

INFLAMMATORY BOWEL DISEASE

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WHAT IS INFLAMMATORY BOWEL DISEASE (IBD)?

- Chronic inflammation of the intestinal tract
- Two related but different diseases:
 - Ulcerative colitis
 - Crohn's disease

WHAT IBD IS NOT

- IBD is sometimes confused with:
 - Irritable bowel syndrome (IBS)
 - Diverticulitis
 - “Colitis”

INTESTINES: NORMAL STATE

- Protective immune cells are present in intestinal wall
- Immune system turns on and off to fight harmful substances like bacteria and viruses that pass through intestines

Microflora distribution in the GI tract

Oral cavity - 10^7 to 10^8

Stomach - 0 to 10^3

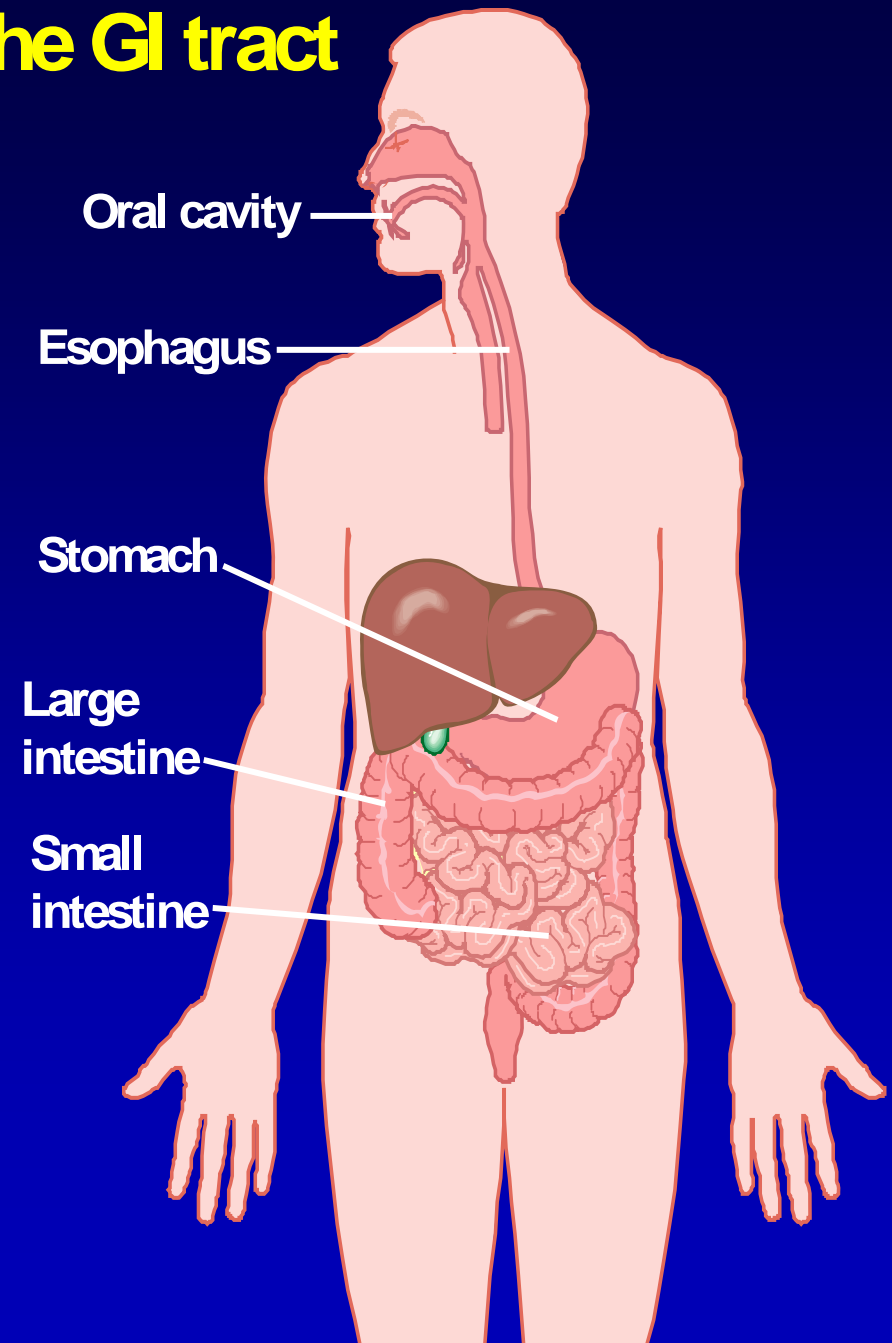
Duodenum - $< 10^8$

Jejunum - $< 10^3$ to 10^5

Ileum - $< 10^5$ to 10^7

Large intestine - 10^{10} to 10^{12}

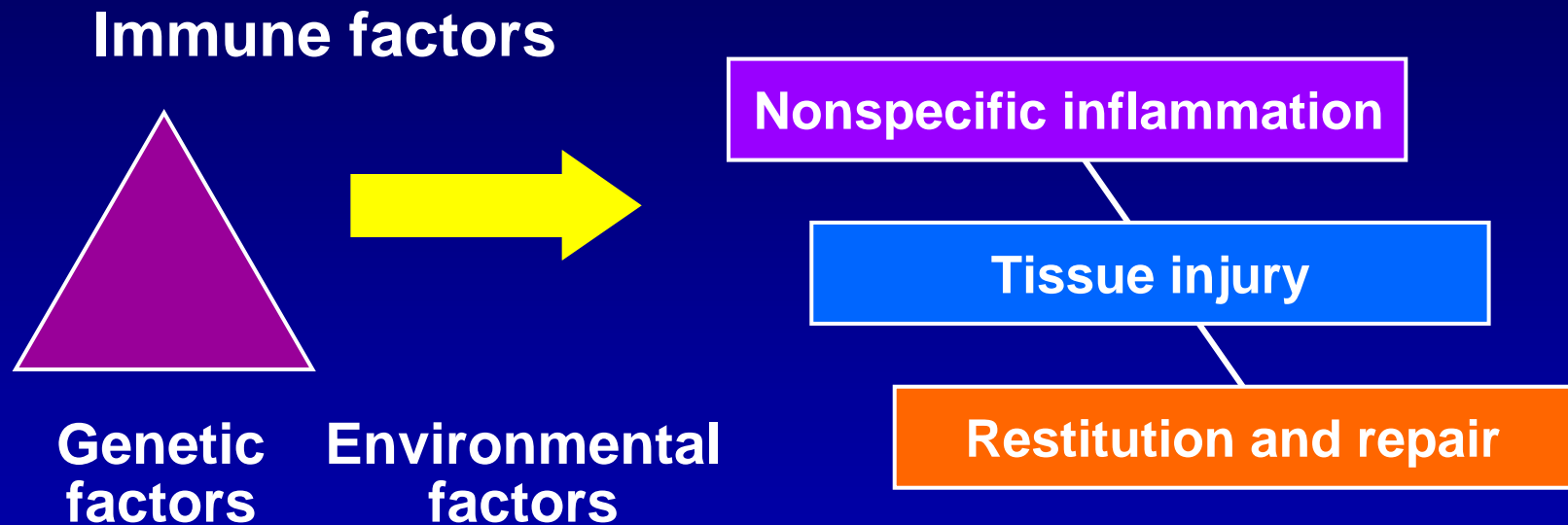
Stool - 10^{10} to 10^{12}



WHAT HAPPENS IN IBD?

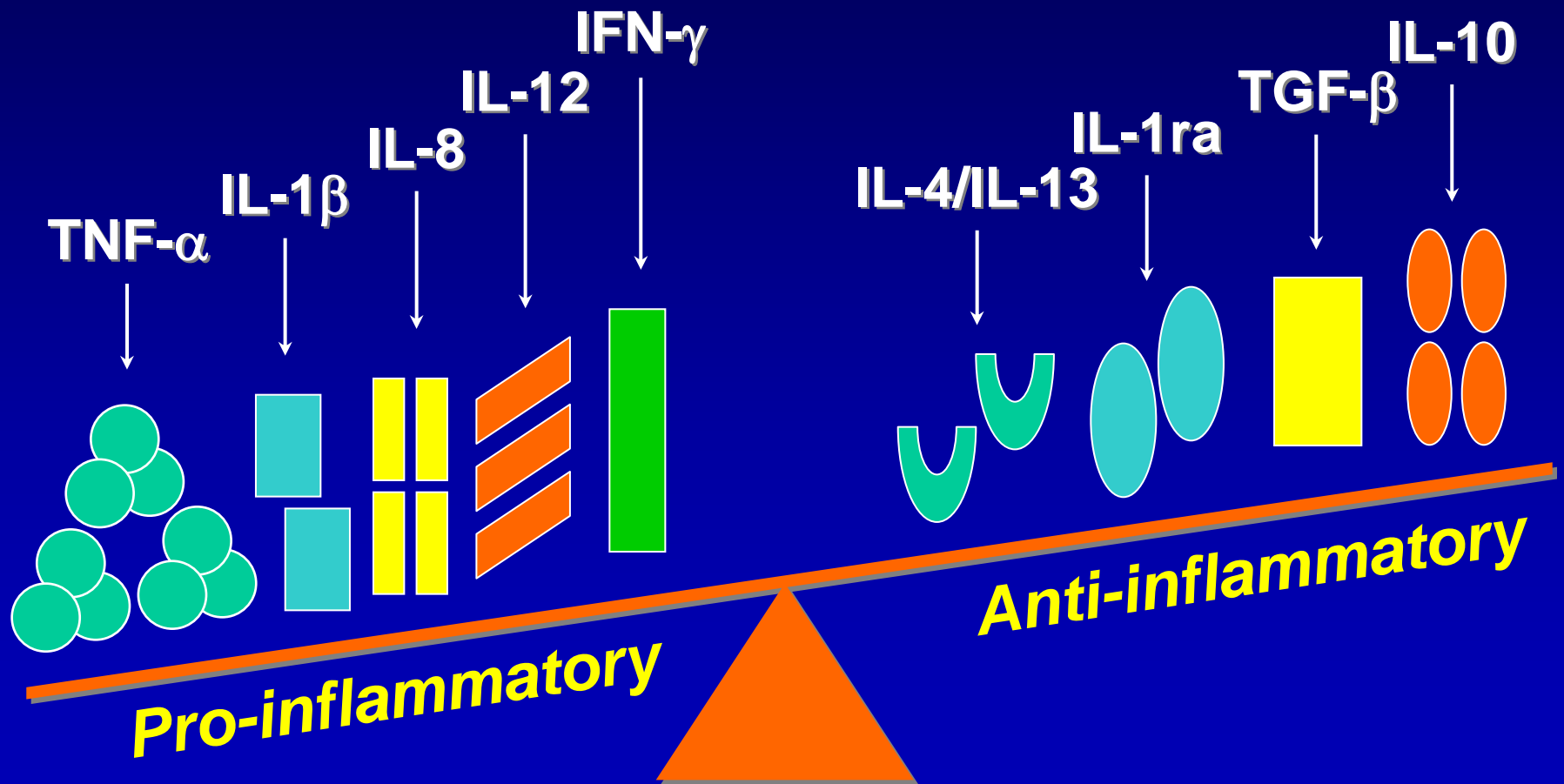
- The immune system is activated by some unidentified factor
- The immune system does not turn off:
 - Uncontrolled inflammation
 - Attack on normal intestinal cells

Multifactorial Basis of IBD



Elson CO et al. In: *Proceedings of V International Symposium on Inflammatory Bowel Diseases*, 1998.

Chronic Inflammation: Imbalance Between Mediators



HOW COMMON IS IBD?

- More than 1 million cases estimated in the United States:
 - Ulcerative colitis: 50%
 - Crohn's disease: 50%
- New cases diagnosed at a rate of 10 cases per 100,000 people

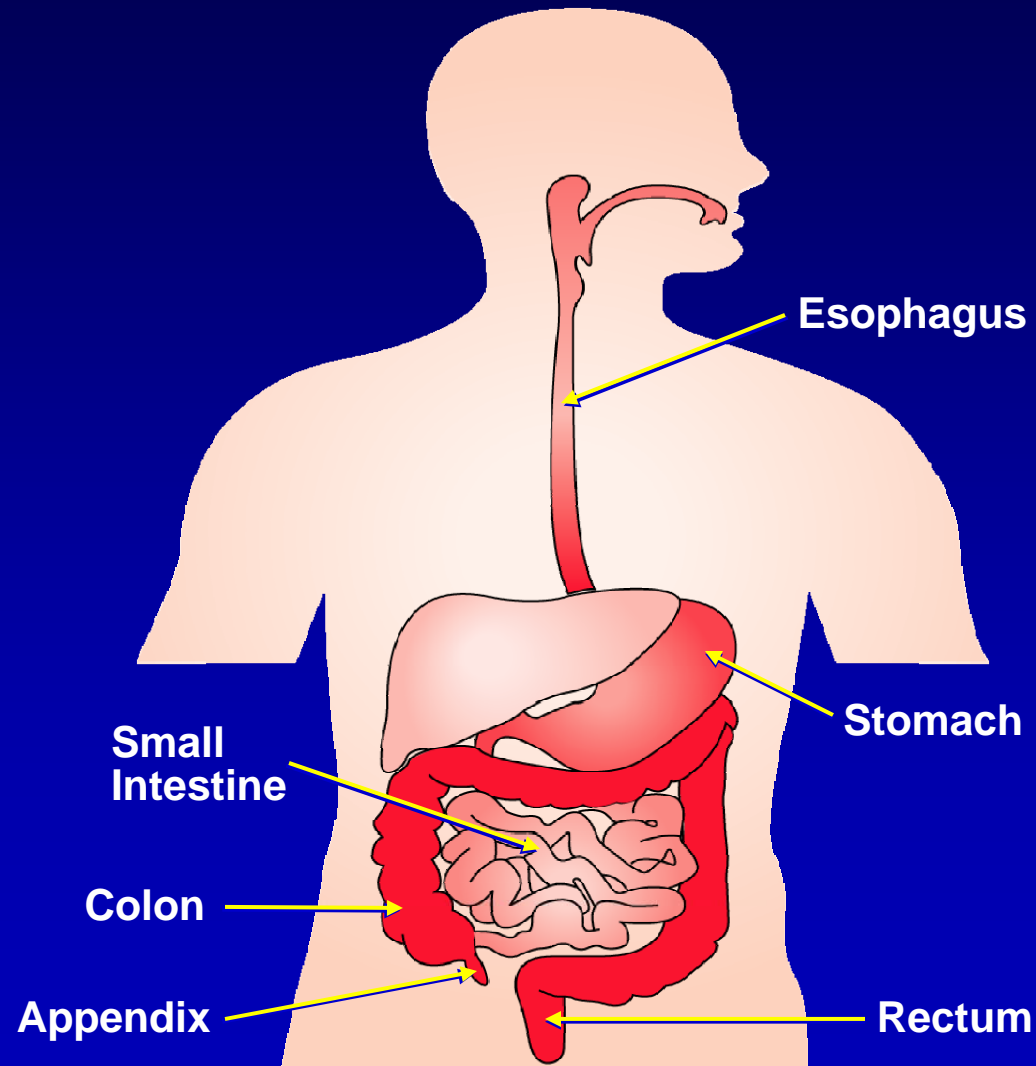
SCOPE OF THE PROBLEM

- Chronic lifelong diseases
- Periods of active disease alternating with periods of disease control:
 - Other conditions can cause symptoms that mimic those of IBD
- Complications can develop
- Surgery frequently required

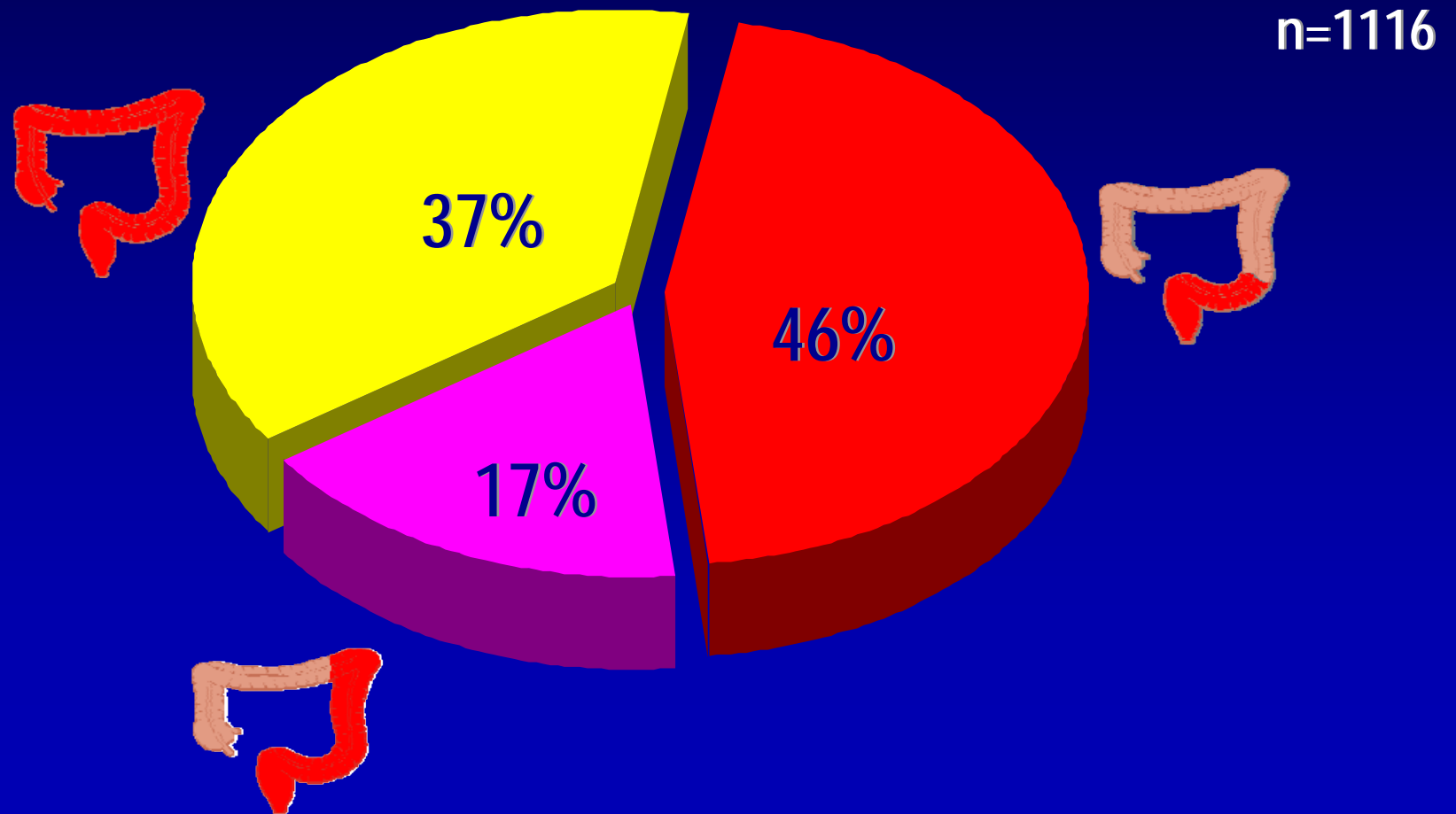
ULCERATIVE COLITIS

- Inflammation of the inner lining of the colon (mucosa)
- Only the colon is involved- starts in the rectum and spreads up the colon in continuous pattern
- Curable by surgery- removal of the colon

Gastrointestinal Tract



Disease Distribution at Presentation

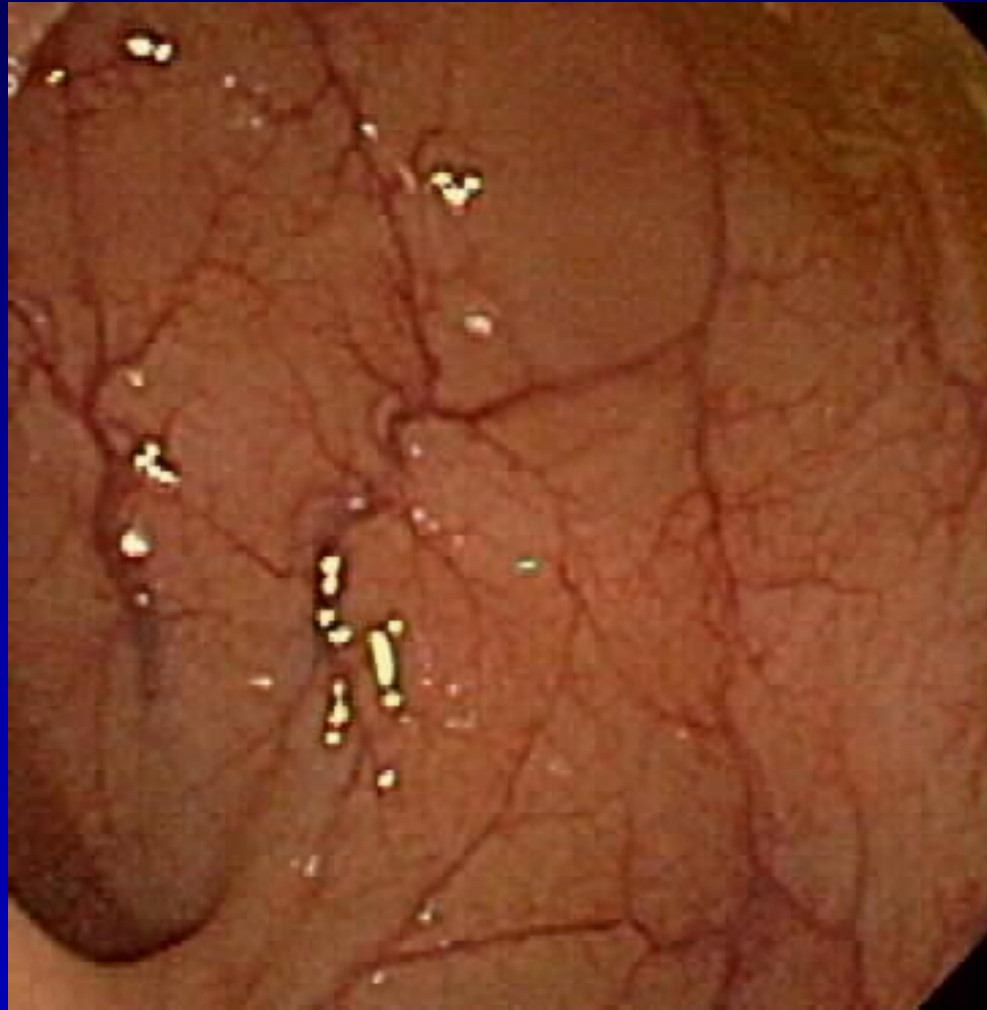


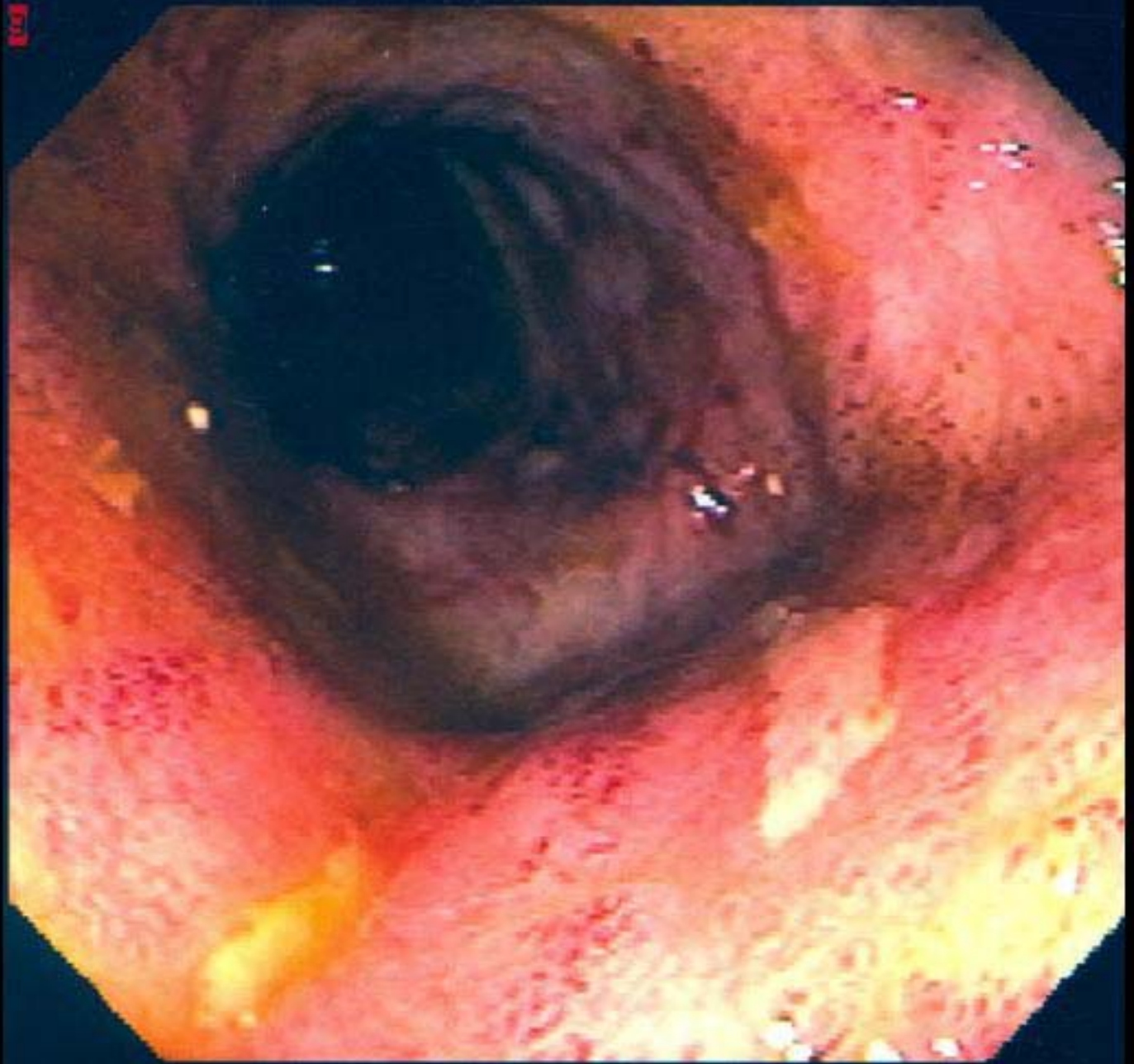
Farmer RG, Easley KA, Ranking GB.
Dig Dis Sci 1993;38(6):1137-1146.

ULCERATIVE COLITIS: SYMPTOMS

- Diarrhea
- Rectal bleeding
- Rectal urgency
- Abdominal cramps
- Fever

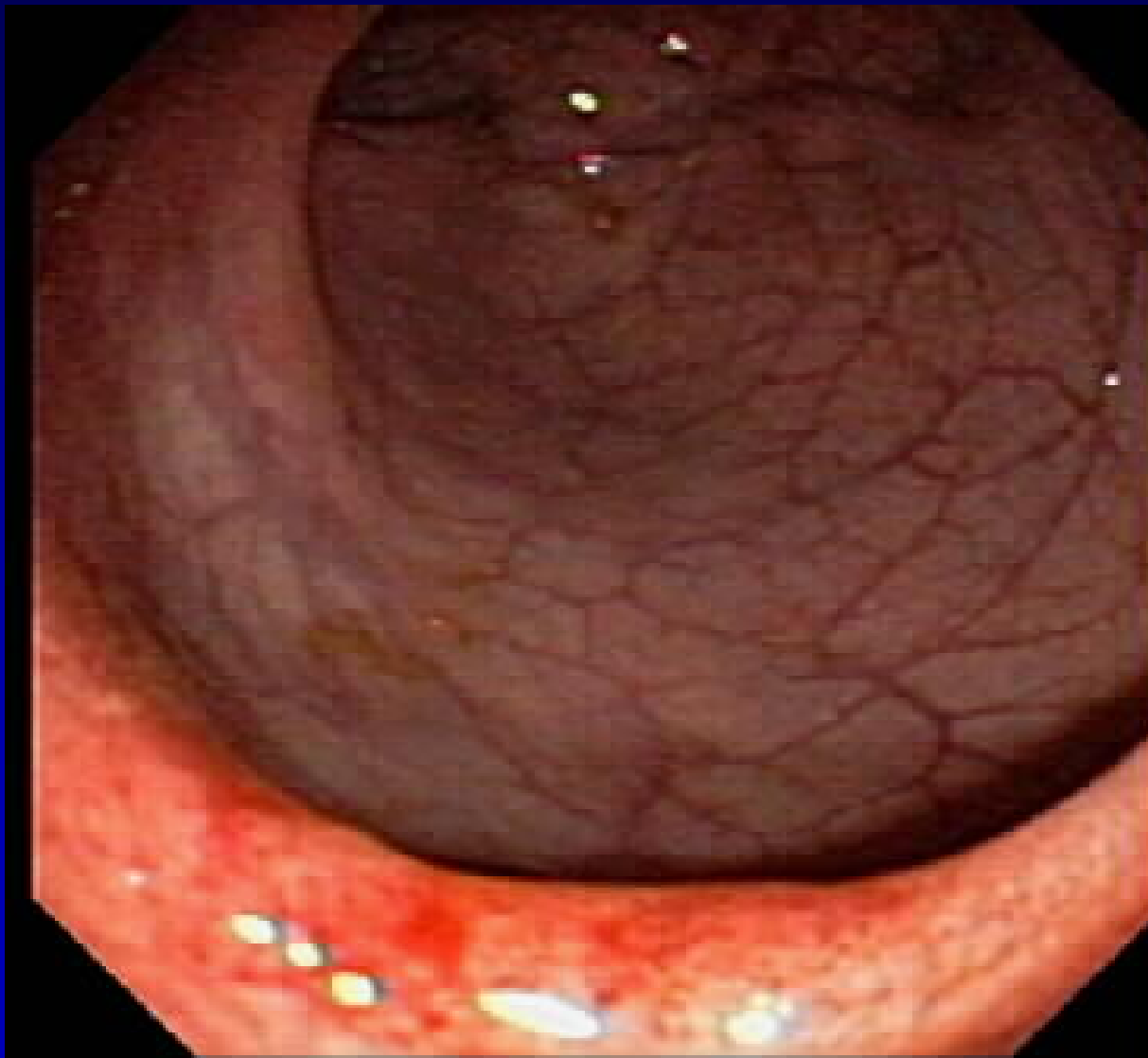
Normal Colonic Mucosa



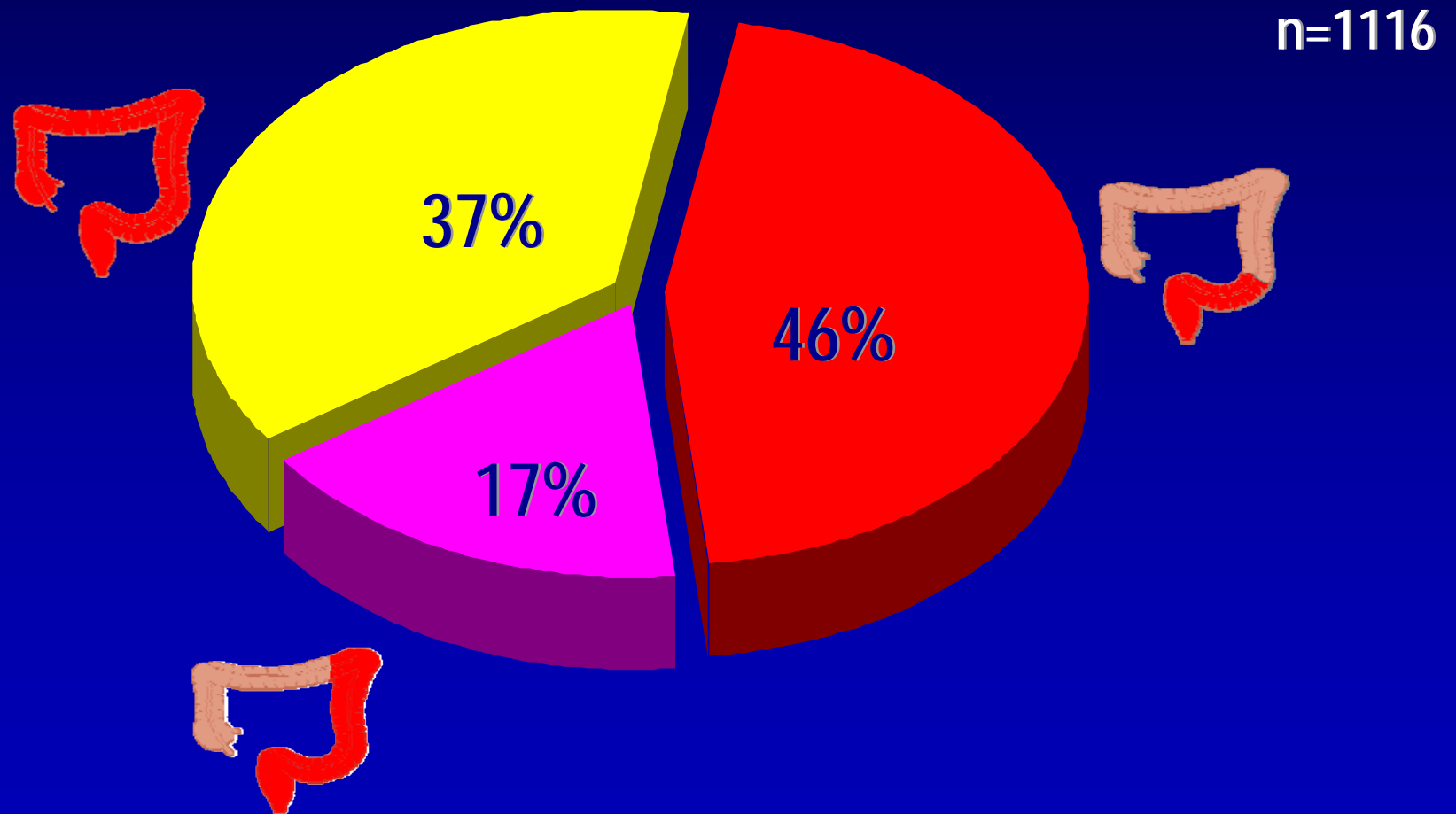


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UC: Transition Point



Disease Distribution at Presentation

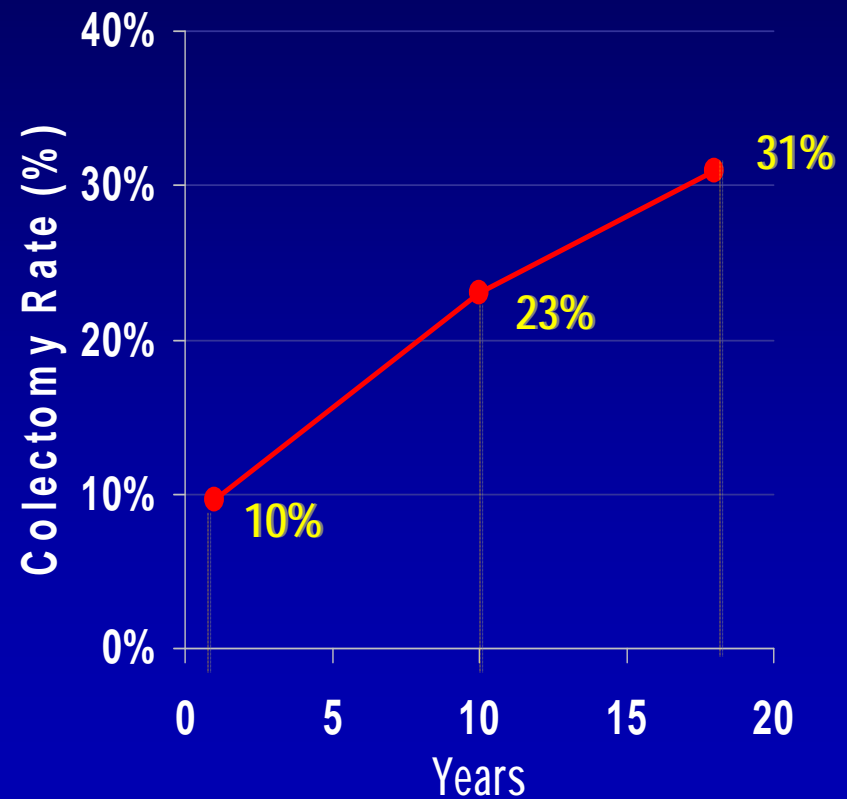
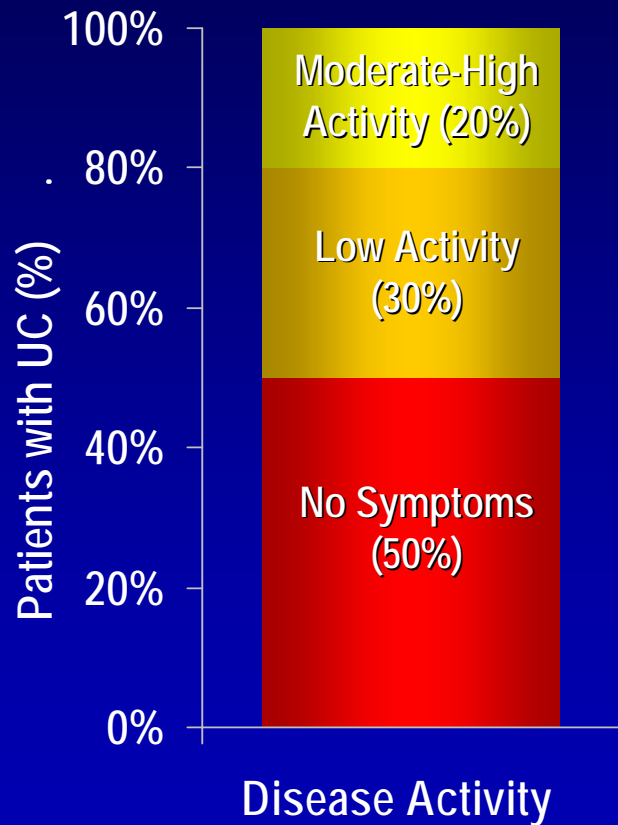


Farmer RG, Easley KA, Ranking GB.
Dig Dis Sci 1993;38(6):1137-1146.

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UC Natural History

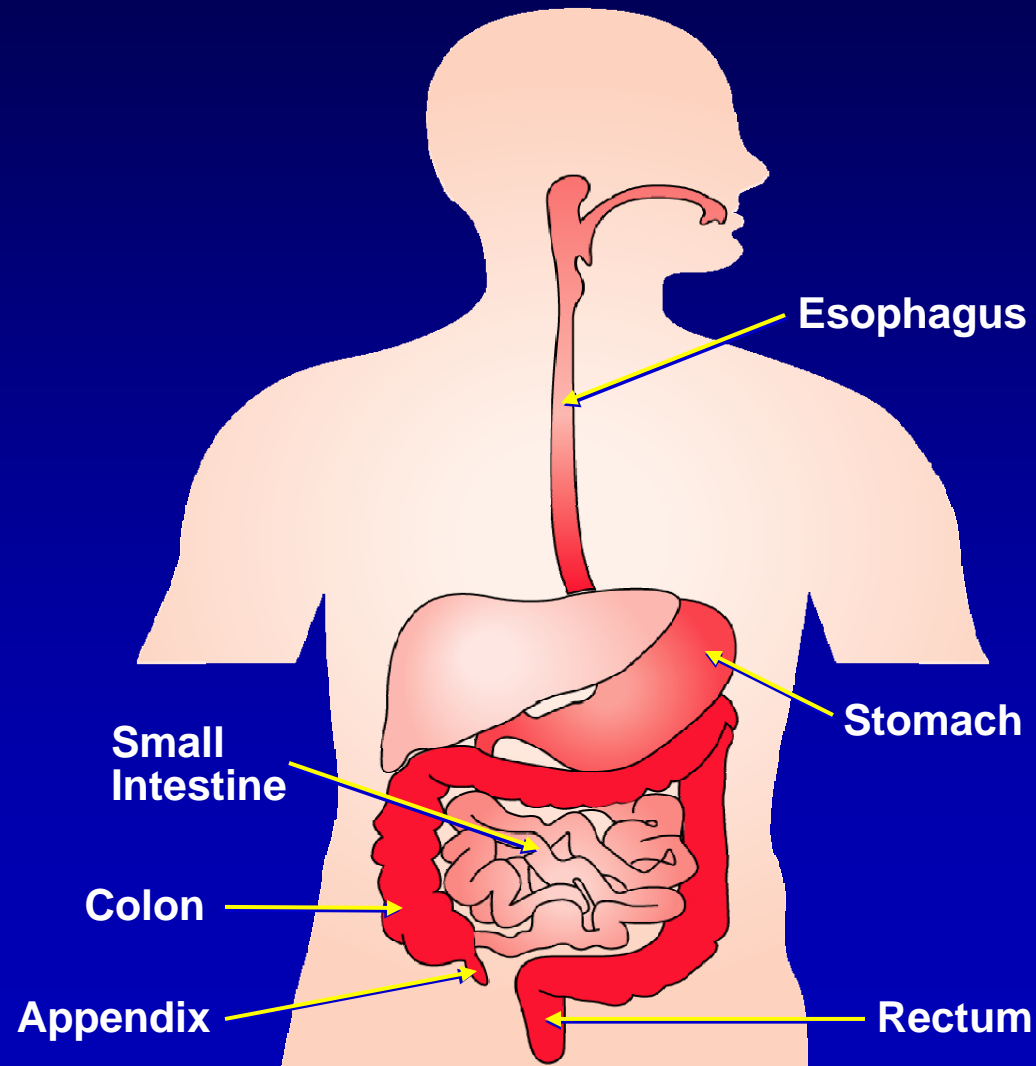


Hendriksen C, Kreiner S, Binder V.
Gut 1985;26:158-163.

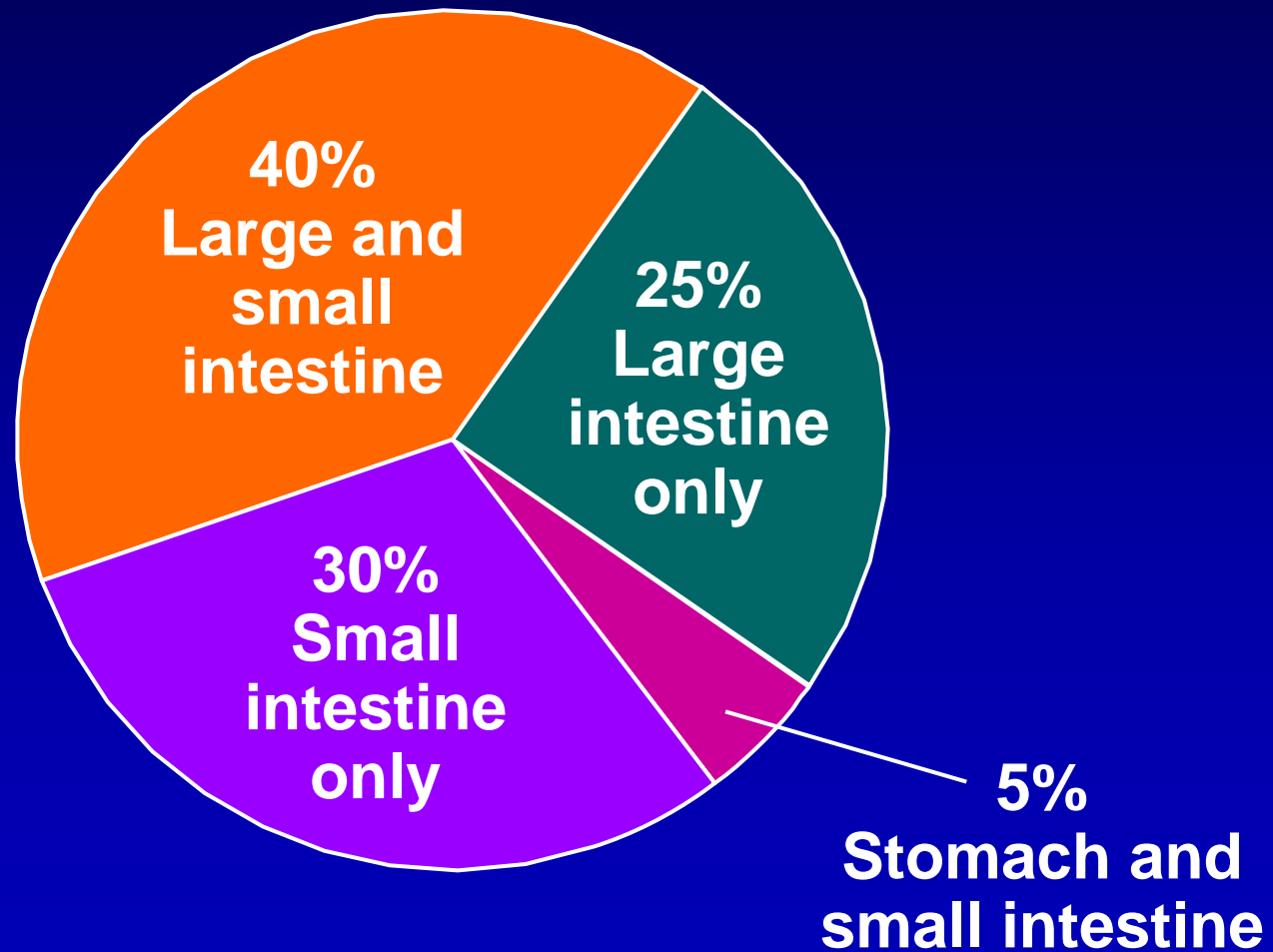
CROHN'S DISEASE

- Inflammation can involve all layers of the intestinal wall
- Can involve any part of the intestines from mouth to rectum with skip lesions- areas in between disease can be normal
- Usually comes back after surgery

Gastrointestinal Tract

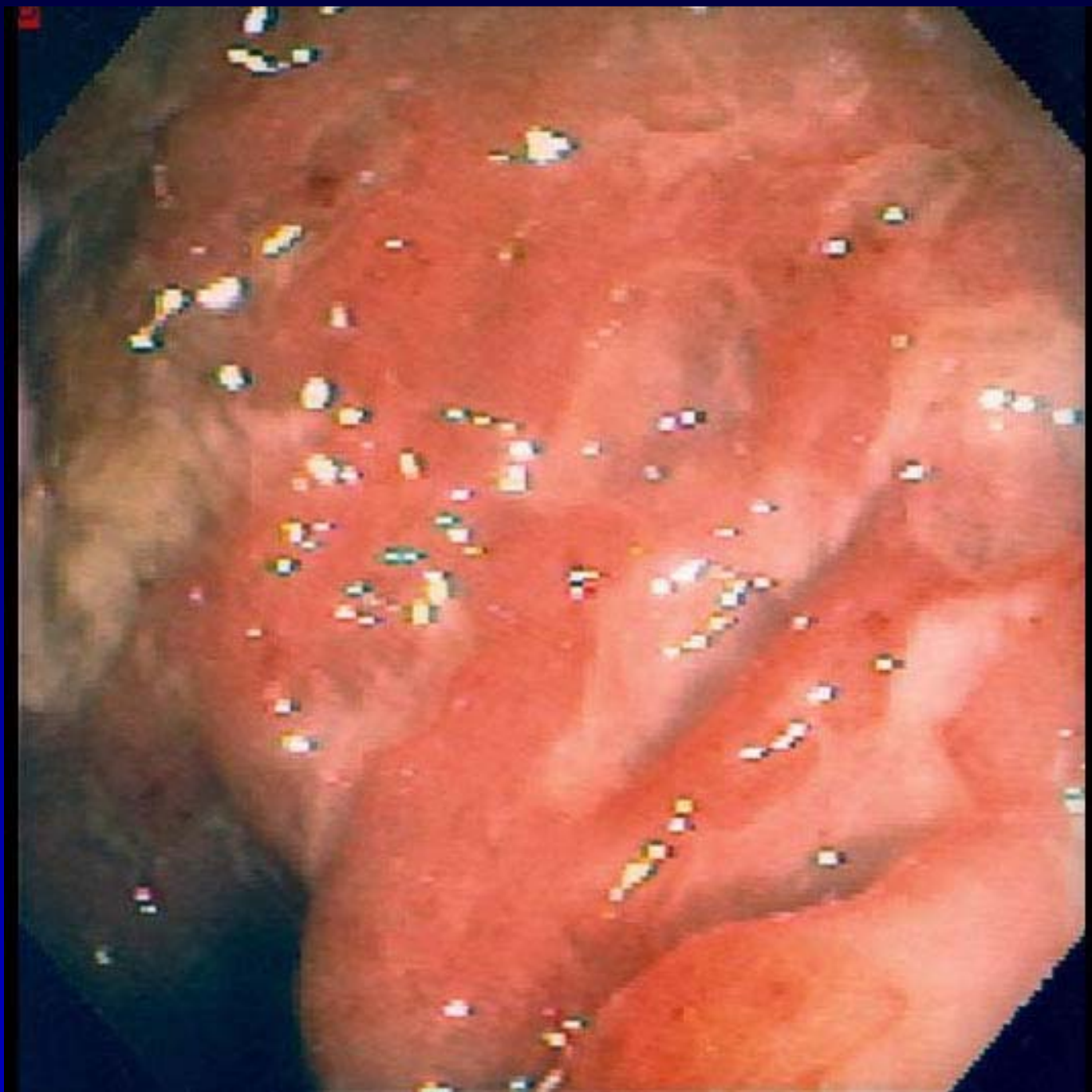


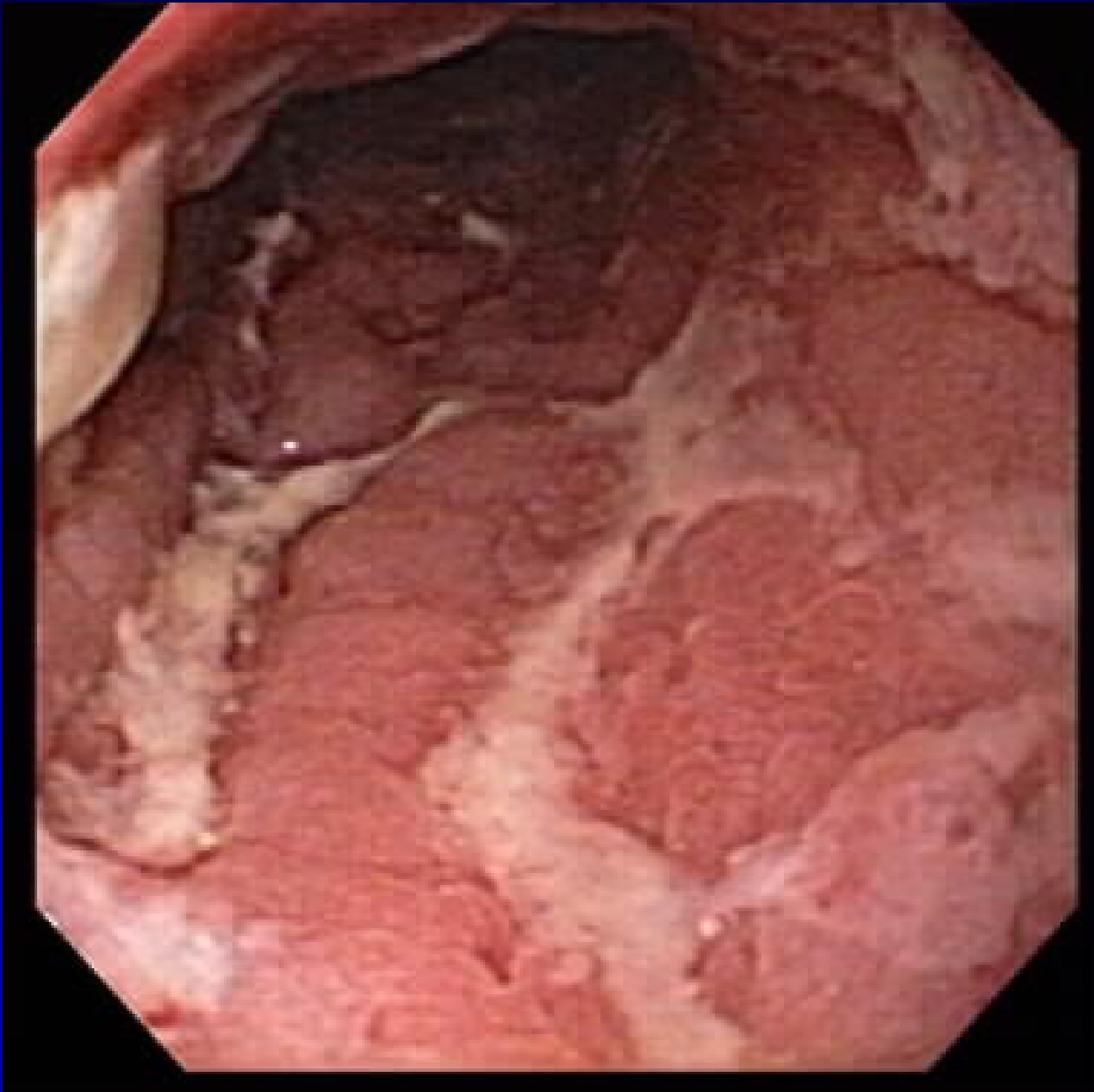
Locations in the GI Tract Most Often Affected



CROHN'S DISEASE: SYMPTOMS

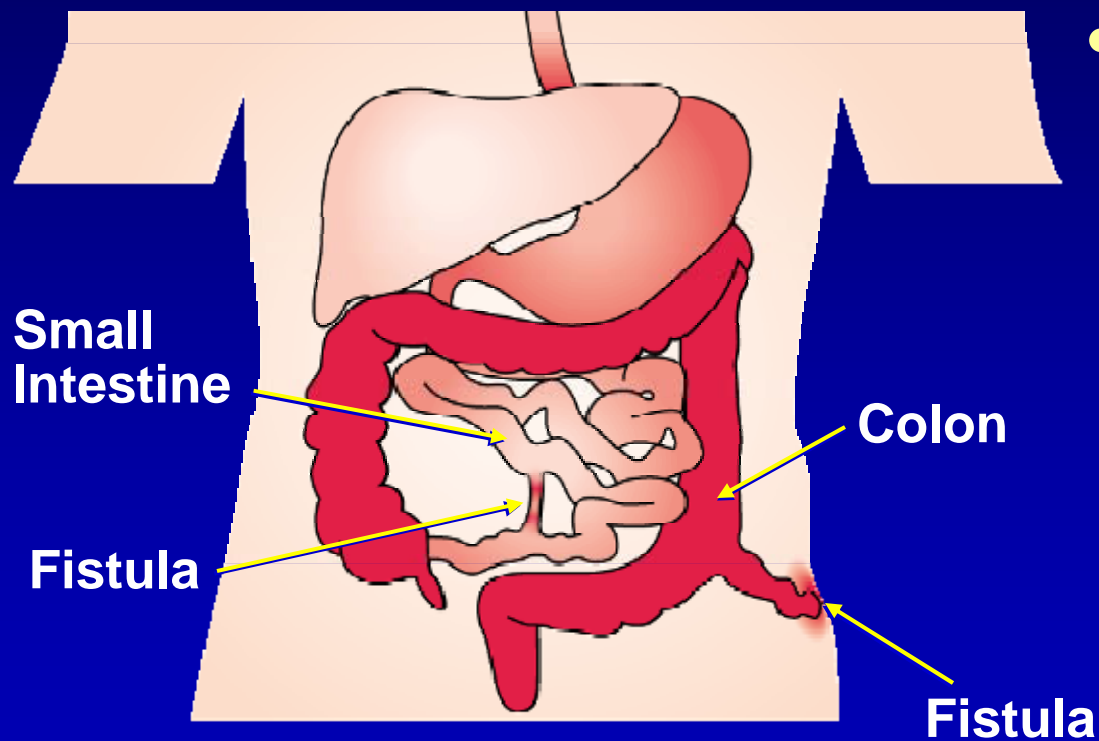
- Same as those for ulcerative colitis
- Weight loss
- Fistulas- abnormal connection between intestine and other organs
- Abscess- collection of pus
- Strictures- areas of narrowing





Crohn's Disease

Complications: Fistulas

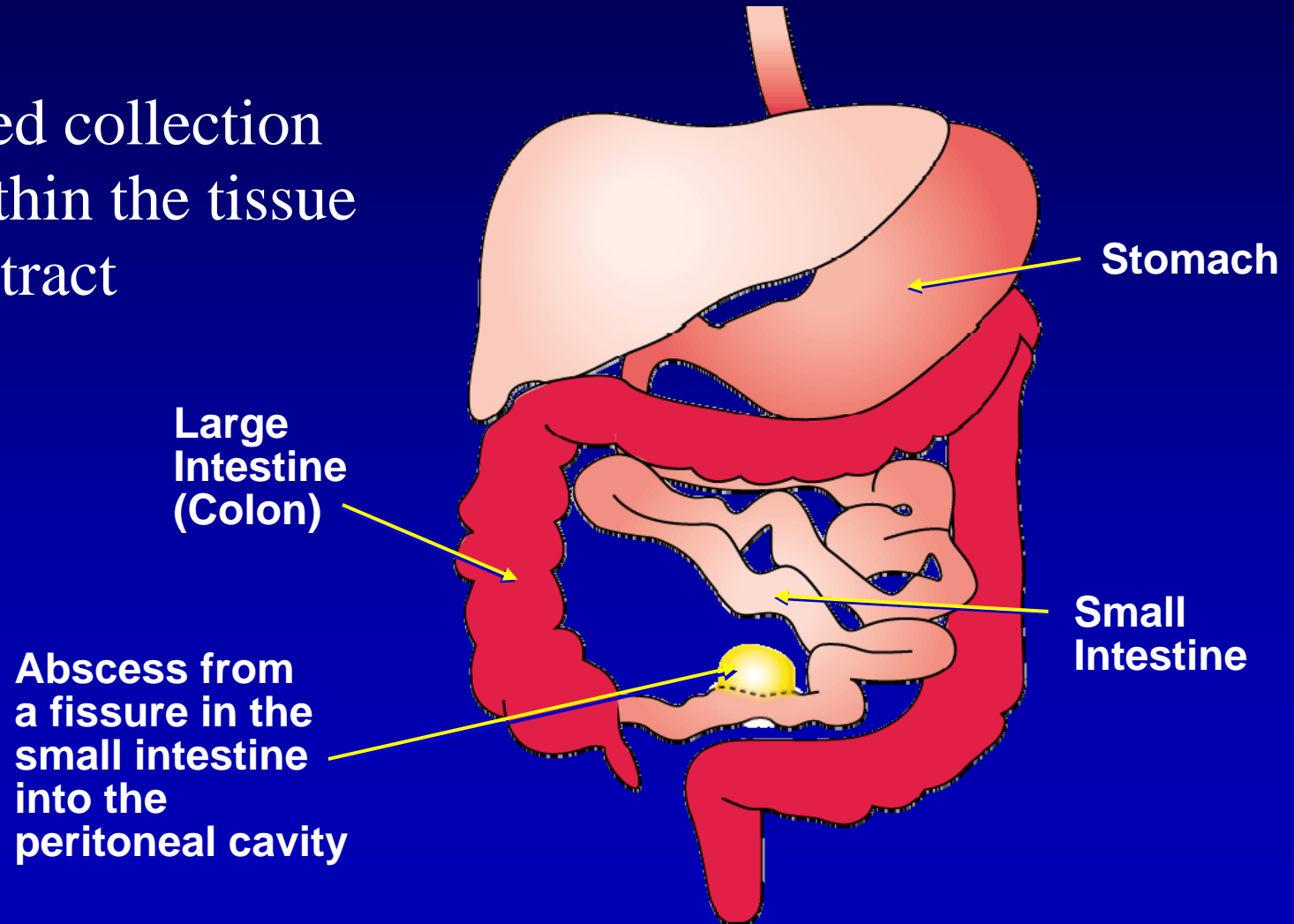


- A tunnel between two sections of the intestines or between the intestines and other organs, including the skin

Crohn's Disease

Complications: Abscesses

- A localized collection of pus within the tissue of the GI tract



Complications of CD: Fistulas

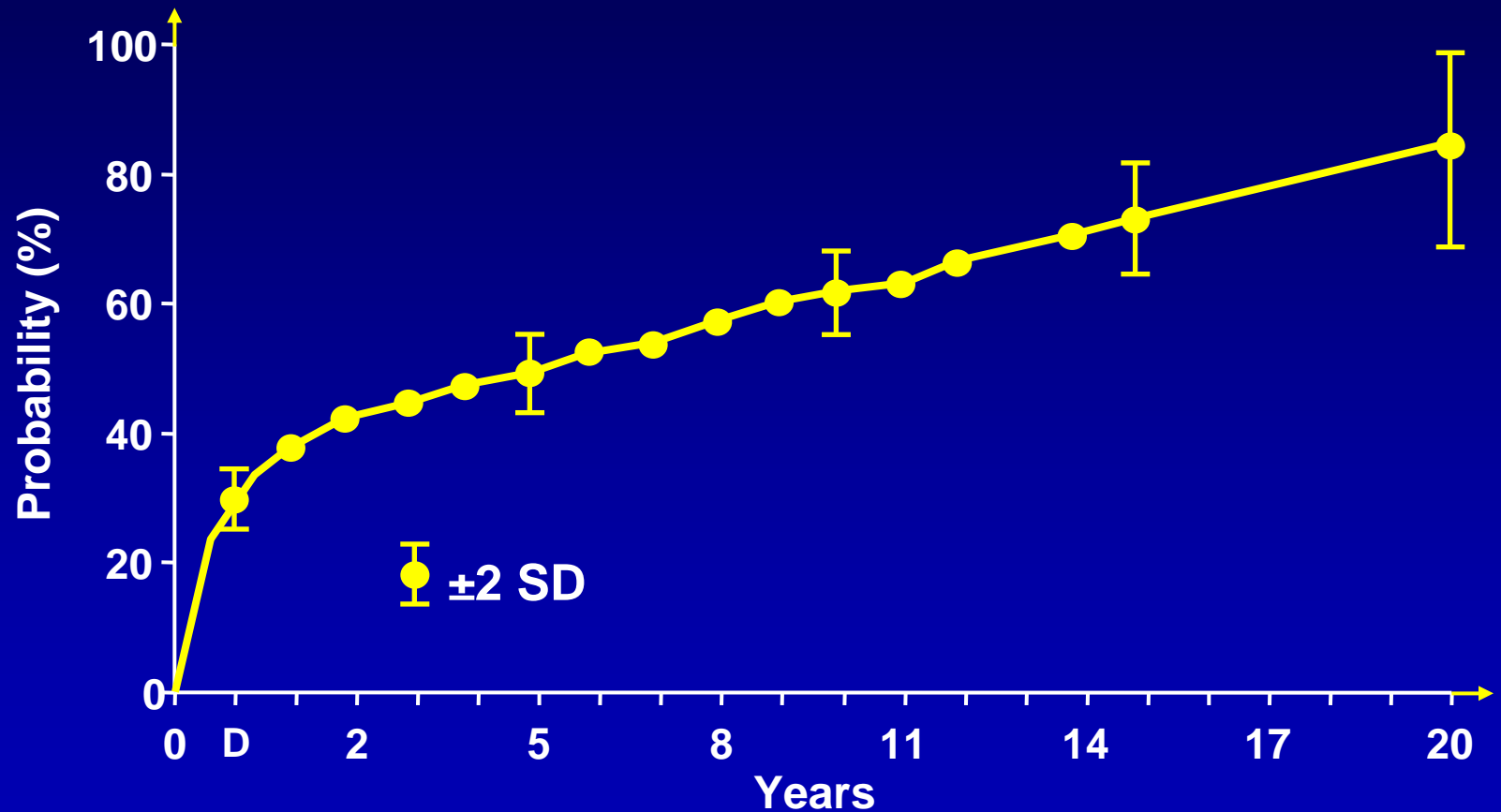
Abdominal Fistula



Perianal Fistula



Cumulative Probability of Surgical Intervention in CD



Events (no.) 122 26 15 7 7 4 8 1 8 2 2 2 3 2 1

Munkholm P, et al. *Gastroenterology*. 1993;105:1716.

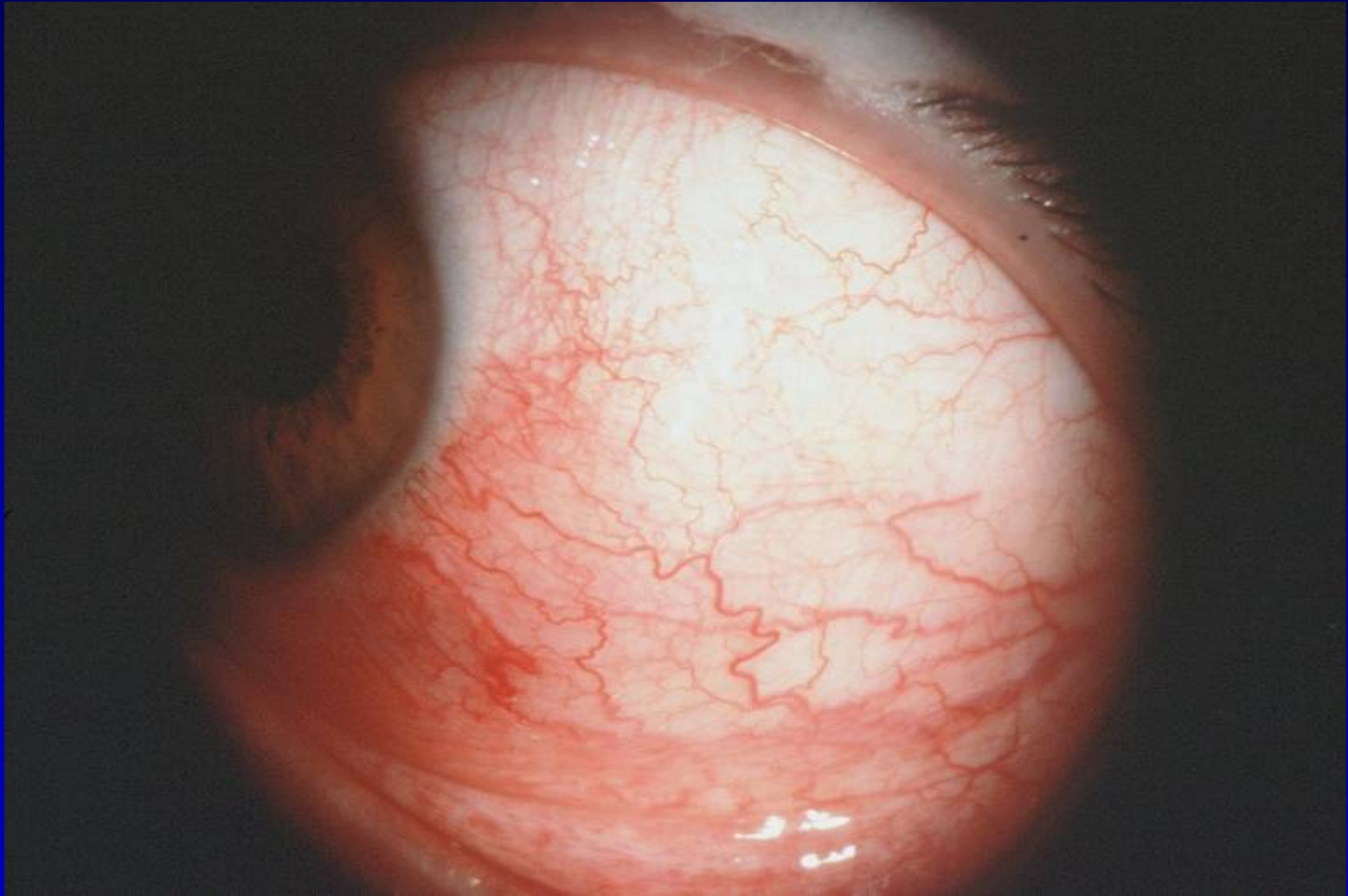
Extraintestinal Manifestations

- **Skin disorders:**
 - Erythema nodosum
 - Pyoderma gangrenosum
- **Joint disorders:**
 - Peripheral arthritis
 - Sacroiliitis
 - Ankylosing spondylitis
- **Ocular disorders:**
 - Iritis, uveitis, and episcleritis

Extraintestinal Manifestations

- **Hepatobiliary:**
 - Gallstones
 - Primary sclerosing cholangitis (PSC)
 - Cholangiocarcinoma
- **Renal:**
 - Renal stones
 - Amyloidosis
- **Other manifestations:**
 - Aphthous stomatitis
 - Hypercoagulable state

Episcleritis



Peripheral Arthritis



Erythema Nodosum



Pyoderma Gangrenosum



Treatment of IBD

Goals of Treatment

- Induce response/remission
- Maintain response/remission
- Heal mucosal lining
- Prevent or cure complications (eg, fistulas)
- Improve quality of life
- Restore and maintain nutrition
- Limit surgery

Treatment Options for IBD

- 5-ASA agents
- Antibiotics
- Steroids
- Immunomodulators:
 - 6-MP/azathioprine
 - Methotrexate
- Biologic agents:
 - Anti-TNF agents
 - Natalizumab