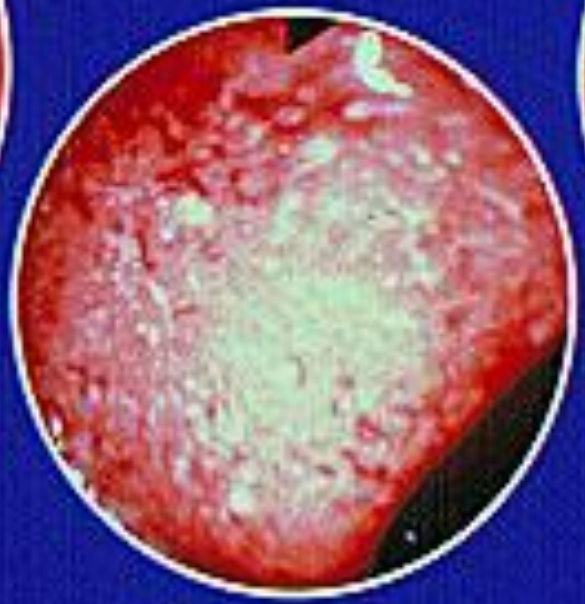
Ulcerative Colitis
Diagnosis

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

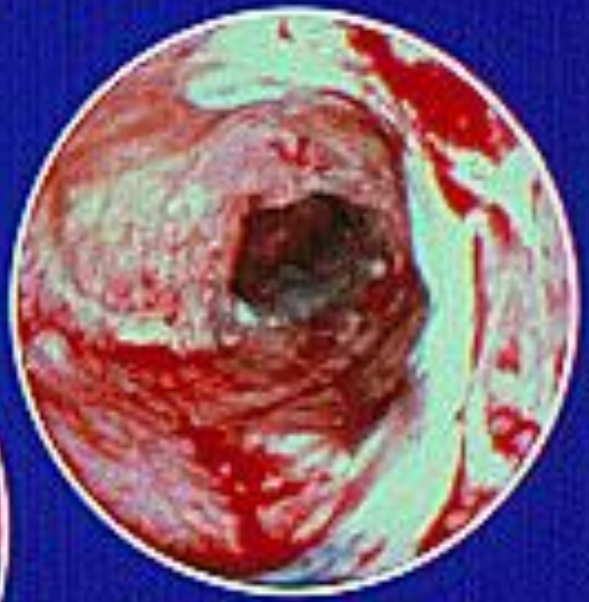
ENDOSCOPIC SPECTRUM OF PROCTOCOLITIS



Mild



Moderate



Severe

Crohn's Disease
Clinical Features

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

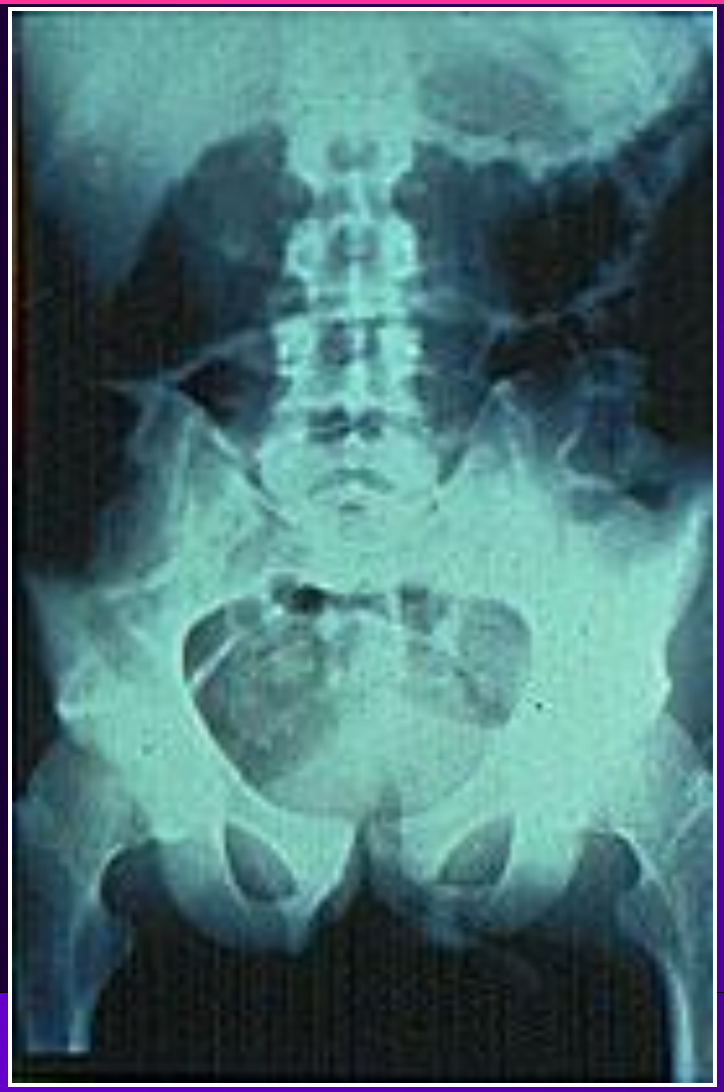
Crohn's Disease
Clinical Features

- 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



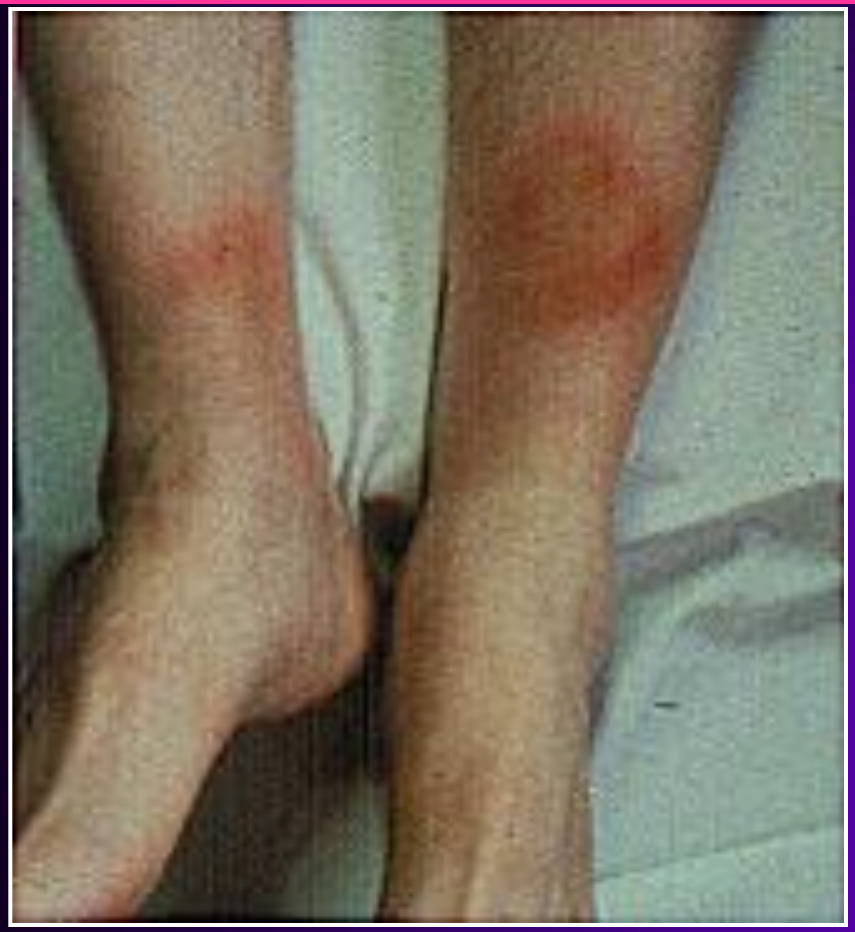
Toxic Megacolon

- 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

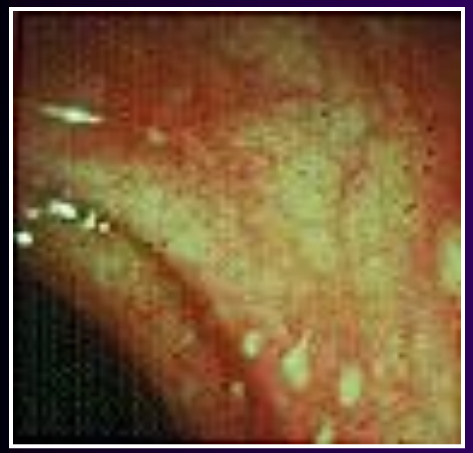
- Mesenteric
- Entero-enteric
- Entero-vesical
- Retroperitoneal
- Entero-cutaneous

Crohn's Disease
Endoscopic Appearances

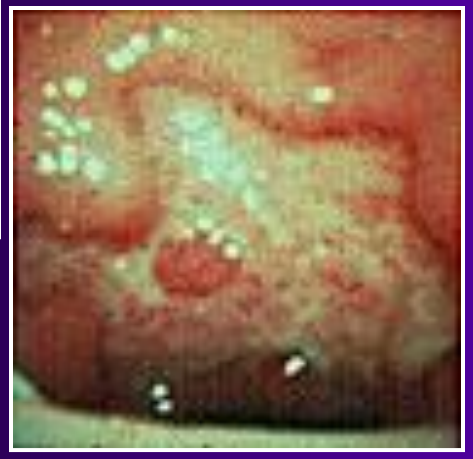
- Aphthae
- Stellate Ulcer
- Longitudinal Ulcer
- Pseudopolyp

Crohn's Disease
Endoscopic Appearances

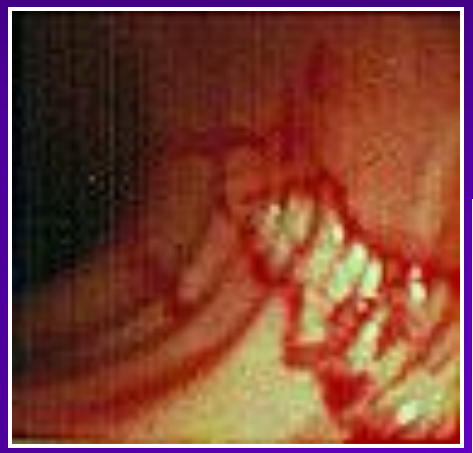
Aphthae



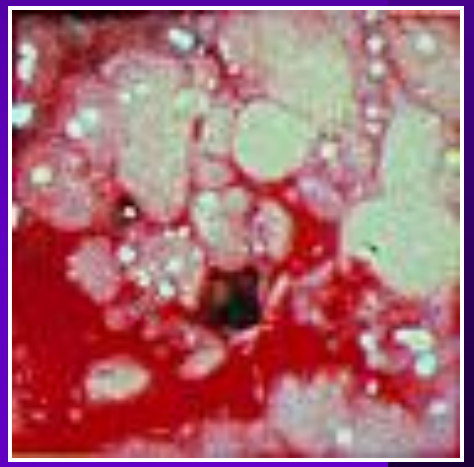
Stellate Ulcer



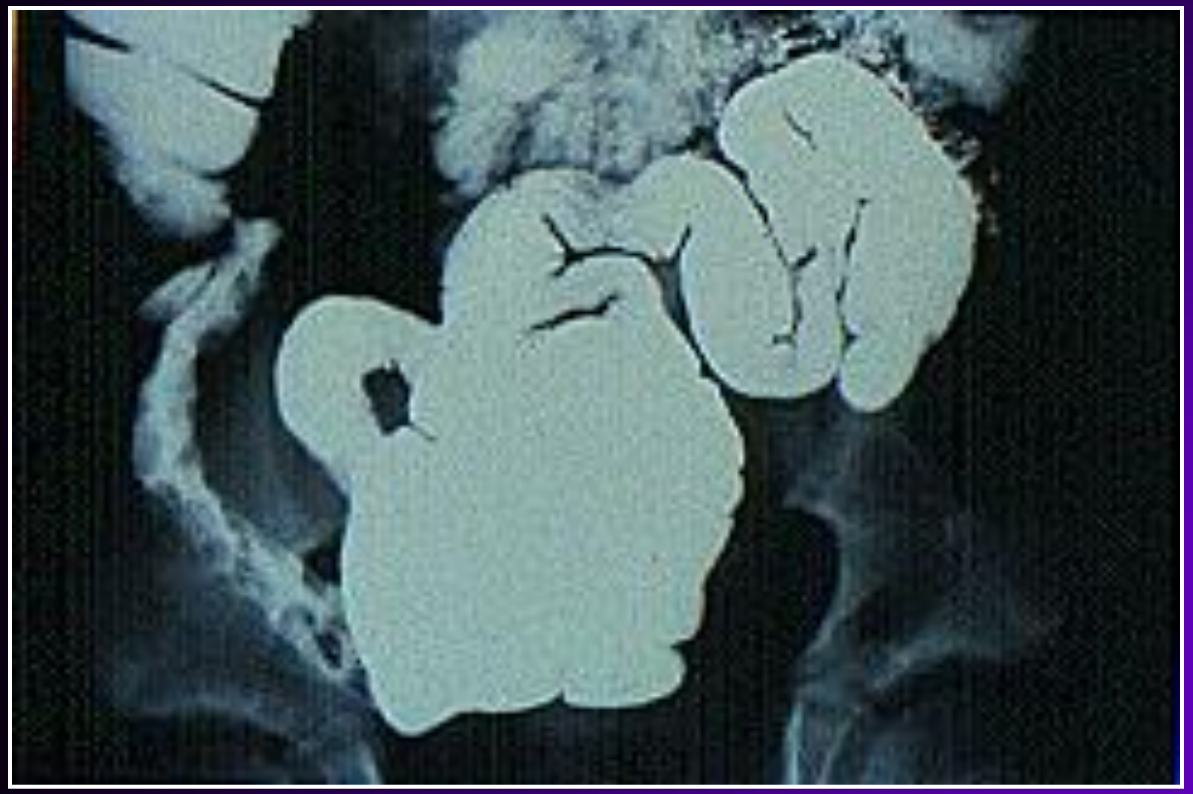
Longitudinal Ulcer



Pseudopolyps



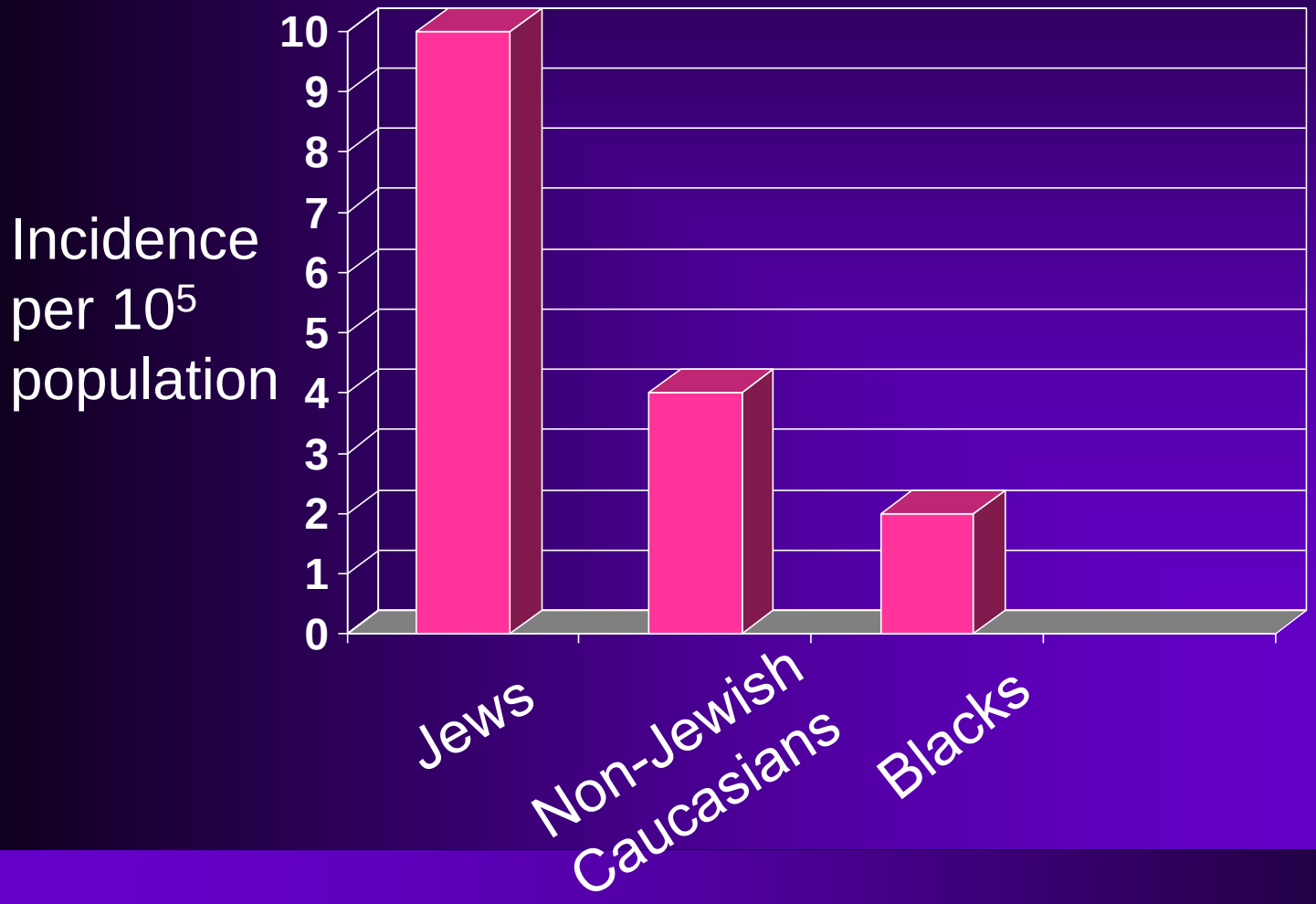
CROHN'S DISEASE



Ileitis

"String Sign"

Inflammatory Bowel Disease
Ethnic and Racial Incidence



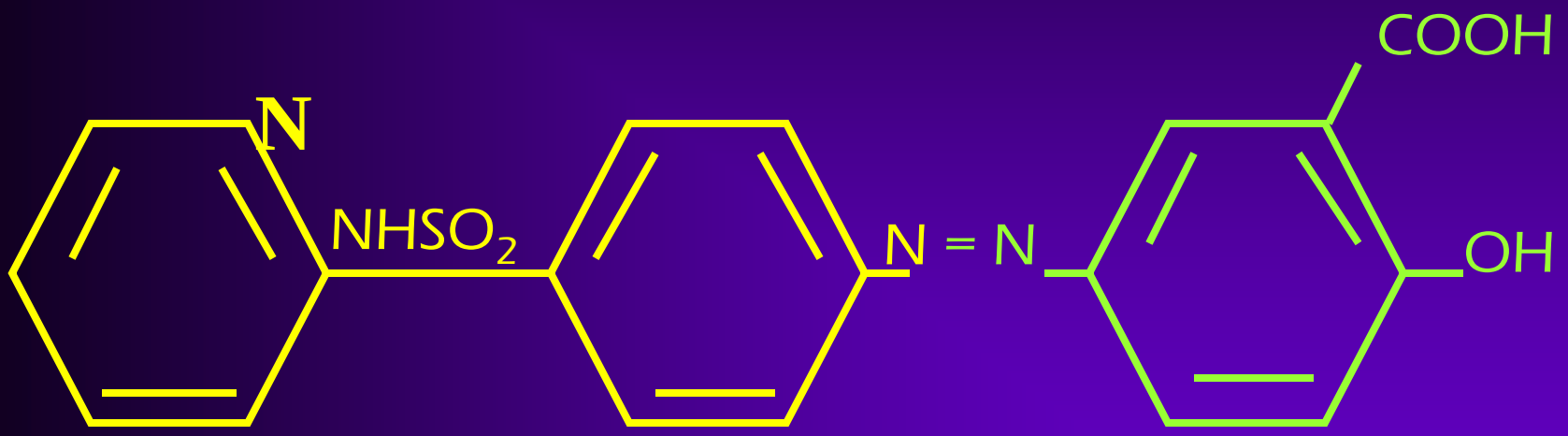
Inflammatory Bowel Disease
Management

- Anti-inflammatories
  - 5-ASA agents
    - Sulfasalazine
    - Mesalamine
    - Olsalazine
  - Corticosteroids
- Immunosuppressives
  - 6-Mercaptopurine
  - Azathioprine
- Antibiotics
  - Metronidazole
  - Quinolones
- Antidiarreals
  - 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
  - Prednizone
- Severe
  - Prednisone
  - parenteral steroids
  - Antibiotics

Perineal

- Metronidazole
- Ciprofloxacin
- 6-MP

Remission

- 6-MP/azathioprine
- Oral Mesalamine
- Methotrexate

Biologics

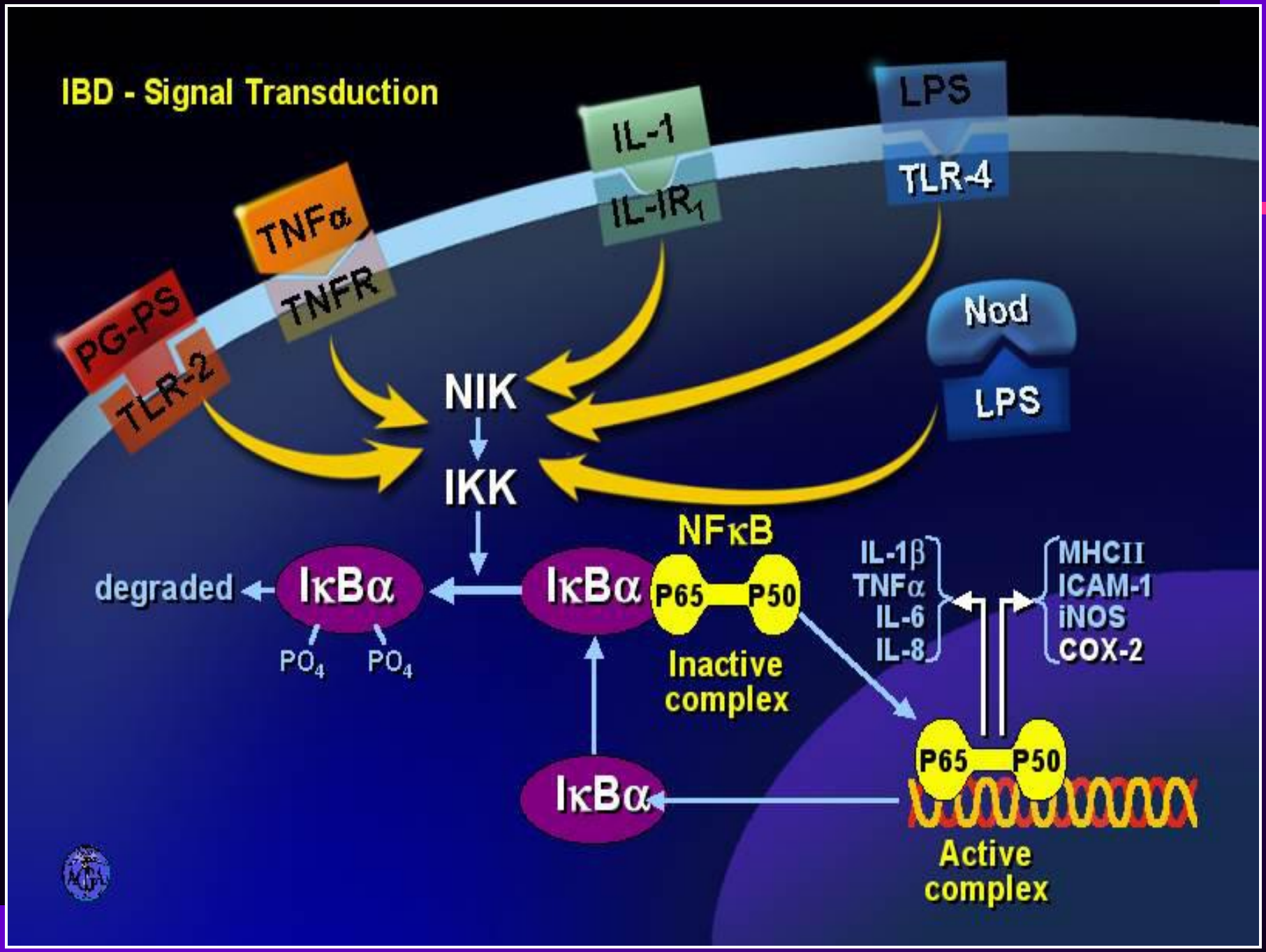
When to Use AZA/6-MP in IBD: Evidence-based indications

- Steroid-dependent disease[1]
- Steroid-resistant disease[1]
- Relapse prevention [2]
- Perianal disease[3]
- Fistulizing disease[3]
- Post-operative recurrence prevention[4]
- Prevention of Colectomy for UC After Induction with CsA[5]

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
IL-1
IL-1R1
LPS
TLR-4
TNFα
TNFR
PG-PS
TLR-2
Nod
LPS
NIK
IKK
NFκB
degraded
IκBα
IκBα
P65
P50
PO4
PO4
Inactive complex
IL-1β
TNFα
IL-6
IL-8
MHCII
ICAM-1
iNOS
COX-2
IκBα
P65
P50
Active complex

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

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 → Colonic & rectal inflammation
  - Large volume (>1 liter/day) → Active secretion
  - Effects of fasting:
    - Diarrhea persists → Not a dietary factor
    - Decrease in diarrhea → Non-absorbed dietary solute
  - Stool pH (<6) → Non-absorbed carbohydrate in children

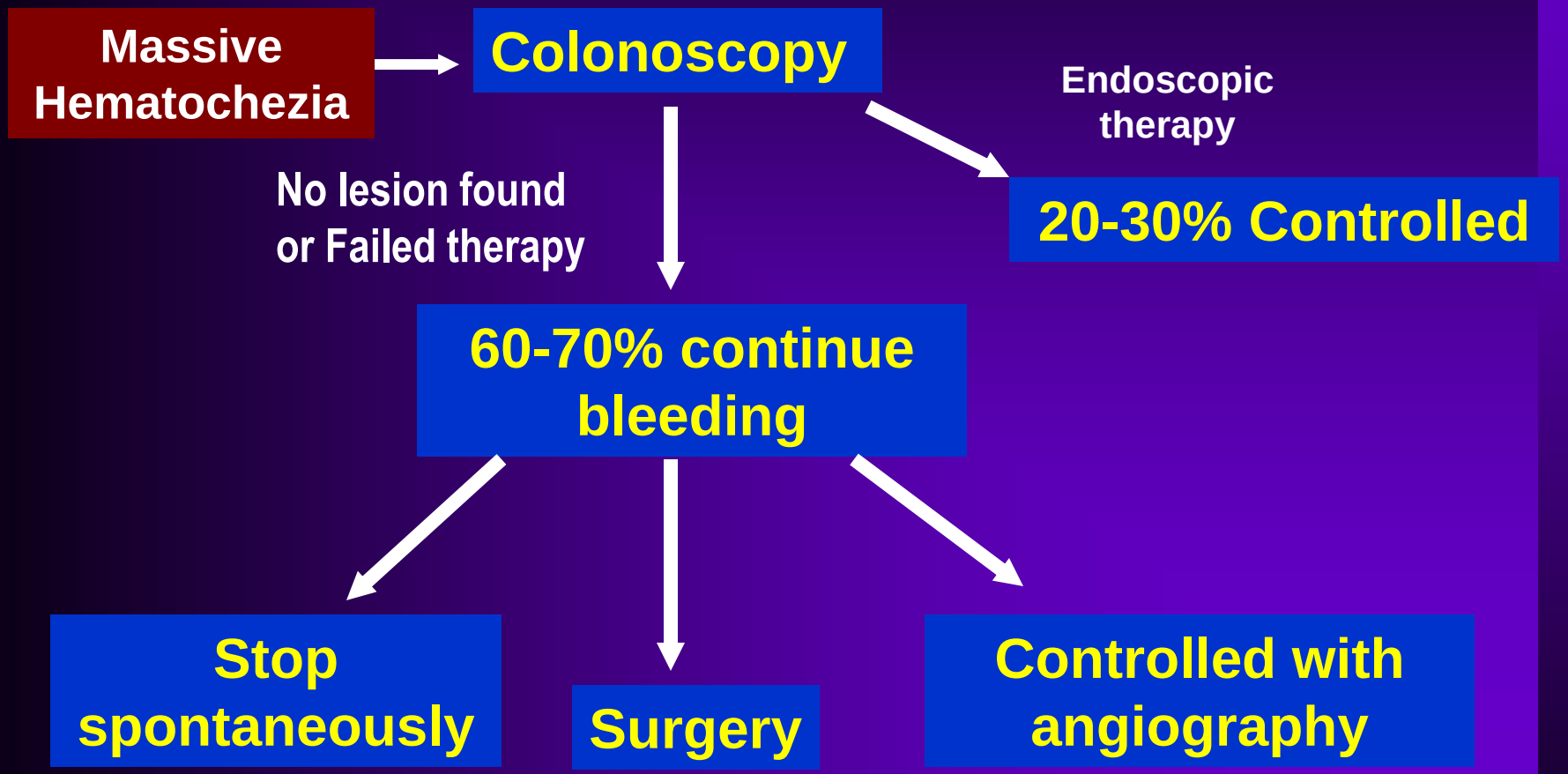
- Possible mechanism

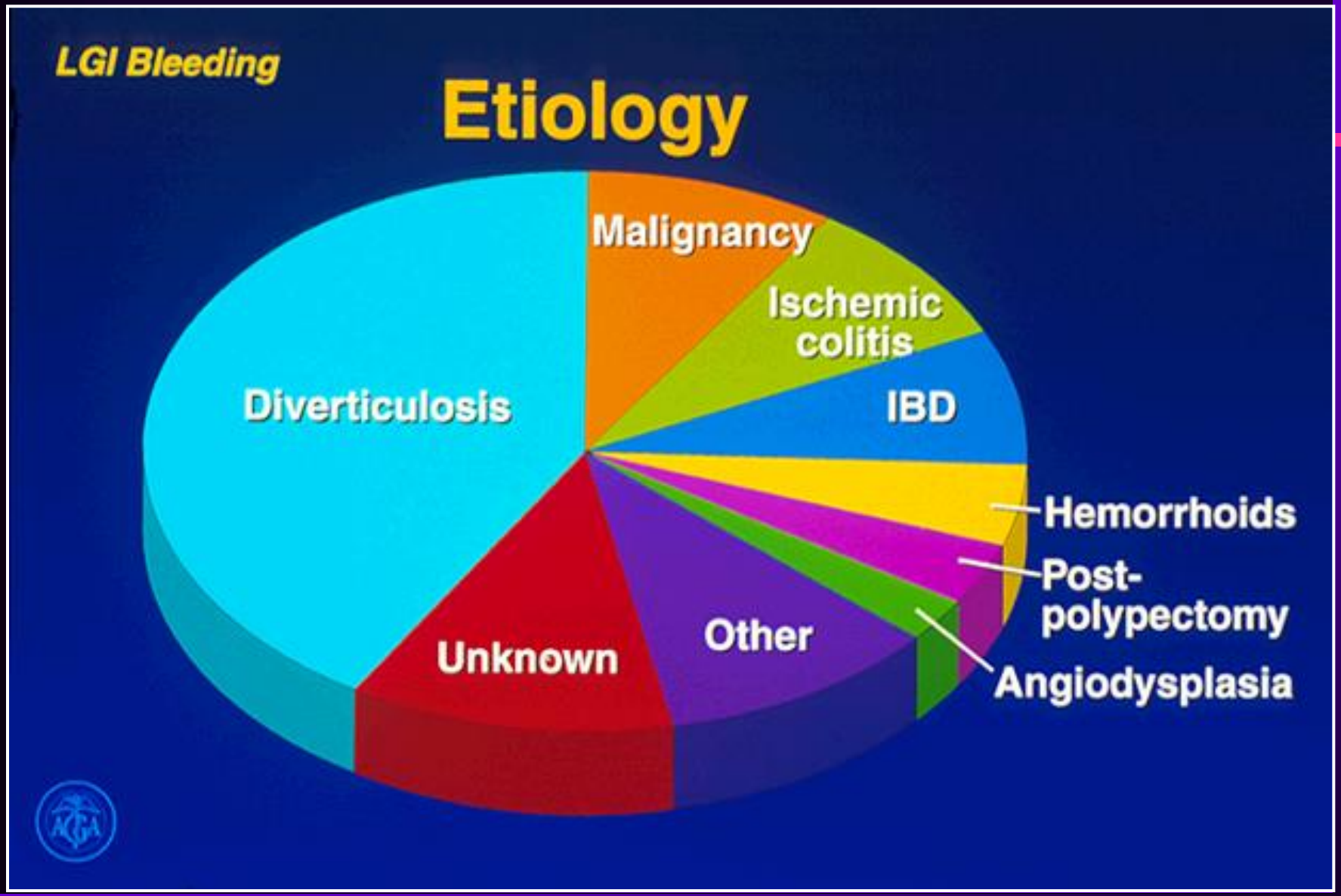
Chronic and recurrent diarrhea should always be investigated

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



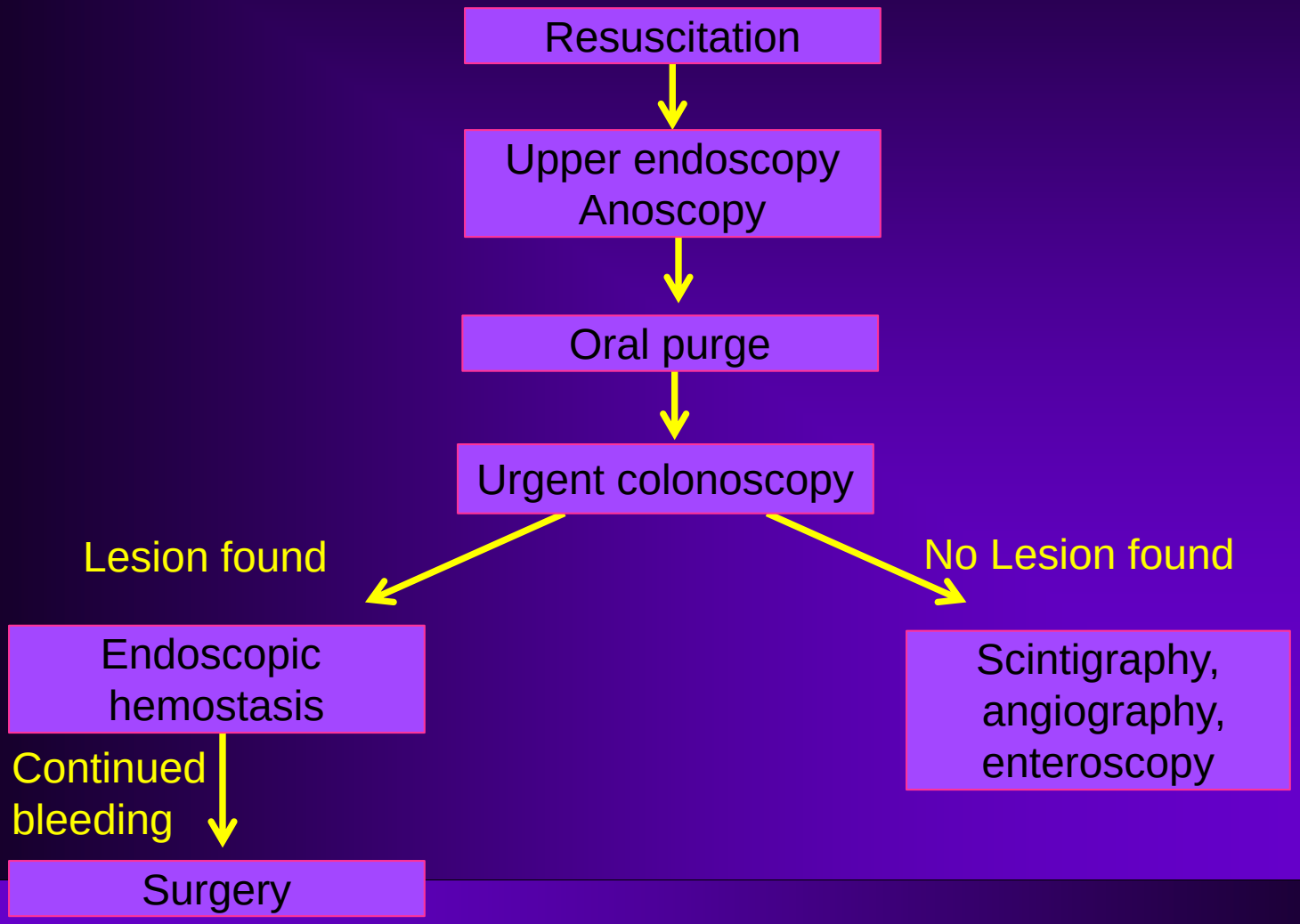

LGI Bleeding
Etiology
Malignancy
Ischemic colitis
IBD
Diverticulosis
Hemorrhoids
Post-polypectomy
Other
Unknown
Angiodysplasia

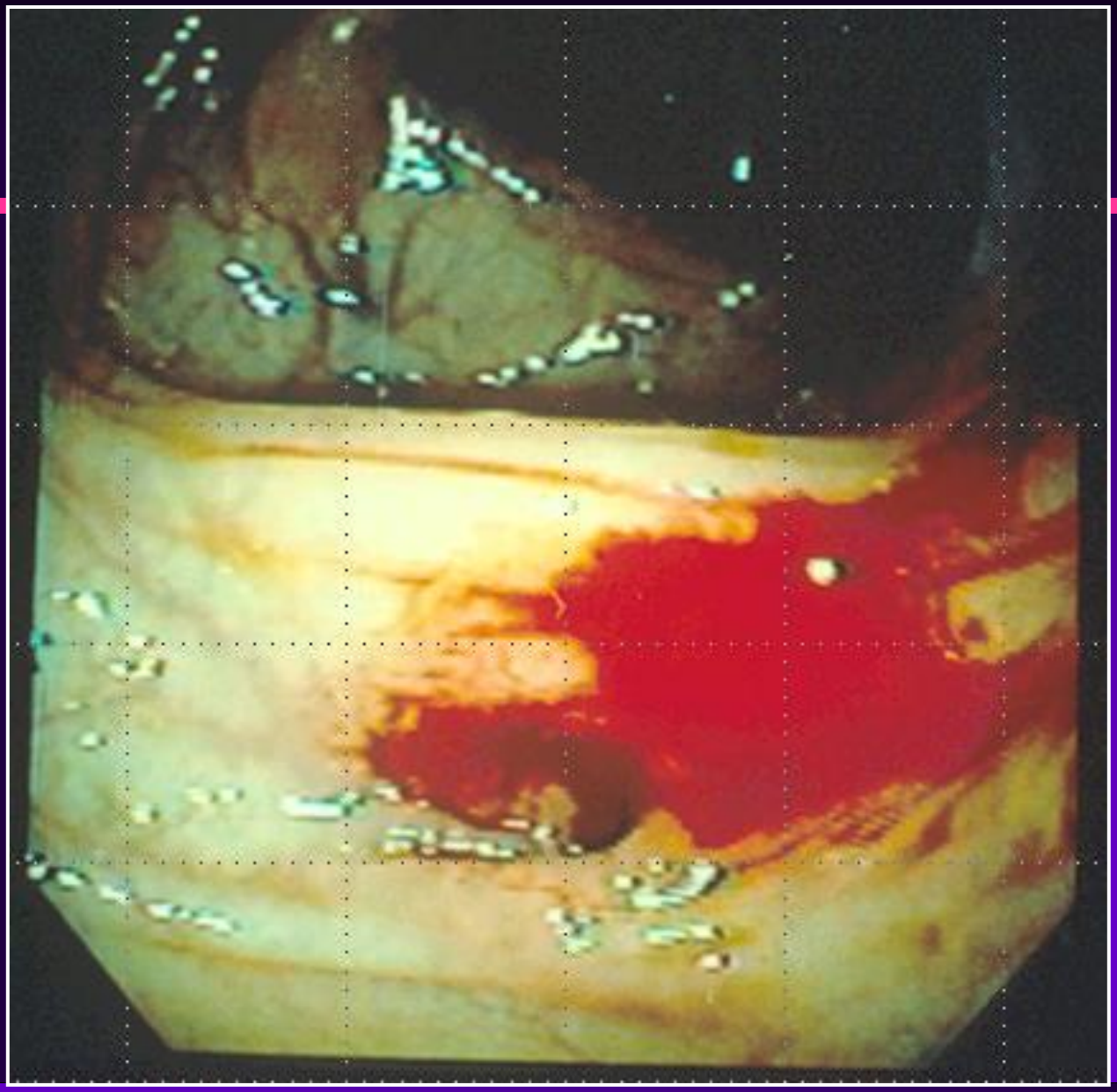
Lower GI Bleeding
Options

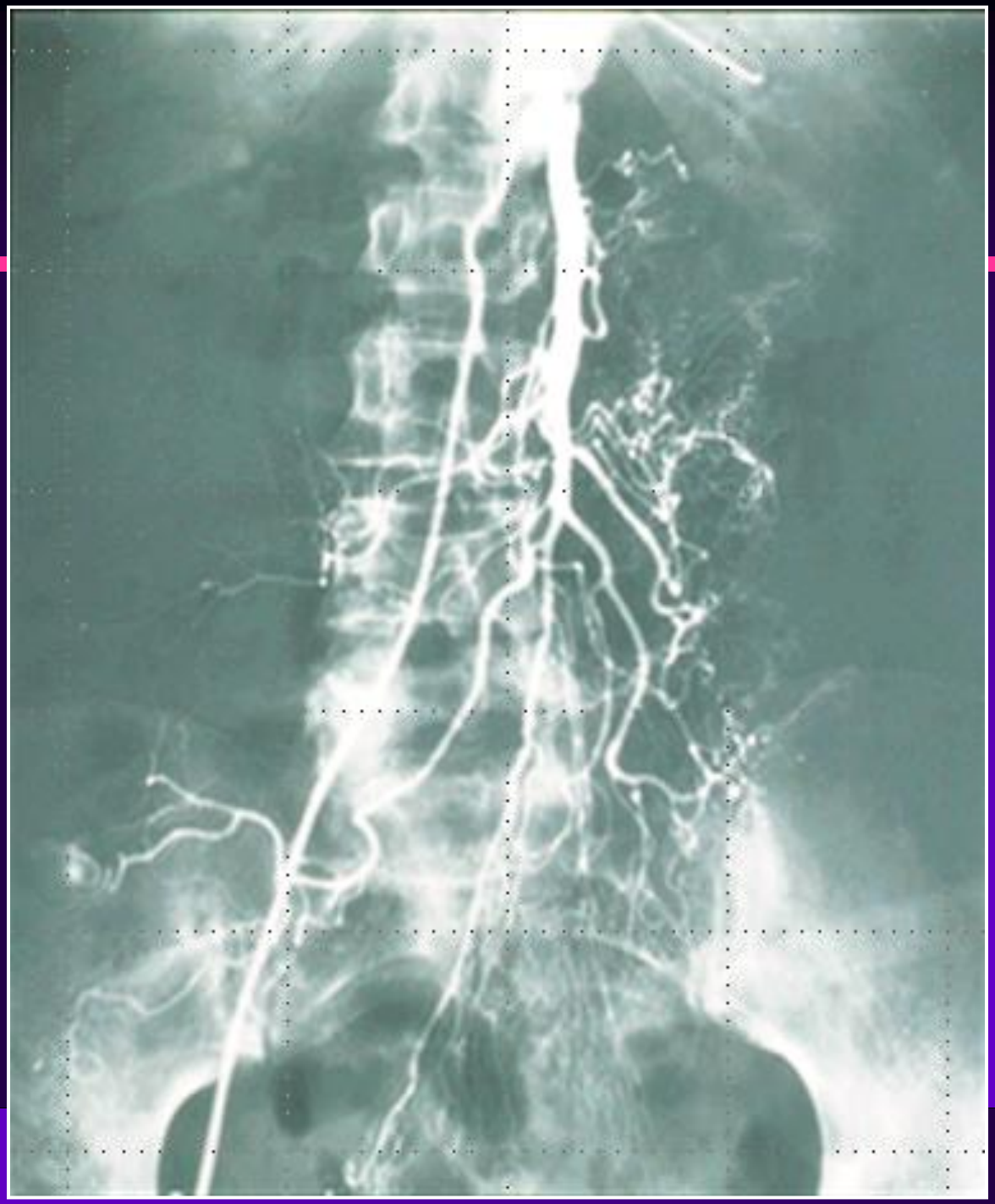
- Diagnostic
  - Anoscopy
  - Sigmoidoscopy
  - Colonoscopy
  - Balloon Enteroscopy
  - Small Bowell x-ray
  - Scintigraphy
  - Angiography
  - Intra-operative Endoscopy
- Therapeutic
  - Endoscopic
    - Thermal
    - Injection
    - Polypectomey
    - Argon Plasma coag.
  - Angioigraphic
    - Vasopressin
  - Surgery

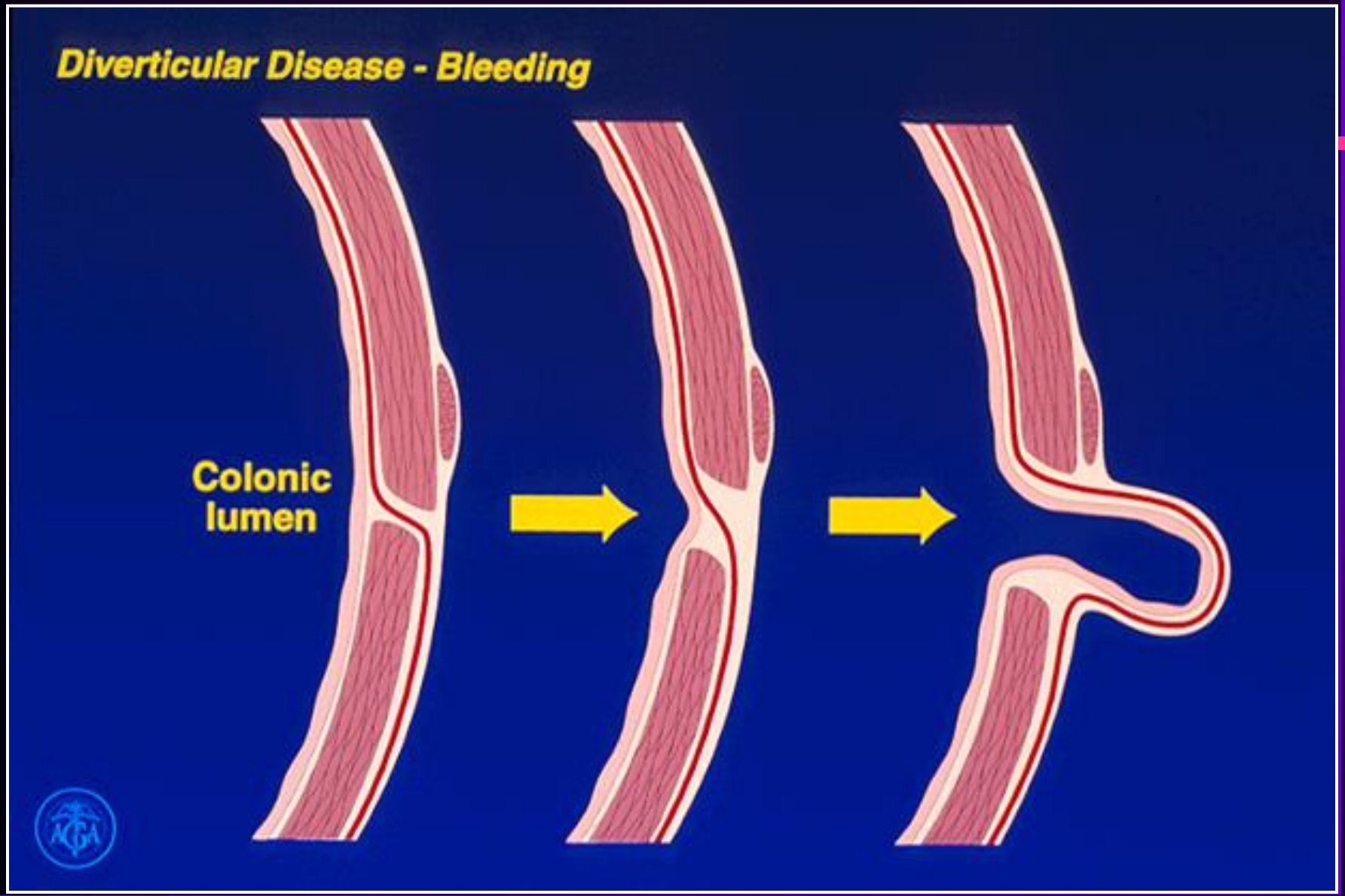
Lower GI Bleeding

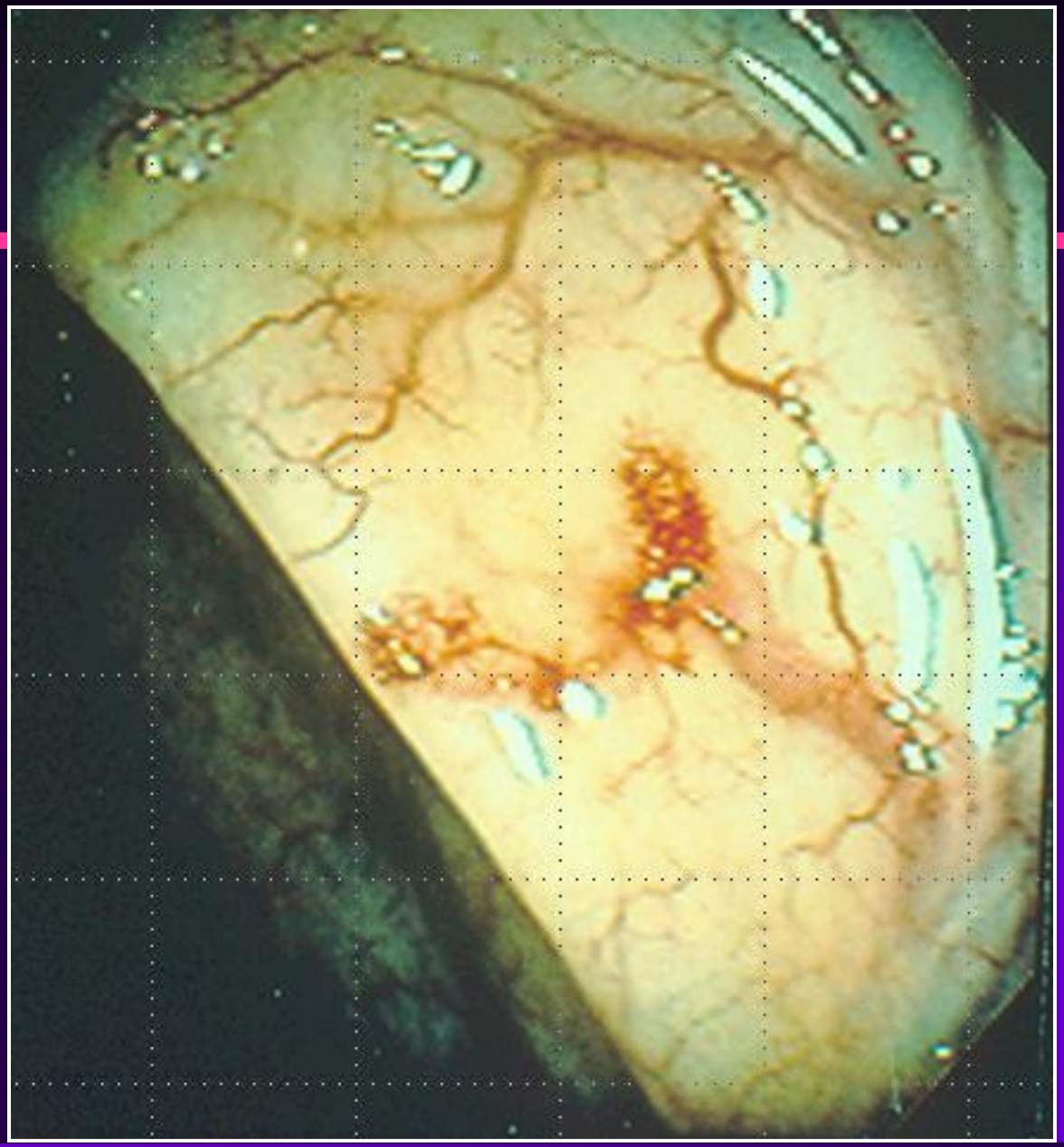
Massive

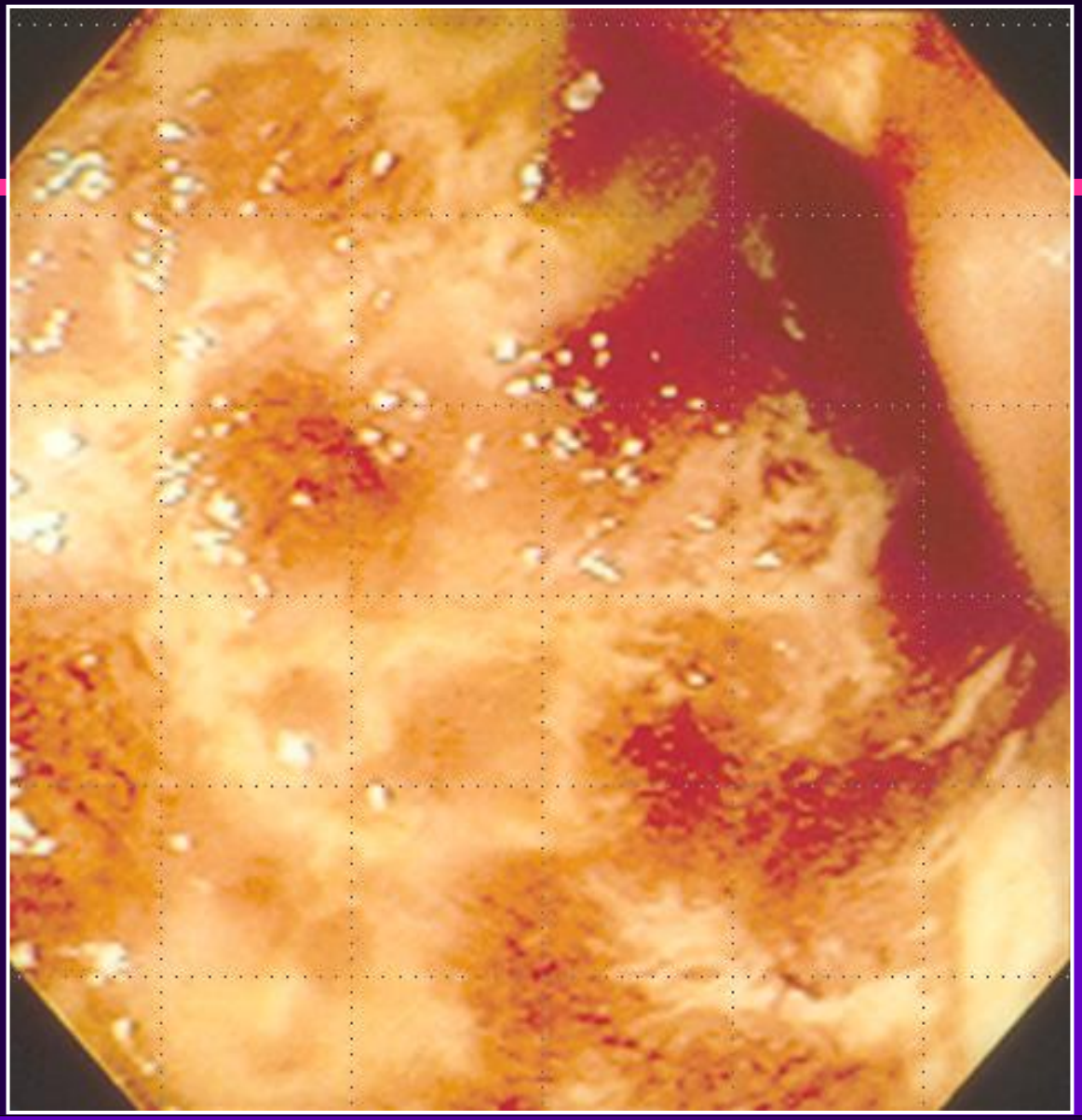


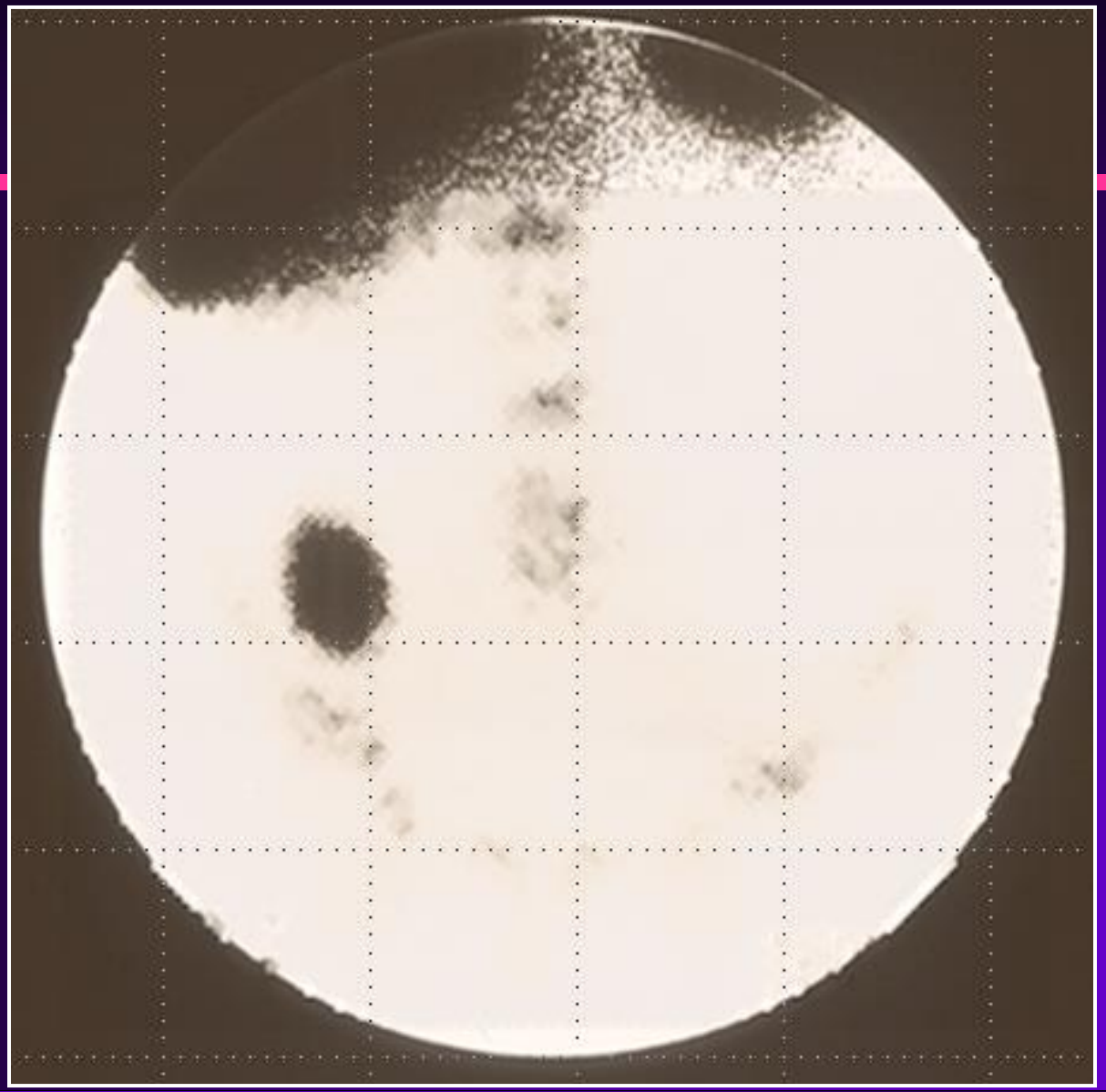





Diverticular Disease - Bleeding
Colonic lumen





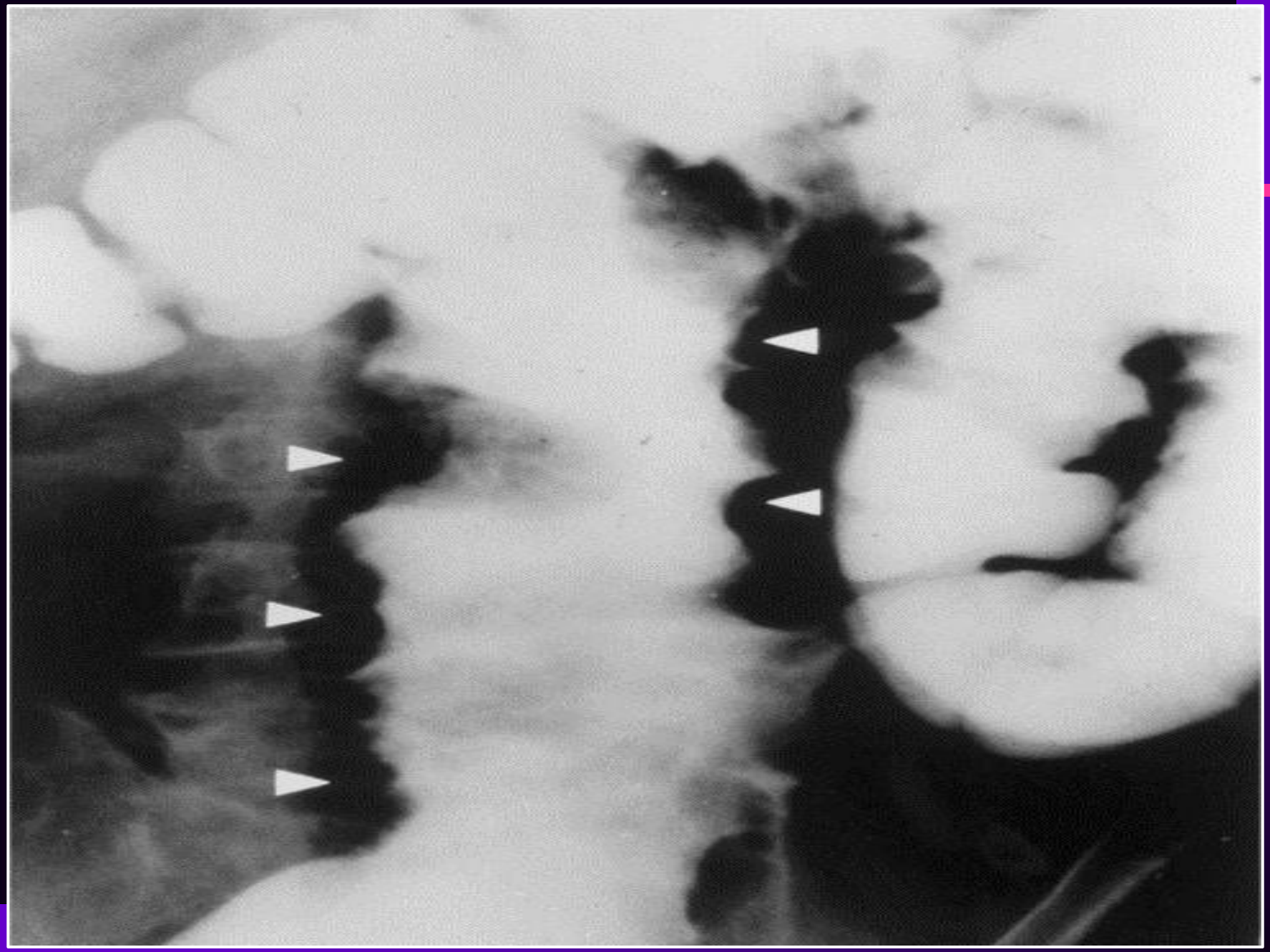


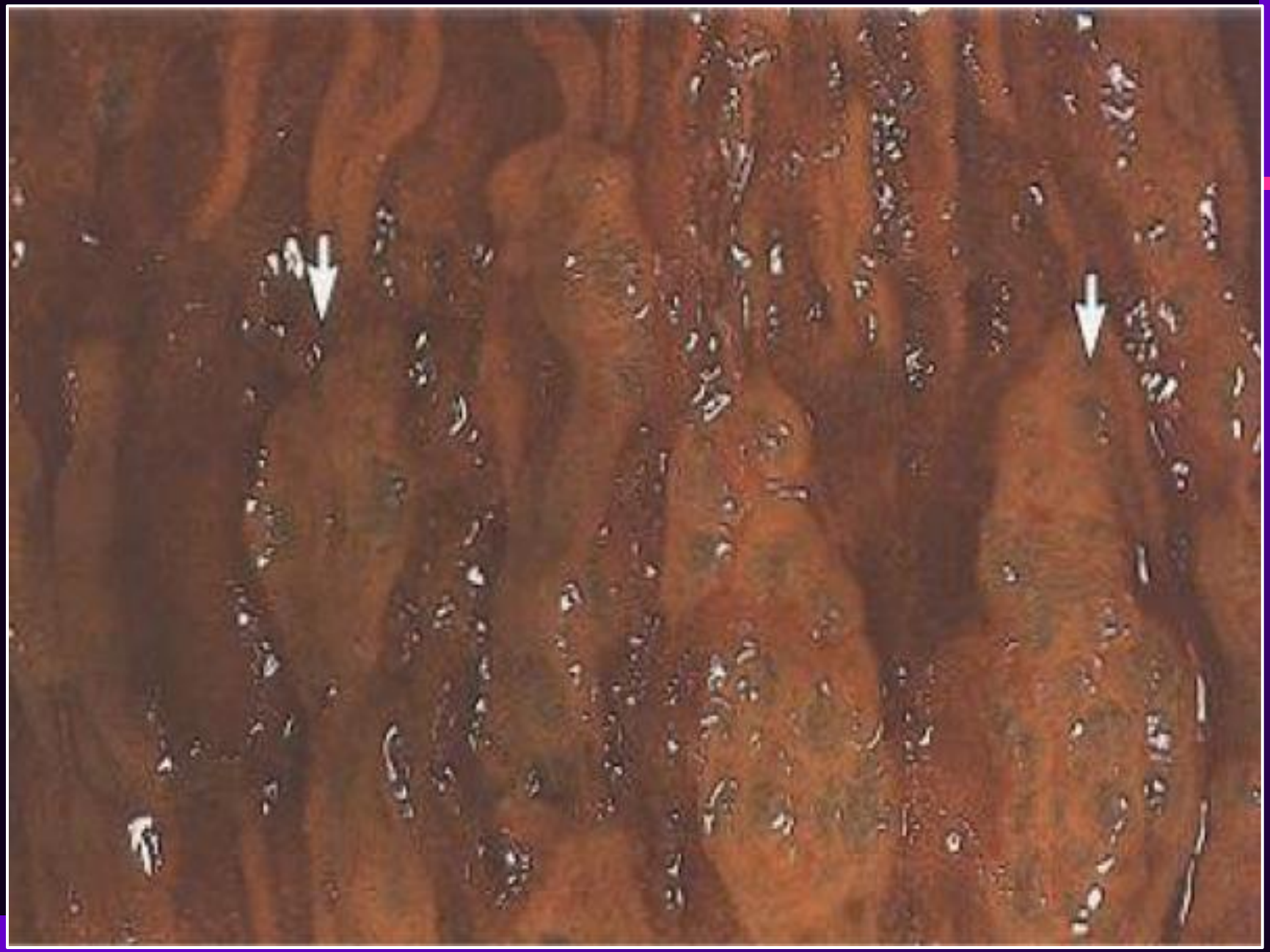
Microscopic Colitis

- 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 pheumatosis 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 ploypoid 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 bleeeding, mucus, diarrhea or prolapsed rectum
    - Endoscopy – may look like cancer, polyps, lipoma

Endometrosis (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