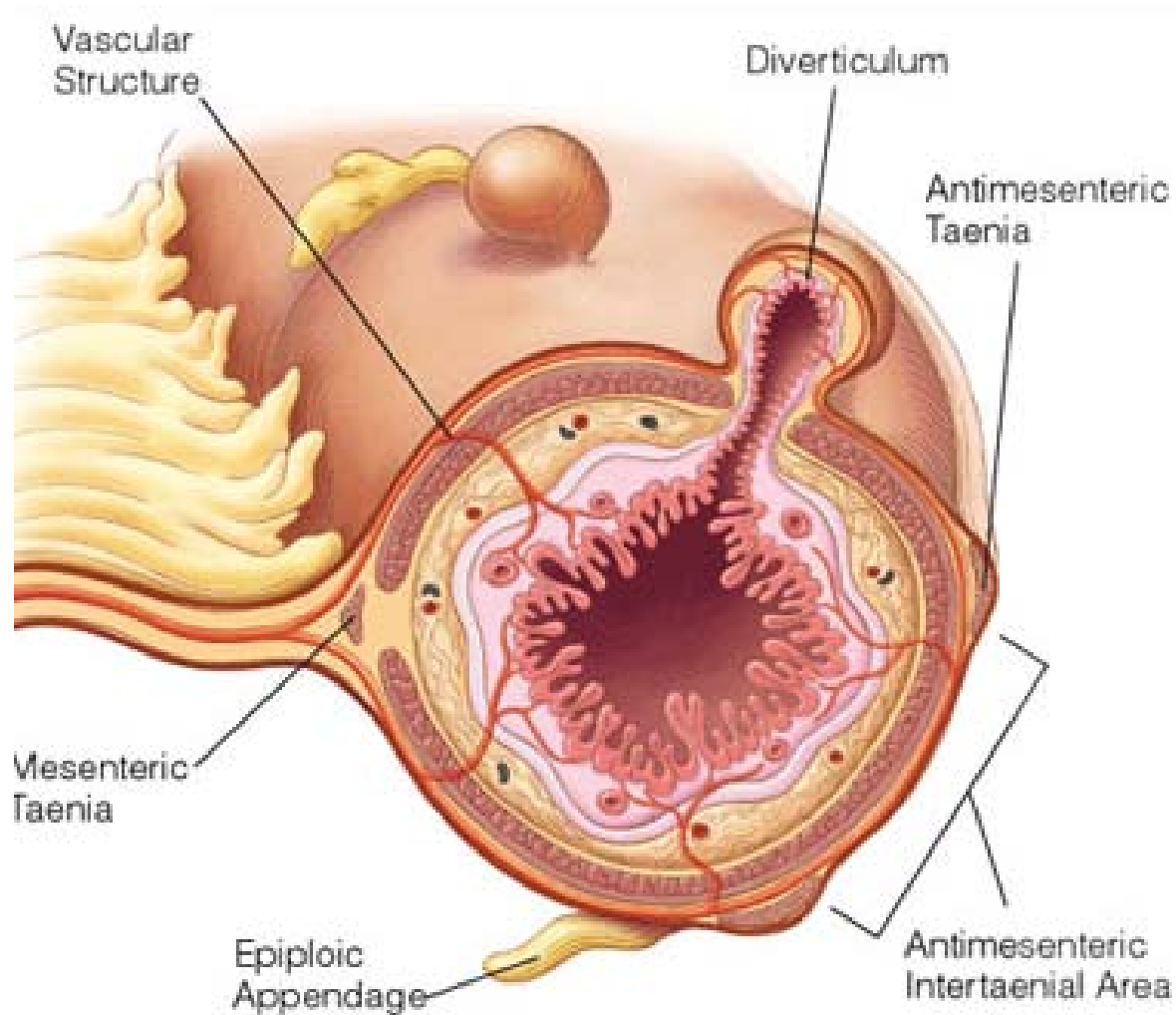


Management of Complications of Diverticulosis



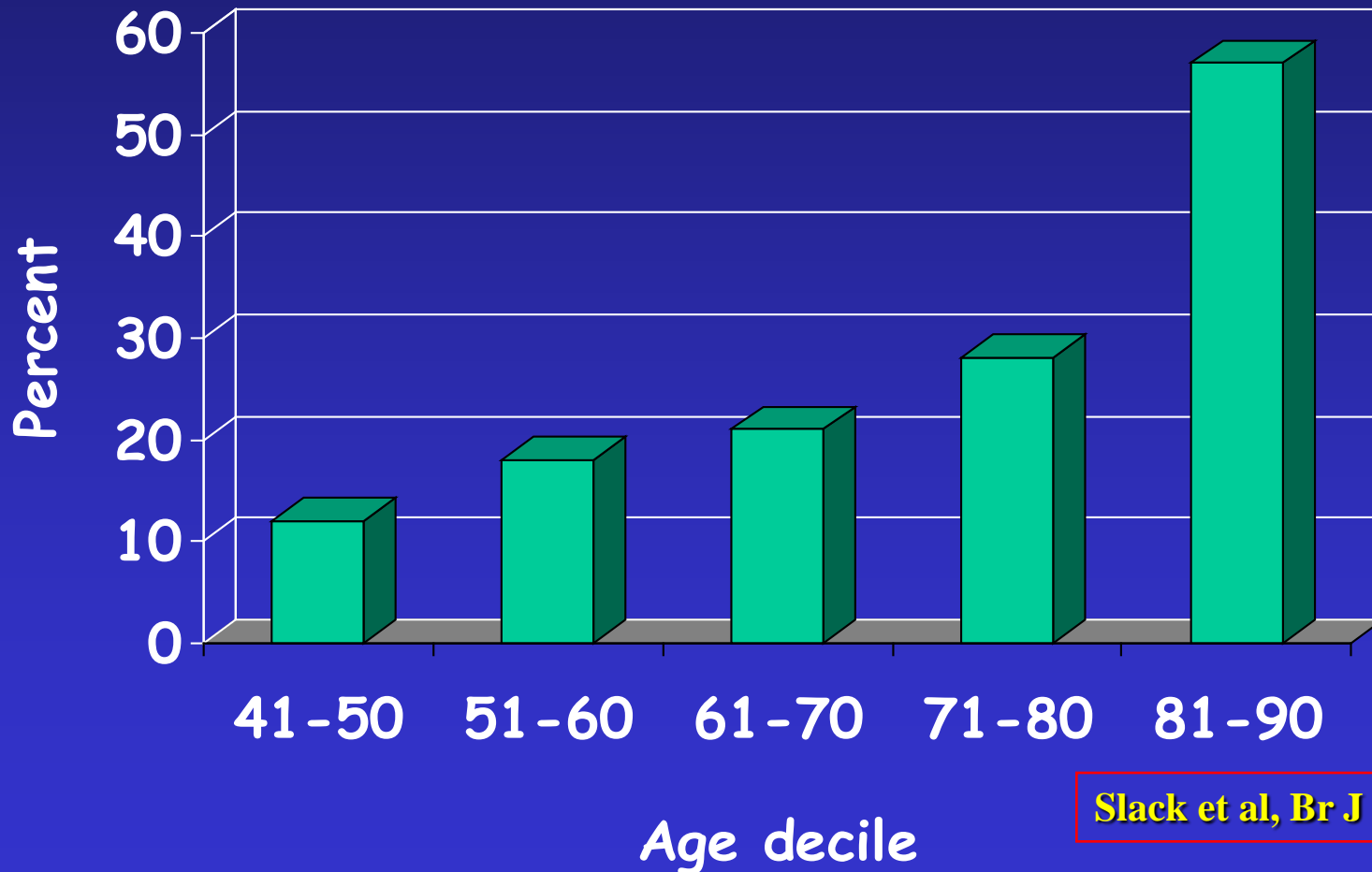
Epidemiology

- Diverticular disease is the most common colon disease in Western nations.
- “Disease of Western Civilization and Diet”
 - Rare in rural Africa & Asia, common in US, Europe, Australia
- In the West, diverticulosis affects 33-50% of the population older than 50 years and more than 50% of the population older than 80 years.
- In underdeveloped nations in Asia and Africa, diverticulosis occurs in less than 0.2% of the population.

Diverticulosis: Epidemiology

- Prevalence has increased in the last century
 - 5-10% in 1920
 - 35-50% in 1969 autopsy series
- Prevalence increases with age
- Sex distribution equal with possible slight female preponderance in elderly
- Males more likely to have diverticulosis before age 50 and predominate in cases of diverticulitis under age 40

Incidence Increases with Age



Slack et al, Br J Surg 1962; 50: 188

Pathologic Anatomy

- A typical colonic diverticulum is a false or pulsion-diverticulum (does not include all layers of wall)
- Mucosa and submucosa herniate *through* the muscle layer, covered only by serosa
- Diverticuli typically arise in 4 well-defined points around the circumference of colon:
 - Along the mesenteric sides of the anti-mesenteric taenia and along both sides of the mesenteric taenia
 - Corresponds to sites of arterial penetration through smooth muscle

Transverse mesocolo

Epiploic taenia

Hepatic flexure

Epiploic taenia

Appendices epiploicae

Splenic flexure

Orifice of ileocecal valve

Frenulum of ileocecal valve

Orifice of appendix

Appendix

Ileocecal valve orifice and papilla

Ileum

Rectosigmoid junction

Mesocolic taenia

Free taenia (taenia libera)

Sigmoid mesocolon

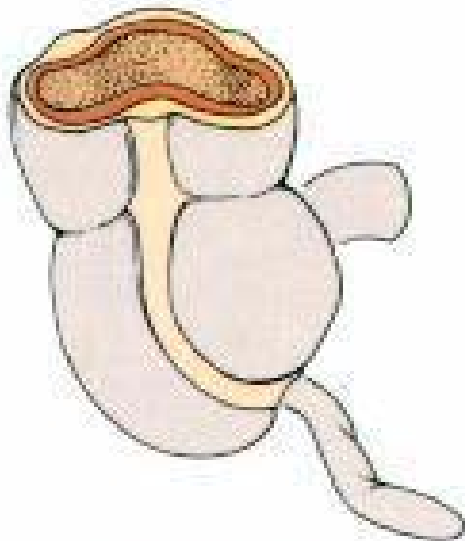
Rectum

Taeniae coli

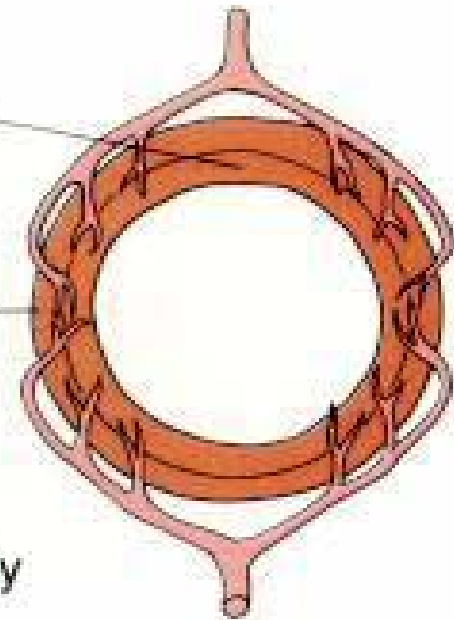
Circular muscle

Longitudinal muscle

Mesenteric blood supply

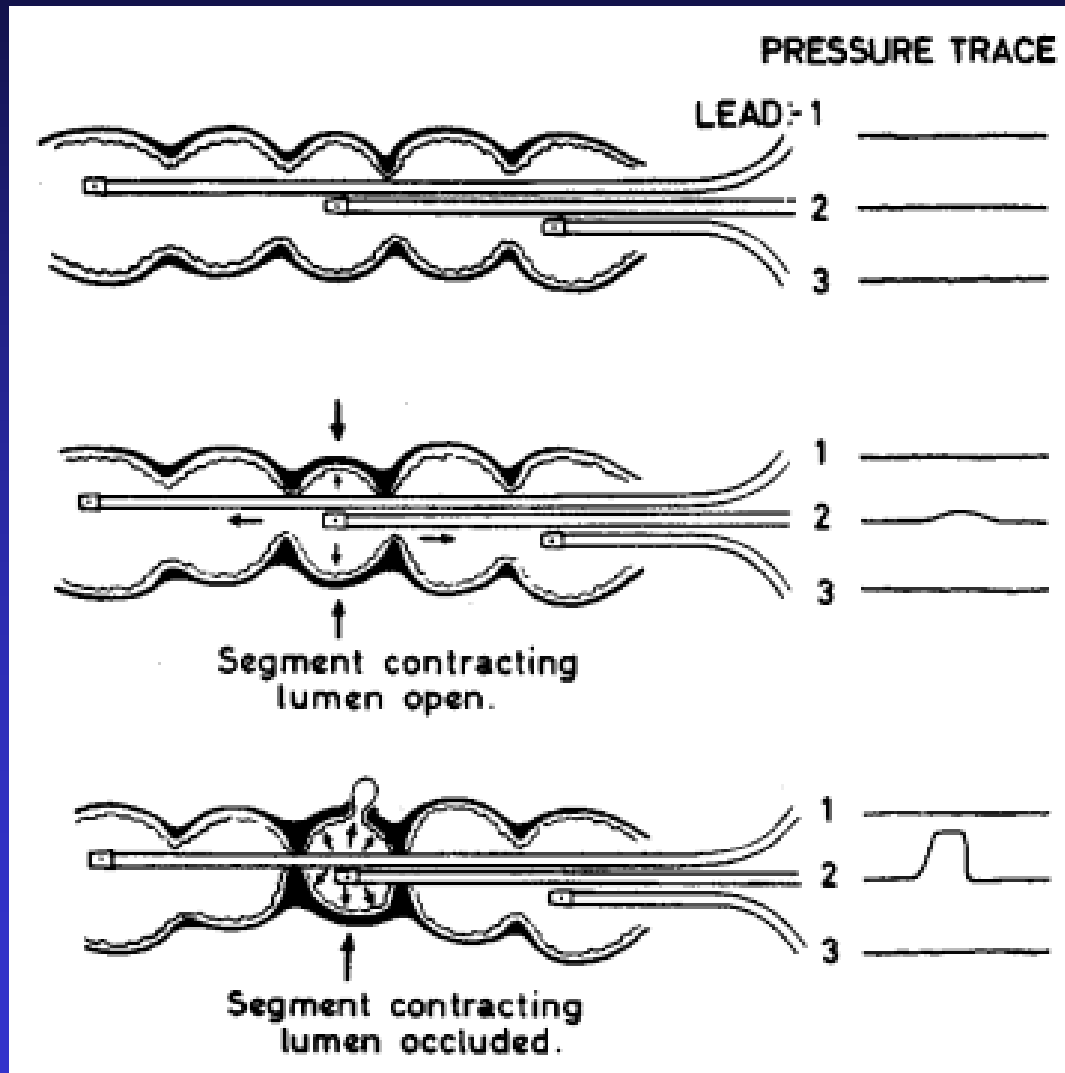


Taeniated part of large intestine



Rectum

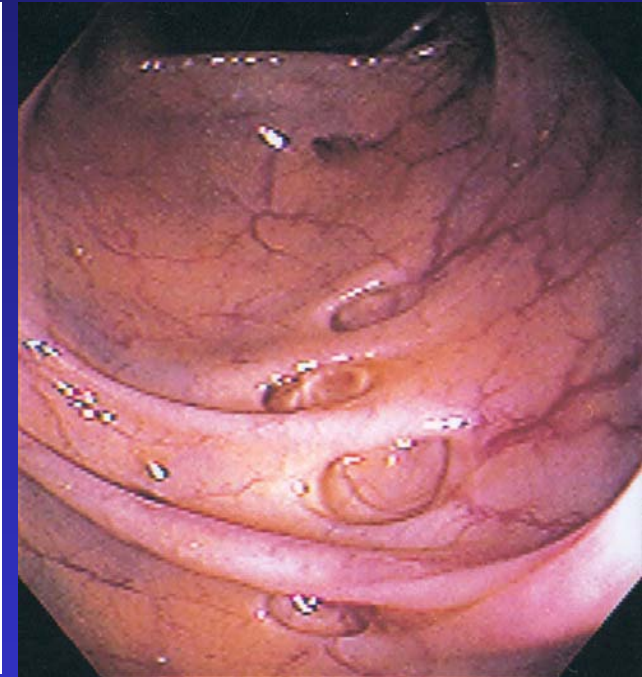
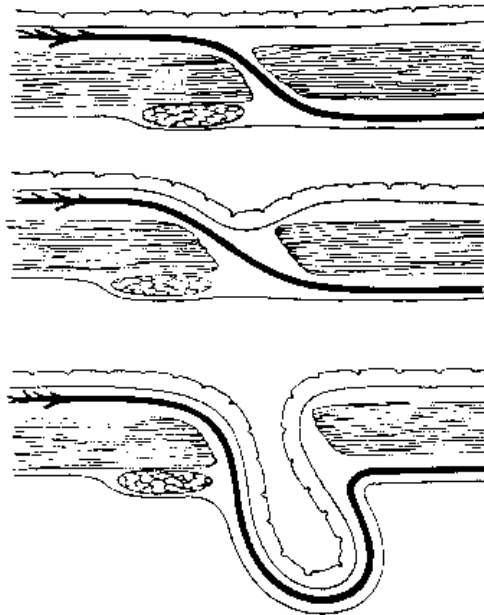
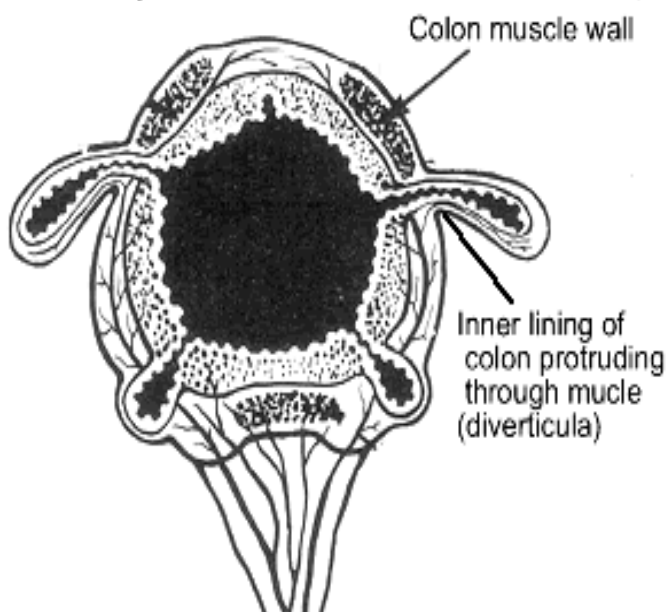
Mechanism of Formation: Segmentation generates local high-pressure zones for diverticular development.

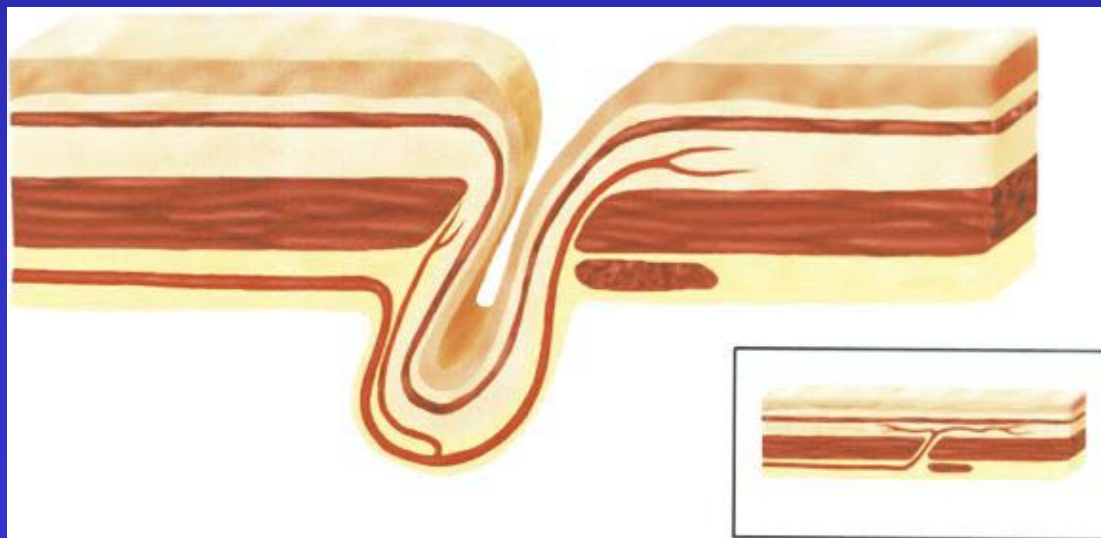
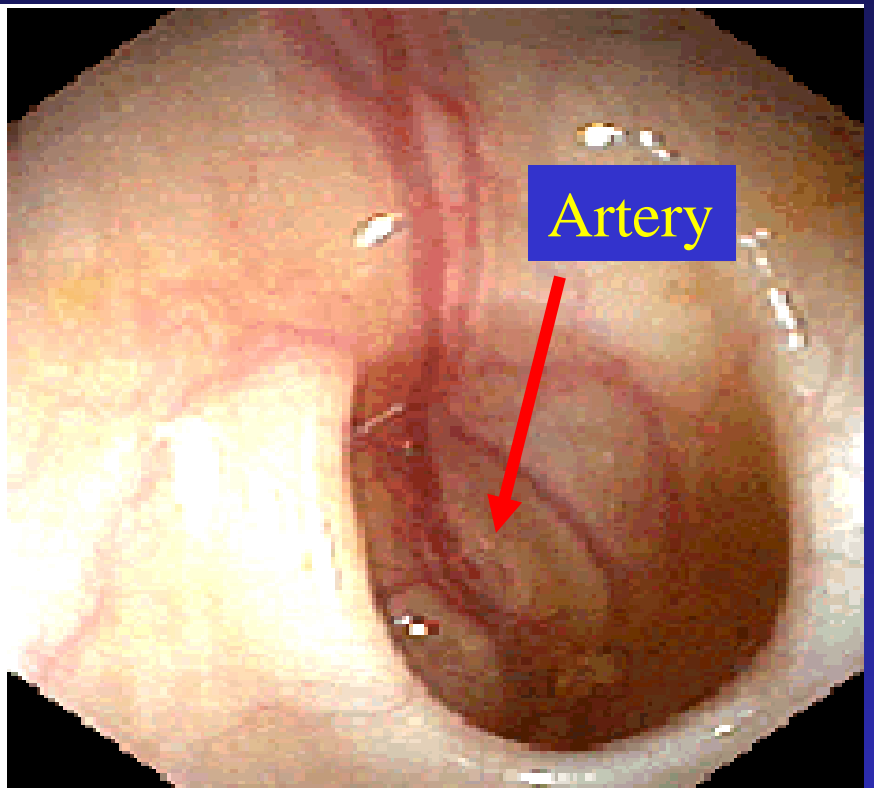
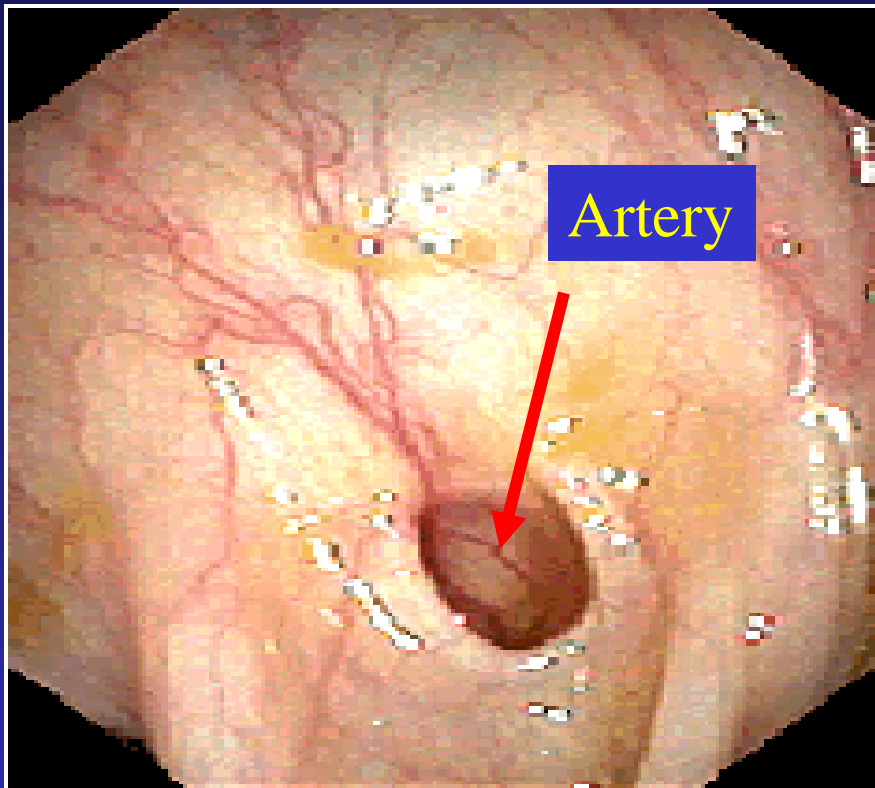


- “Segmentation” theory does not explain diverticulosis of the cecum and ascending colon seen more often in Asian/ Pacific populations

Diverticula Form at Sites of Vascular Penetration

Layers of the Colon Wall





Pathologic Anatomy

- Western individuals:
 - 90% left-sided 15% right-sided
- Asian individuals:
 - 25% left-sided 75% right-sided
- Vary in number from solitary to hundreds
- Typically 5-10mm in diameter, although 'giant' diverticula described.

Pathogenesis: Dietary Fiber

- Low dietary fiber consumption is suspected to be the most important factor in the development of diverticular disease
 - Striking geographic correlation w/ ↓ fiber intake
 - Emergence following introduction of milled grain
 - Vegetarians have lower prevalence of diverticulosis
- Rats fed diets of varying fiber content over natural lifespan:
 - Low-fiber diet: 45% developed diverticula
 - High-fiber diet: 9% developed diverticula
 - Histologically similar to human diverticula, but mainly right-sided

Pathogenesis: Dietary Fiber

- Health Professionals Follow-up Study
- 43,881 US male health professionals 40-75 yrs & free of diagnosed colonic disease, f/u 6 years.
- 362 new cases of diverticular dz documented.
- The insoluble component of fiber was inversely associated with risk of diverticular disease relative risk (RR) = 0.63 $p = 0.02$
- Association was particularly strong for cellulose (RR = 0.52, $p = 0.002$).

Natural History of Diverticulosis

Natural History of Diverticulosis

```
graph TD; A[Natural History of Diverticulosis] --> B[Asymptomatic<br/>70-80%]; A --> C[Diverticular Bleeding<br/>5-15%]; A --> D[Diverticulitis<br/>15-25%]; D --> E[Uncomplicated<br/>75%]; D --> F[Complicated<br/>25%];
```

Asymptomatic
70-80%

**Diverticular
Bleeding**
5-15%

Diverticulitis
15-25%

Uncomplicated
75%

Complicated
25%

Clinical Manifestations of Diverticulosis

- Asymptomatic
- “Diverticular Colitis”
- Diverticulitis
 - Uncomplicated
 - Complicated
 - Fistula
 - Abscess
 - Obstruction
 - Free Perforation
- Diverticular Bleeding

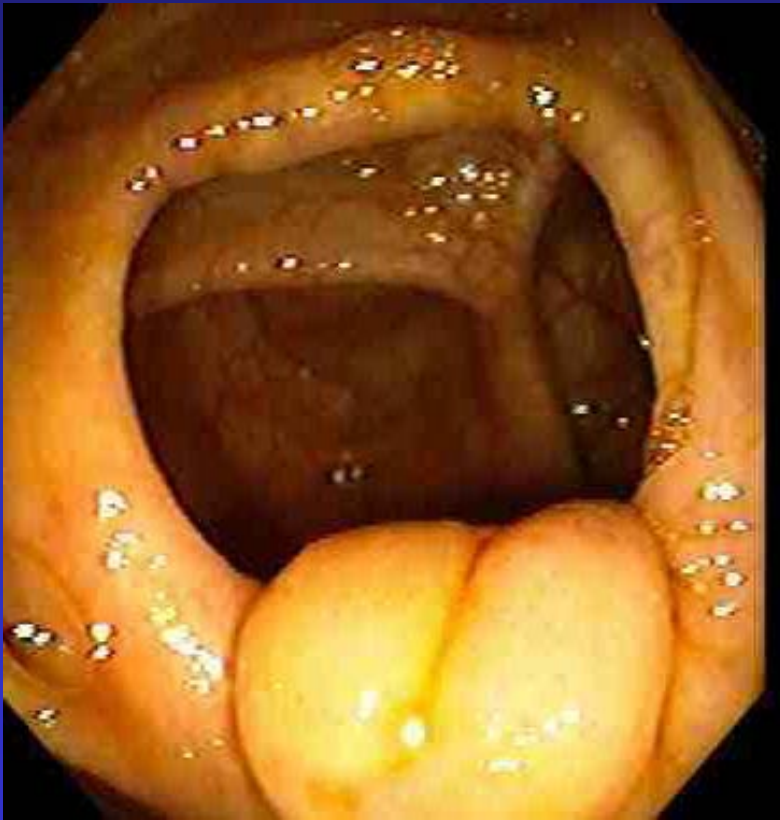
Asymptomatic Diverticulosis: Is Diet Modification Indicated?

- The vast majority of patients are asymptomatic.
- Although commonly associated with symptoms of IBS, there is little evidence that incidentally discovered diverticulosis causes gastrointestinal symptoms
- High fiber diets frequently recommended to prevent **symptomatic** diverticulosis, but virtually impossible to prove by prospective clinical trials
- Historically, physicians have advised individuals with diverticular disease to avoid nuts, seeds, popcorn, berries, and other particulate foods (i.e. seeds may get stuck and cause diverticulitis)

Asymptomatic Diverticulosis: Is Diet Modification Indicated?

- Health Professionals Follow-up Study is a cohort of US men followed up prospectively from 1986 to 2004
 - 47 228 men aged 40 to 75 years who at baseline were free of diverticulosis or its complications.
- During 18 years of follow-up, there were 801 incident cases of diverticulitis and 383 incident cases of diverticular bleeding.
- Multivariate Analysis (adjusted for total fiber, etc)
- **Inverse associations between nut and popcorn consumption and the risk of diverticulitis (nuts RR 0.80 p= 0.04 ; popcorn RR 0.72 p= 0.007)**
- Nuts and popcorn intake did not influence the development of asymptomatic diverticulosis or diverticular bleeding

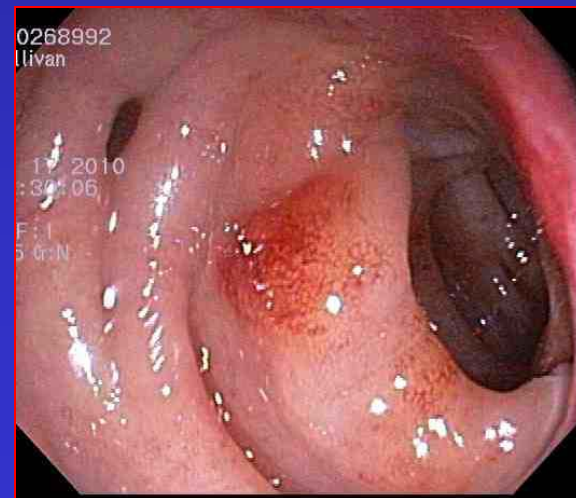
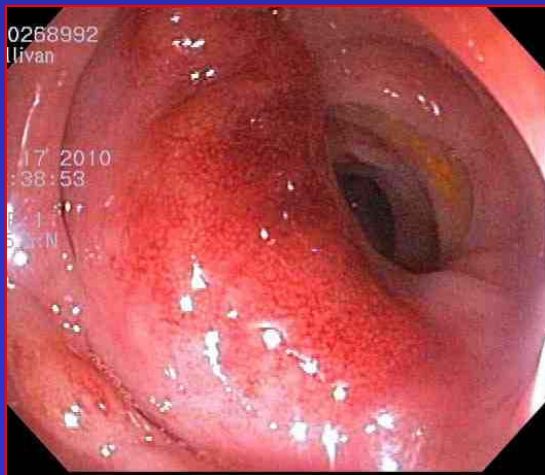
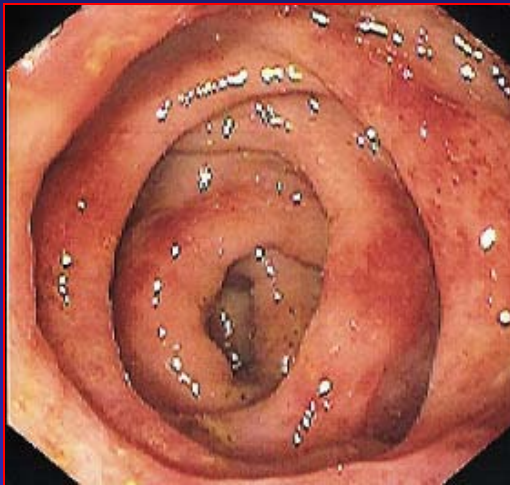
Encourage Nuts and Popcorn



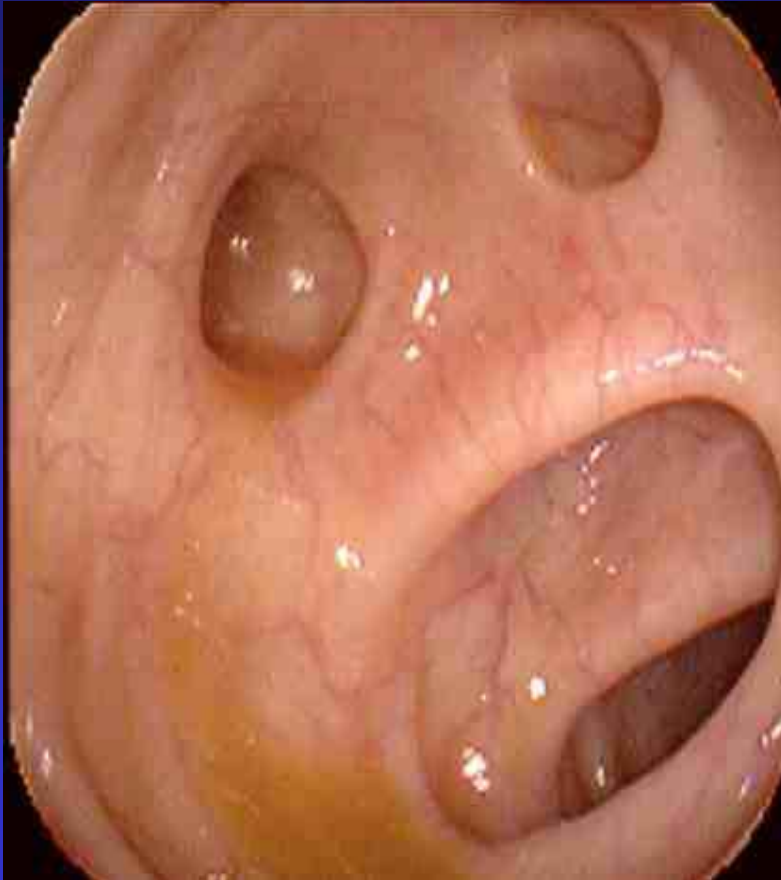
“Diverticular Colitis”

- **Diverticular patients may have segmental sigmoid “colitis” on screening sigmoidoscopy**
- **Range from focal erythema/edema to chronic active inflammation resembling IBD**
- **Usually asymptomatic, incidental finding on screening sigmoidoscopy**
- **No biopsy or treatment indicated in the absence of symptoms suggesting significant colitis (tenesmus, urgency, etc.)**
- **Pathogenesis unknown/treatment anecdotal (i.e. 5-ASA, cortenema)**

“Diverticular Colitis”



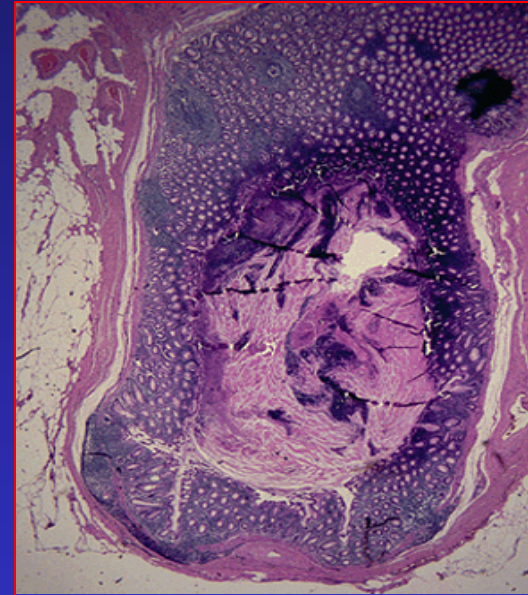
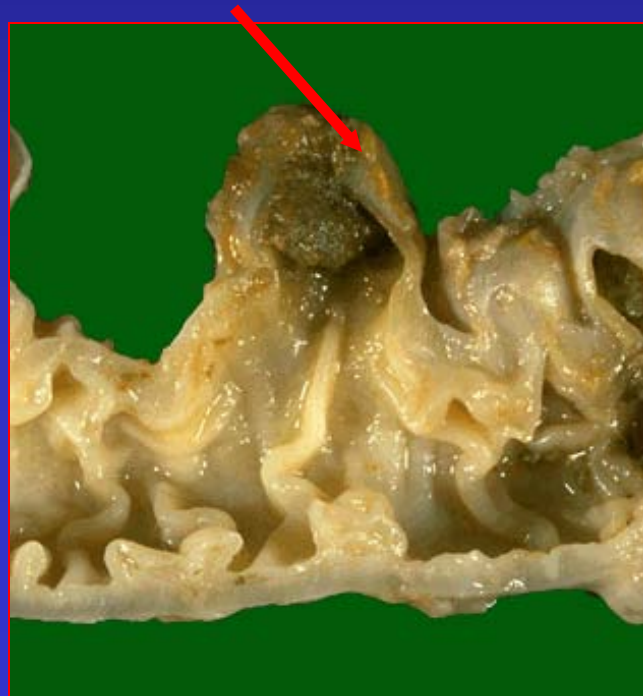
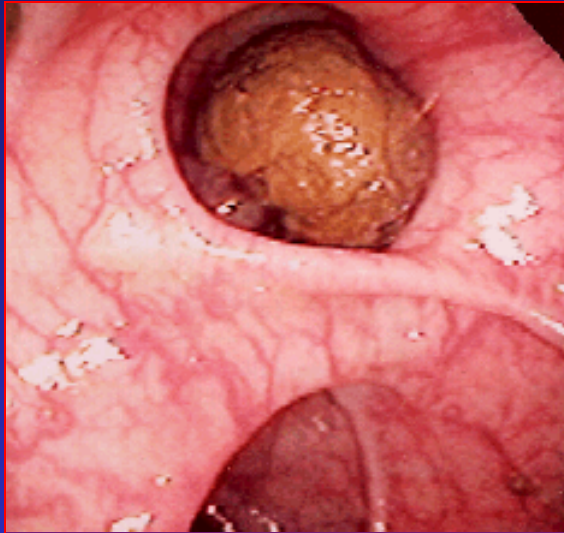
Diverticulitis? Oh Noooooooooo!



Acute Diverticulitis

- Diverticulitis represents a micro or macroscopic perforation of a diverticulum
- Thought to be due to erosion of diverticular dome by inspissated food (fecolith) or increased luminal pressure with focal necrosis
- The vast majority of perforations occur in the sigmoid colon
 - Right-sided diverticulitis occurs in only 1.5 percent of patients in Western countries but is more common in Asians
- Small perforations are frequently walled off by peri-colonic fat or omentum resulting in mild to moderate symptoms (75%)

Impacted fecolith with Inflammation



Acute Diverticulitis

- Affects 15-25% of patients with diverticulosis
- 450,000 US admissions / year
- M:F 60:40
- The incidence of hospital admissions for acute diverticulitis is increasing and the average age decreasing
- Medical and surgical mortality rates are generally low and have improved with time
 - Overall mortality decreased from 1.6% in 1998 to 1999 to 1.0% in 2004 to 2005
 - Surgical mortality for patients with acute diverticulitis decreased from 5.7% to 4.3% across the same periods.

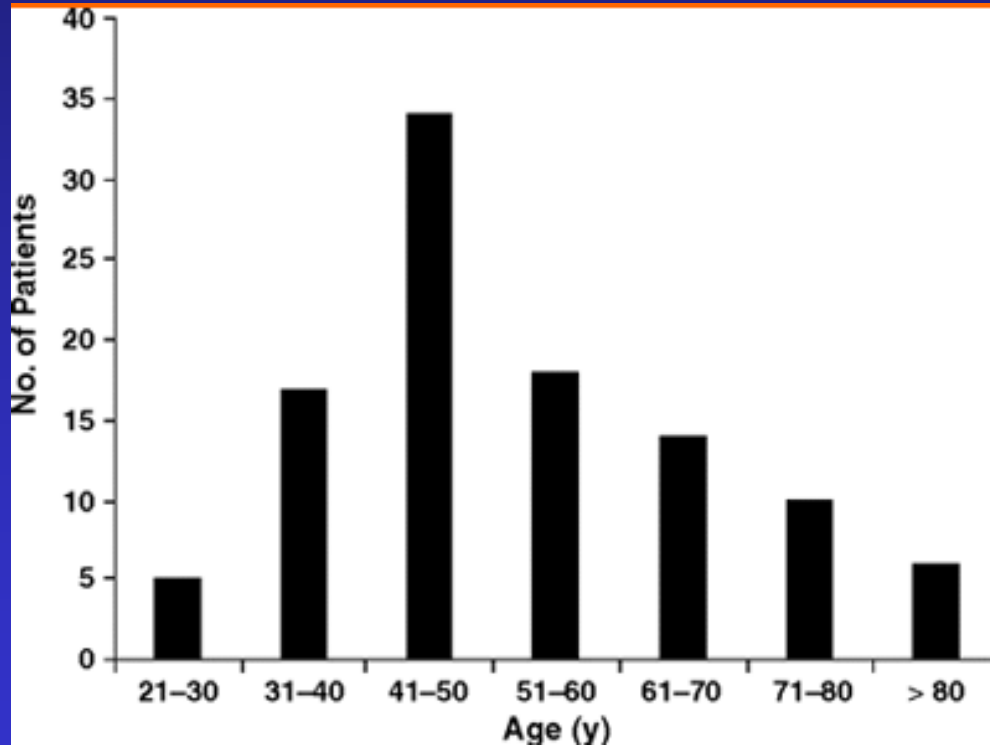
Ann Surg 2009;249(2):210-217.

The Median Age of Acute Diverticulitis is Decreasing

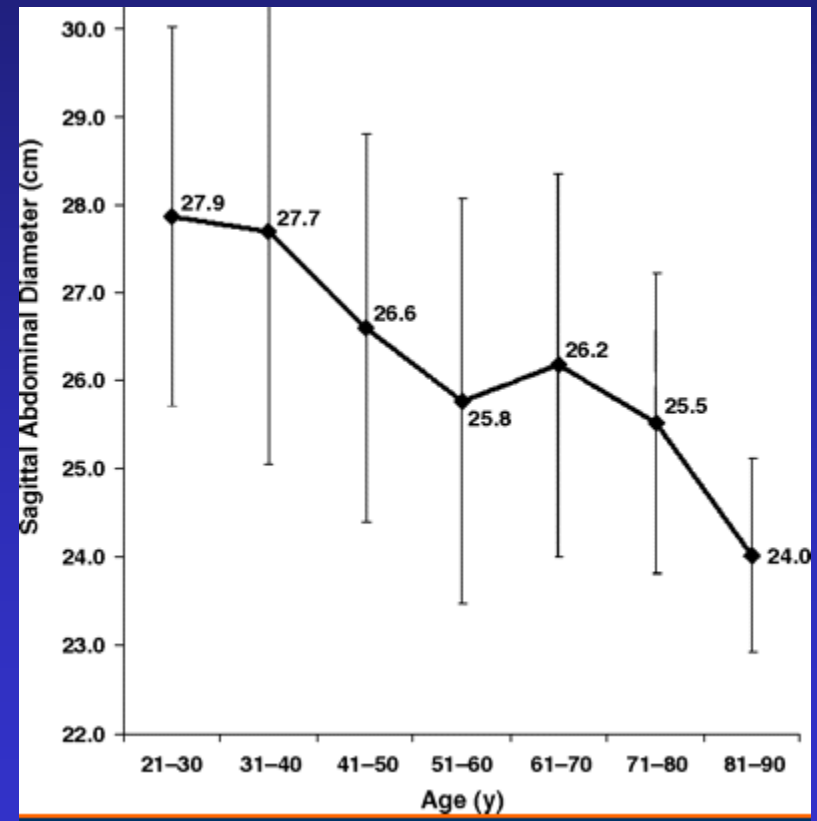
- **University of Maryland Study: 104 consecutive cases of acute diverticulitis 1999-2003**
 - 55 men 48 women
 - Age range 22-88
 - 54% age 50 or younger
 - 22 (21%) less than 40
 - 82.7% descending and sigmoid diverticulitis
- **Median Age: 49**
- **Abdominal (central) obesity strongly correlated with acute diverticulitis in patients:**
 - 82% prevalence overall and 85.9% in patients < 50
 - More severe obesity associated with younger age of onset
 - Only 11% had BMI < 25

Am. J. Roentgenol 2006,187:689-694

The Median Age of Acute Diverticulitis 49



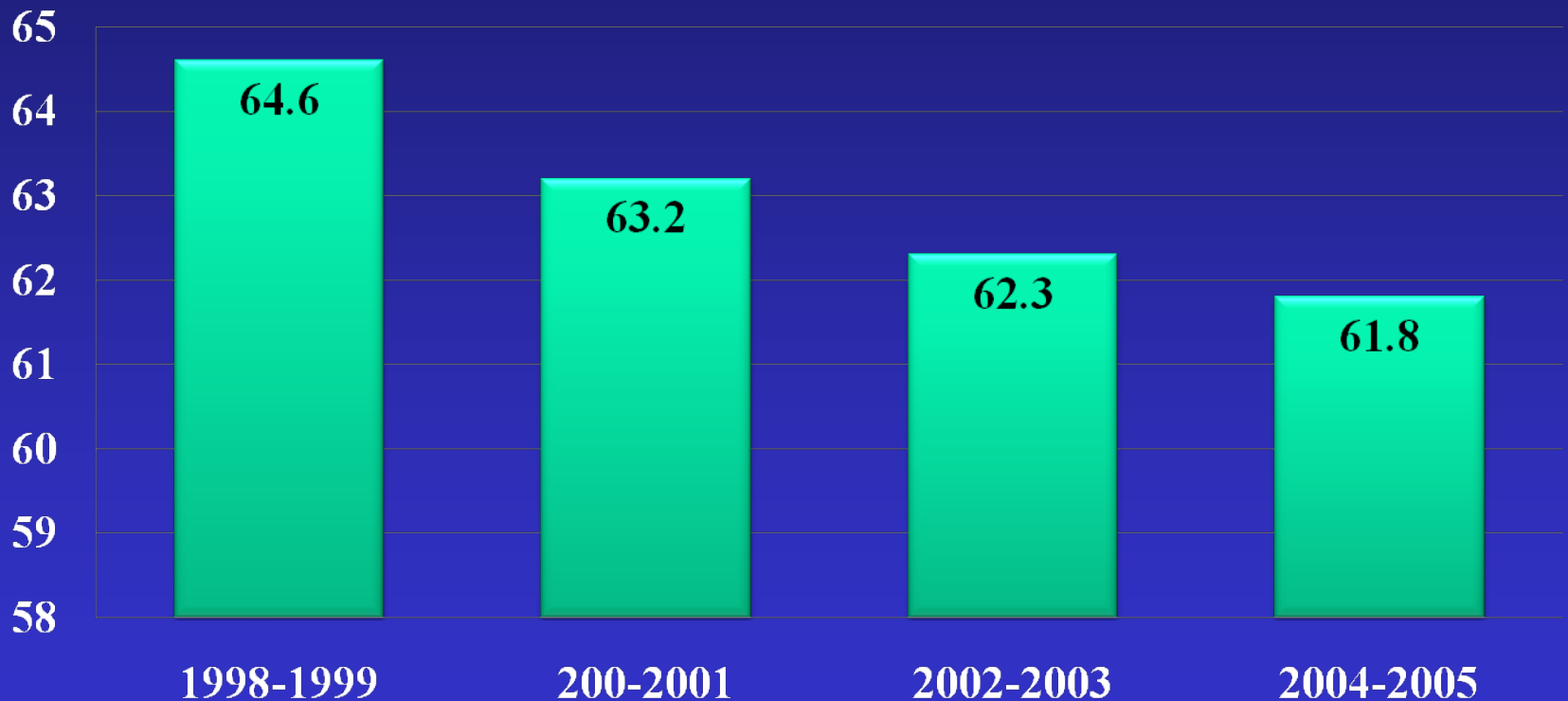
Central Obesity a Risk Factor for Acute Diverticulitis



**CT Scan Sagittal Abdominal Diameter
>25 cm Indicative of Obesity**

The Average Age of Patients with Diverticulitis is Rapidly Declining

267,000 US Admissions 1998-2005

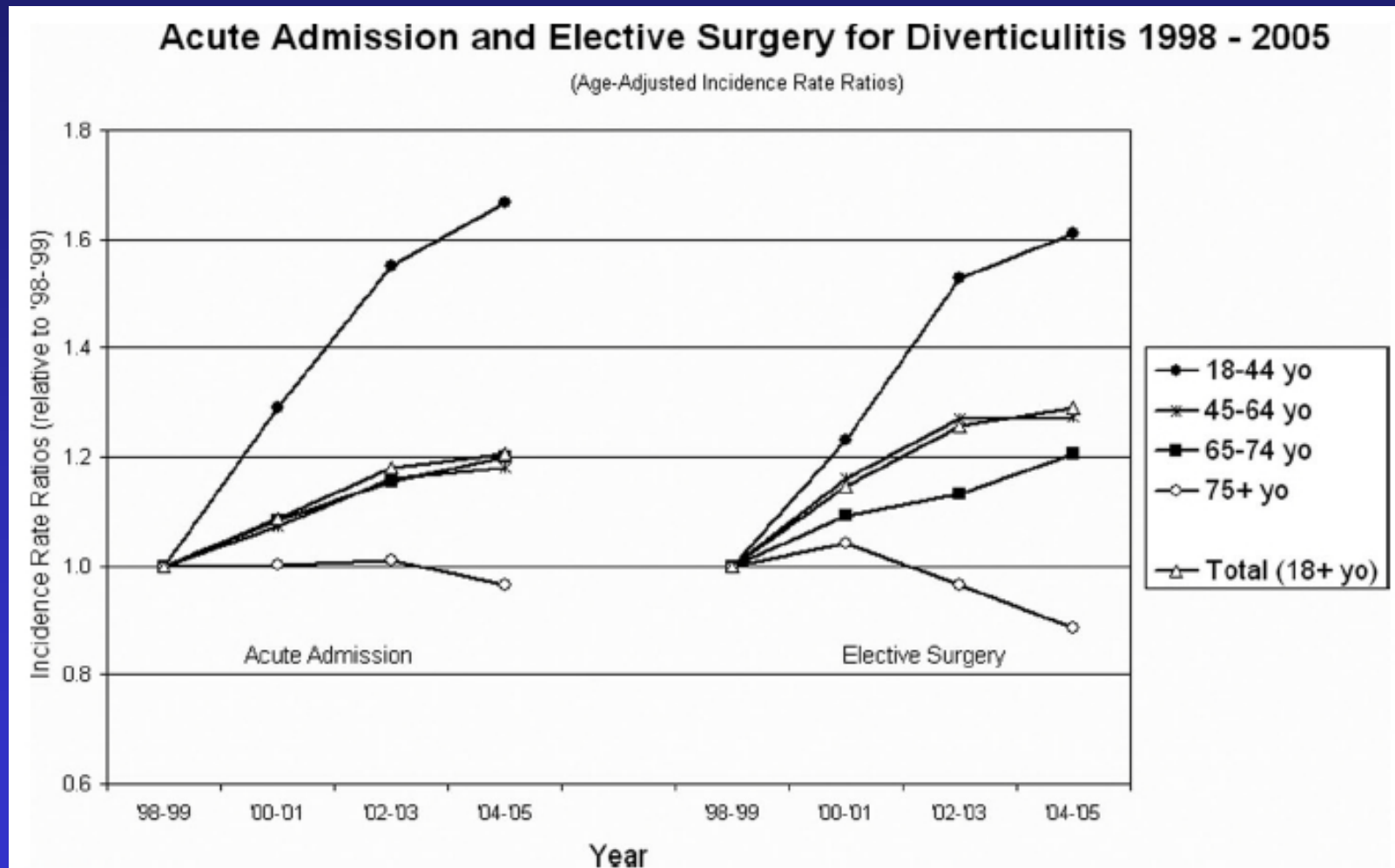


Ann Surg 2009;249(2):210-217.

Diverticulitis in the US: Changing Patterns of Disease and Treatment

- 1998 to 2005 nationwide inpatient sample to analyze the care received by 267,000 patients admitted with acute diverticulitis
- Overall annual age-adjusted admissions for acute diverticulitis increased from 120,500 in 1998 to 151,900 in 2005 (26% increase).
- Almost entirely the result in patients under the age of 65, especially those less than 45 years of age
- Rates of admission increased more rapidly within patients aged 18 to 44 years (82%) and 45 to 74 years (36%).

Diverticulitis in the US: Changing Patterns of Disease and Treatment



Diverticulitis: Symptoms

- **LLQ pain is the most common presentation, often present for several days before diagnosis**
- **Up to 50% report prior similar episodes**
- **Nausea/Vomiting: 20-60%**
- **Obstipation: 50%**
- **Diarrhea: 25-35%**
- **Urinary symptoms: 10-15%**
- **Bleeding rare, suggests alternative dx (ischemia)**
- **Right-sided diverticulitis occurs in only 1.5% of “western” cases but more common in Asians**

Diverticulitis: Signs and Lab

- LLQ tenderness common (RLQ tenderness may occur due to a redundant sigmoid colon, mimicking appendicitis)
- Palpable sigmoid mass in 20%
- Generalized tenderness or rebound suggests free perforation/peritonitis
- Low-grade fever and leukocytosis common but up to 45% can have a “normal” WBC

Acute Diverticulitis: Differential Diagnosis

- **Acute appendicitis**
- **Colonic carcinoma with perforation**
- **Ischemic colitis**
- **Crohn's Disease**
- **Left-sided tubo-ovarian pathology**
 - **Ovarian cyst / abscess / torsion**
 - **Ectopic pregnancy**

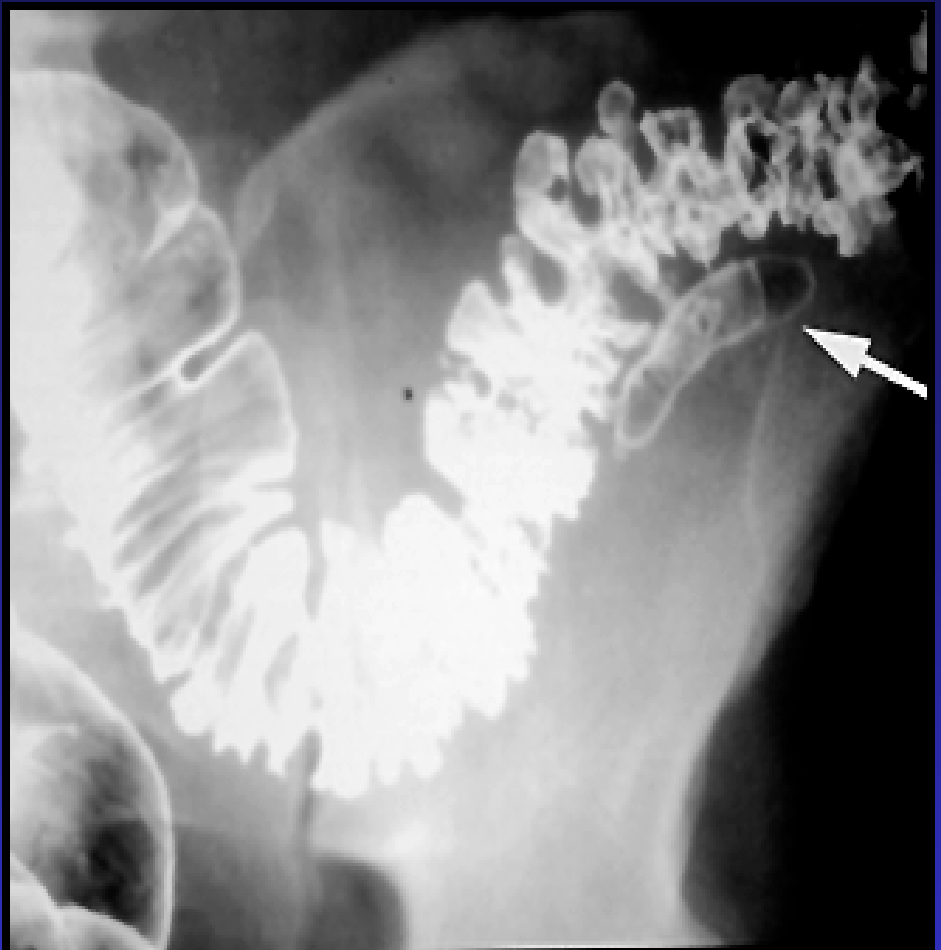
Diverticulitis - Diagnostic Modalities

- **History and Physical**: often adequate to make the diagnosis
- **Plain Radiography**: Rule out free air, obstruction, ileus
- **Contrast Enema Examinations**: Generally avoid!
 - Use water soluble agents if perforation suspected (although costs more and less mucosal detail).
 - Gentle single-contrast study; terminate when findings demonstrated.
 - Findings: extravasated contrast into abscess or fistula, spasm, mucosal thickening, extensive strictures, extraluminal mass compressing bowel.
 - Sensitivity: 60-90%



Diverticulitis of sigmoid colon

Single contrast barium enema reveals spasm, rigidity, mural thickening, and lack of distensibility of a focal segment of sigmoid colon in a patient with sigmoid diverticulitis. Note the presence of a small diverticulum (arrow). Courtesy of Norman Joffe, MD.



Intramural diverticular abscess Double contrast barium enema in a patient with numerous sigmoid colon diverticulæ demonstrates an air-containing intramural abscess cavity (arrow). Courtesy of Jonathan Kruskal, MD, PhD.

Diverticulitis - Diagnostic Modalities

- **CT with oral contrast**
 - Diagnostic study of choice
 - High sensitivity, specificity, and negative predictive value
 - Can identify complications such as free perforation, obstruction, abscess, fistula
 - Potentially therapeutic: percutaneous drainage of abscess
 - In <10% may be difficult to differentiate from colon cancer
- **Colonoscopy:**
 - Relatively contraindicated due to theoretical risk of worsening perforation.
 - May be useful when Dx unclear: Excludes ischemic colitis, carcinoma etc

Diverticulitis - Treatment

- Conservative treatment (bowel rest and antibiotics) is successful in approximately 70 to 100 percent of patients with acute uncomplicated diverticulitis
- Outpatient treatment:
 - Mild sx's, no peritoneal signs, tolerating POs, & reliable patients with supportive home networks may be candidates for outpatient Rx.
- Admission:
 - Elderly, immunosuppressed, comorbid illness, or evidence of severe disease (high WBC or fevers): inpatient Rx.

Diverticulitis – Outpatient Treatment:

- Clear liquids for 48 hr; advance as tolerated
- Antibiotics: 7-10 days to cover gut organisms (eg GNRs & anaerobes, esp *E. coli* and *bacteroides*)
 - Ciprofloxacin 500 mg bid plus
 - metronidazole 500 mg tid
 - Amoxicillin/clavulanate (875/125) bid
 - Bactrim 500 bid
- Contact physician for increasing pain, fever, inability to maintain hydration
- If first episode, consider elective colonoscopy in 8-12 weeks to rule out other colonic pathology

Diverticulitis - Treatment Outcome I

- For those who respond, a complete colonic evaluation is required after resolution of clinically diagnosed case, to exclude other diagnoses, such as CA.
- Majority will respond to medical Rx; up to 25% will have complicated diverticulitis and possibly require surgery during admission.

Complicated Diverticulitis Abscess

- **Suggested by persistent fever or WBC**
- **CT scan: diagnose & follow course**
- **Stage I (small pericolic abscesses): 70-80% success with medical tx alone**
- **Stage II (distant abscesses):**
 - **CT-guided percutaneous drainage**
 - **Allows for rapid control of sepsis without operative risk, allows for temporary drainage and single-stage procedure in 3-4 weeks.**
 - **15-25% may still require primary surgical therapy if multiloculated or inaccessible.**

Complicated diverticulosis

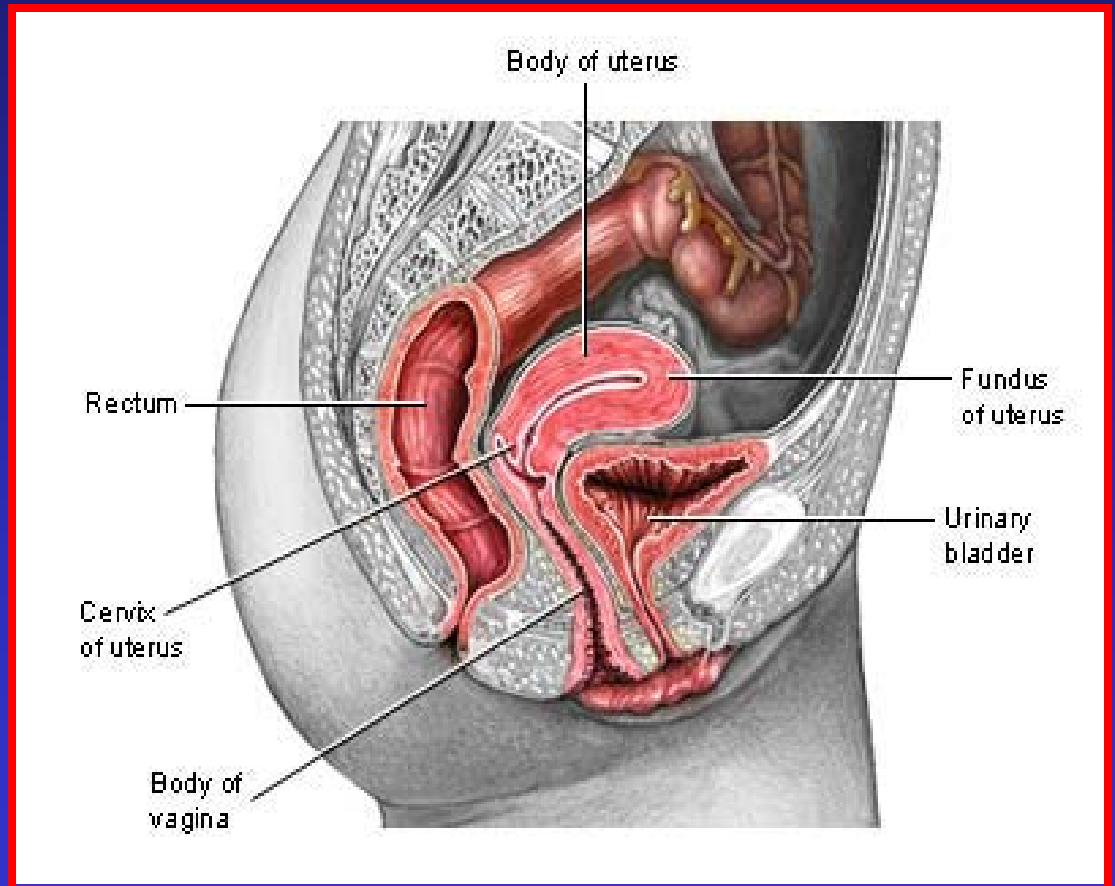
Fistulas

- **Fistulas account for 20% of surgeries performed for diverticular disease.**
- **Only about half give a history of prior bout of acute diverticulitis**
- **Colovesicular: (65%) 2-3:1 M:F**
 - fecaluria - pathognemonic
 - pneumaturia - suggestive
- **Colovaginal: (25%) stool / flatus per vagina**
 - Majority have had a prior hysterectomy
- **Coloenteric, colouterine, colocutaneous: rare**

Complicated Diverticulitis

Fistulas:

- The majority of colovesicular and colovaginal fistulas in women occur post-hysterectomy



Complicated Diverticulitis

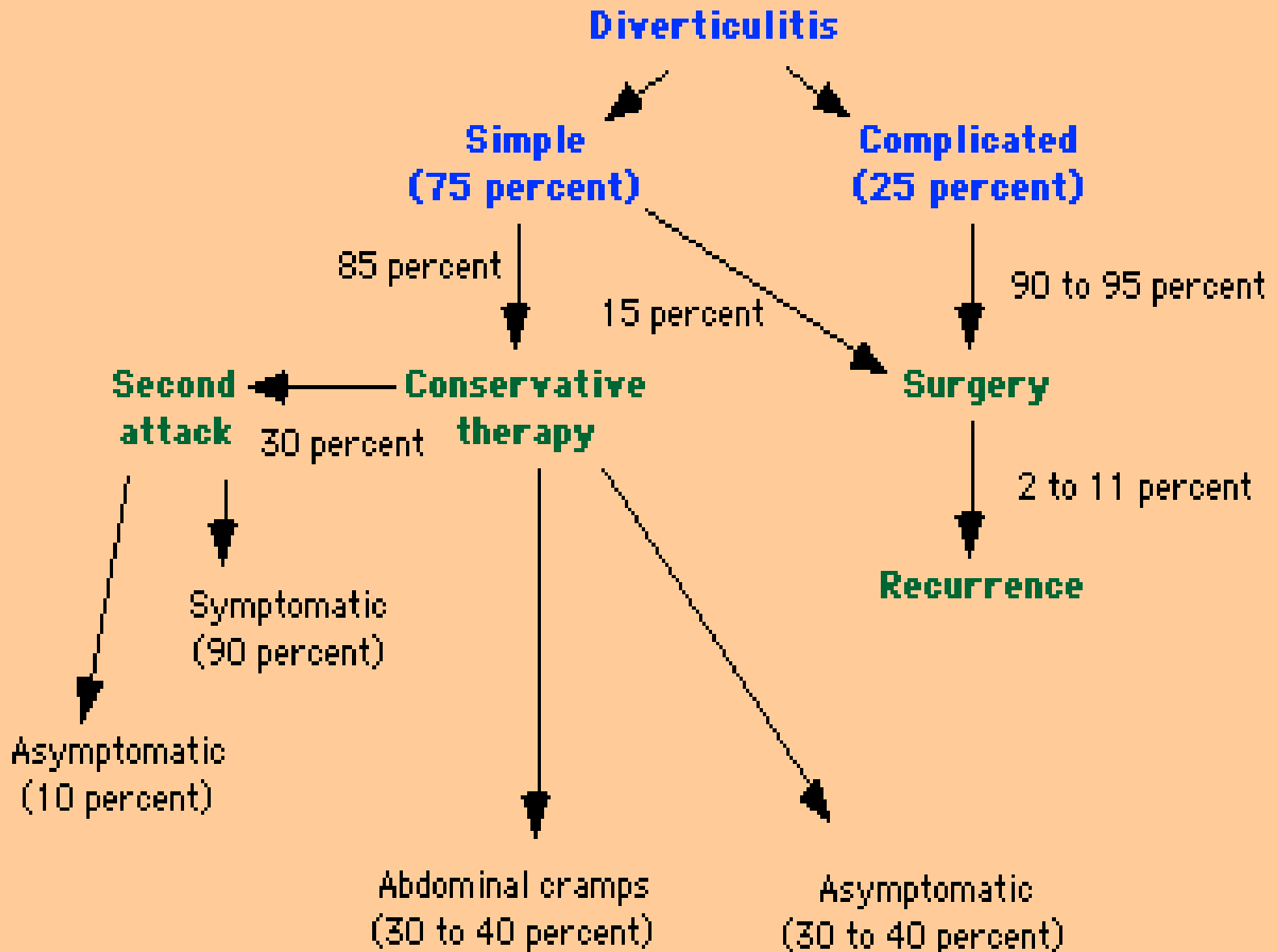
Fistulas

- No single diagnostic study ideal
- Barium enema visualizes fistula tract in only 20-26%
- Sigmoidoscopy/colonoscopy yield 1-3%
 - Valuable in ruling out other colonic diseases
- CT has highest sensitivity and specificity for colovesicular fistulas
- Fistulous disease cannot be cured with medical management
 - One or two stage resection of the sigmoid colon with primary anastomosis is feasible in most patients.

Colo-enteric and colo-vesicular fistulas: BE



Natural History of Acute Diverticulitis



Recurrent Diverticulitis Risk: Old Assumptions

- **Following resolution of acute diverticulitis:**
 - 30-40% remain asymptomatic long-term,
 - 30-40% have episodic abdominal pain without frank diverticulitis (post-infectious IBS?)
 - 22-67% recurrence rates over 3-9 years
 - Largest study 317 patients 1969: 24.6% recurrence
- **Generally believed that recurrent attacks are less likely to respond to medical Rx and have higher mortality.**
- **Therefore, most recommended elective resection after 2nd attack of diverticulitis.**

Acute Diverticulitis: Natural History

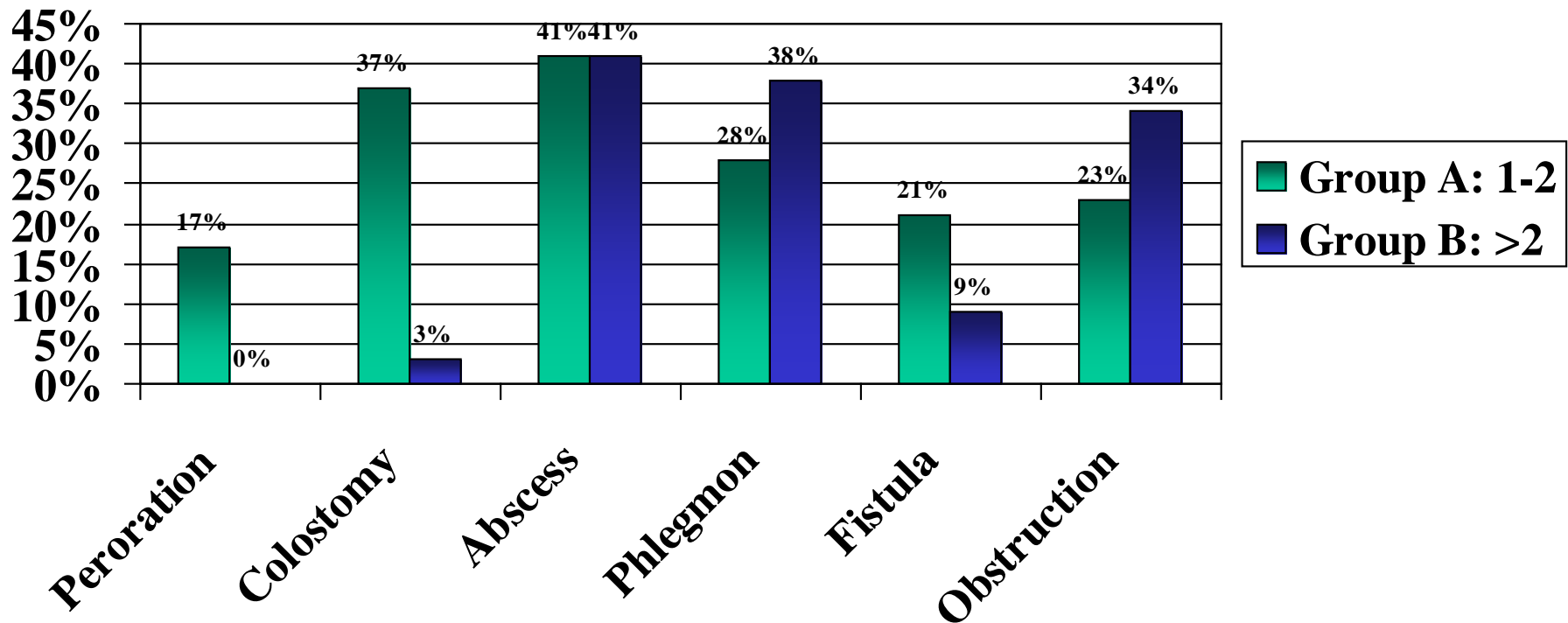
- **Kaiser Study: 3165 cases of hospitalized AD (1992-97)**
 - 54.5% female 45.6% male Age range 23-99 (median 62)
 - Emergency surgery in 614 (19%)
 - 2551 (81%) managed medically
- **2366 of medically managed followed for a mean of 8.9 years (range 6-12)**
 - 13.3% (314/2366) had recurrent AD (2% per year)
 - 3.9% (92) had a second recurrence
 - 9.4% (222) had a single recurrence
 - All 314 managed non-surgically
 - A prior percutaneous abscess drainage did not increase risk of recurrent AD

Recurrent Diverticulitis: Not Associated with Greater Mortality/Morbidity

- Mayo Clinic study of all patients admitted with complicated diverticulitis (abscess, phlegmon, perforation, obstruction, fistula, bleeding) 1990-2003
- Two groups
 - Group A: 1-2 prior episodes of diverticulitis (118)
 - Group B: 3 or more prior episodes (32)
- Conclusion: Patients with multiple (>2) episodes of AD are not at increased risk for poor outcomes if they develop complicated diverticulitis.
- Group B was significantly *less* likely to present with free perforation or need for colostomy ($p<0.001$)

Multiply Recurrent Diverticulitis Not Associated with Higher Morbidity/Mortality

150 Cases of Complicated Diverticulitis 1990-2003



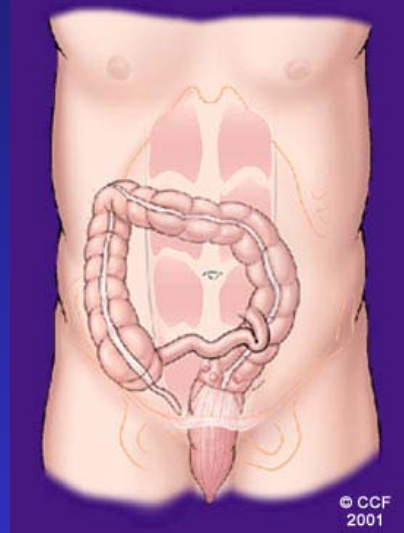
Recurrent Diverticulitis: Conclusions

- **The greatest risk of free perforation and/or emergent surgery is with the initial attack of AD (20%)**
- **Recent data suggest that the risk of recurrent diverticulitis is between 12-16% over 10 years**
- **Average 1.5%-2% per year**
- **Recurrent attacks can be medically managed in the vast majority and carry a lower risk of major complications**
- **Recent publications now recommend elective colectomy after the 3rd or 4th episode as the most cost-effective**

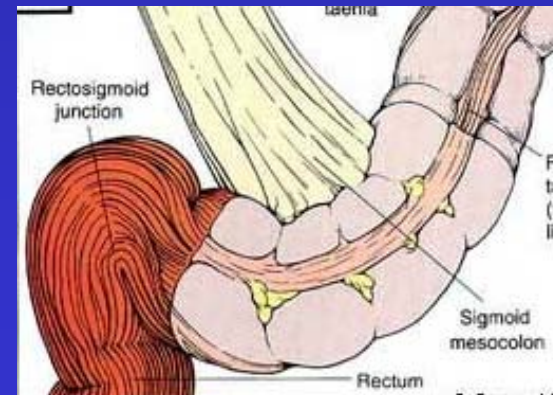
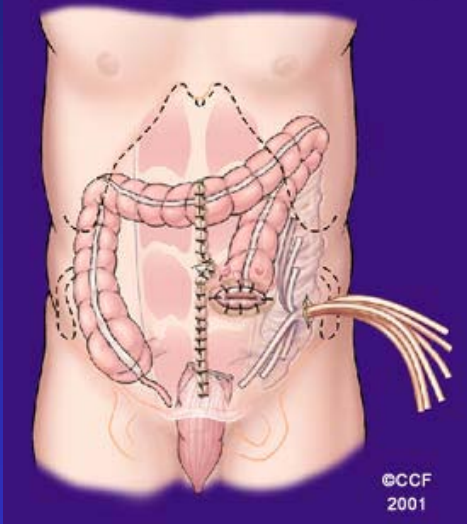
Diverticulosis: Surgical Management: Single vs Two Stage

- Ideal operative goal is elective one-stage procedure
- Elective mortality 2-3%
- Emergent mortality up to 35%

Resection and Anastomosis



Resection and Colostomy



Complicated diverticulosis

Hemorrhage I

- Most common cause of major LGIB (30-50%)
- 5-10% of patients with diverticulosis ultimately bleed
- While most tics in left colon, bleeding *may* occur more often from right colonic tics.
- *Arterial* bleed from vasa recta coursing over dome of tic.
 - 73% from the dome of the diverticulum
 - 27% from the mouth of the diverticulum
- Increased bleed risk with aspirin/NSAID as well as SSRI use.

Complicated diverticulosis

Hemorrhage II

- Rarely occurs with acute diverticulitis.
- Abrupt, painless onset of maroon / red blood or clots; melena uncommon.
- Mild lower abd cramps / urge to defecate
- 75-80% stop bleeding spontaneously.
- 25-35% recurrent bleeds; consider surgery after second episode.
- Never consider diverticulosis as the cause of occult heme (+) stool

Complicated diverticulosis

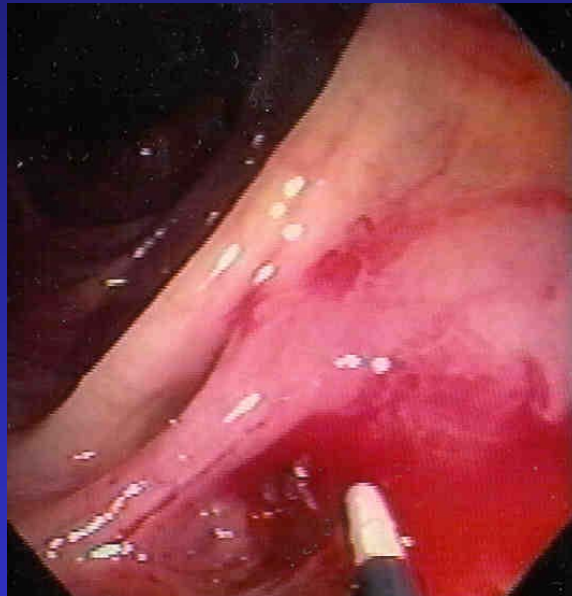
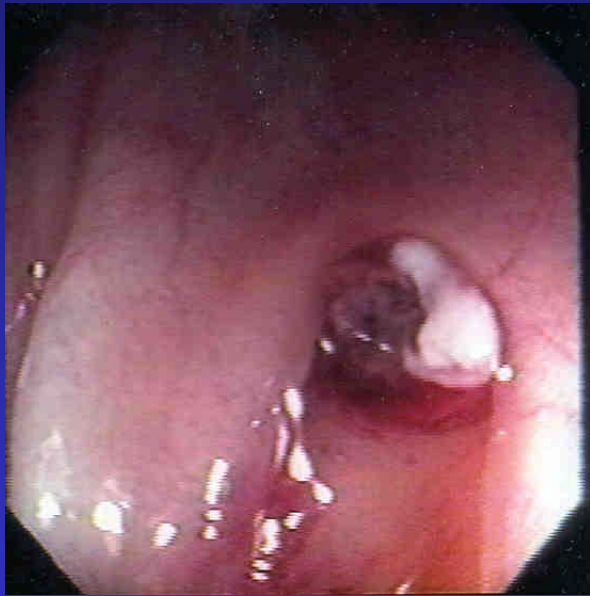
Hemorrhage III

- **Diagnosis / Management**
 - Fluid & blood product resuscitation
 - Exclude UGIB with NGT or EGD
 - Urgent Flex Sig, if negative for source:
 - Tagged RBC Nuclear Scan \Rightarrow angiography OR
 - “Rapid Purge” and colonoscopy; although endoscopic Rx much less effective than in UGIB
 - Surgery if endoscopy or angiography fails-segmental vs. subtotal colectomy.

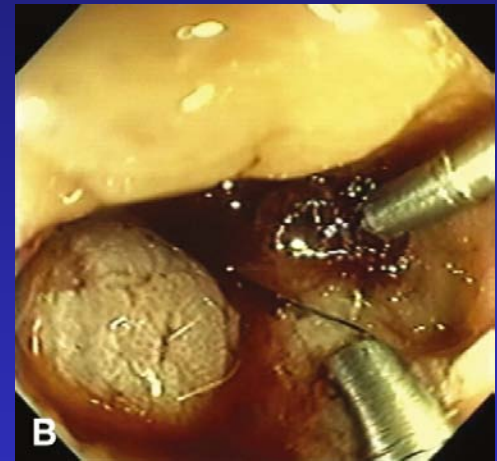
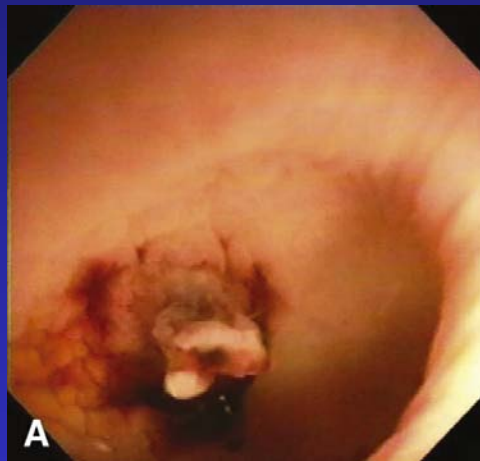
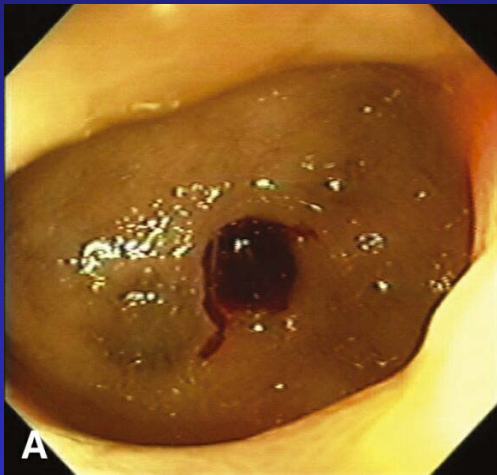
Diverticular Hemorrhage: Endoscopic Therapy

- **53 reported cases of endoscopic therapy for diverticular hemorrhage with variable degrees of success**
- **The major impediment to successful treatment is difficulty in identifying the specific bleeding diverticulum**
- **Potential for perforation of the thin-walled diverticulum**
- **Available Options:**
 - **Thermal therapy (bicap)**
 - **Epinephrine**
 - **Endoclips**

Endoscopic control of bleeding: Epinephrine injection

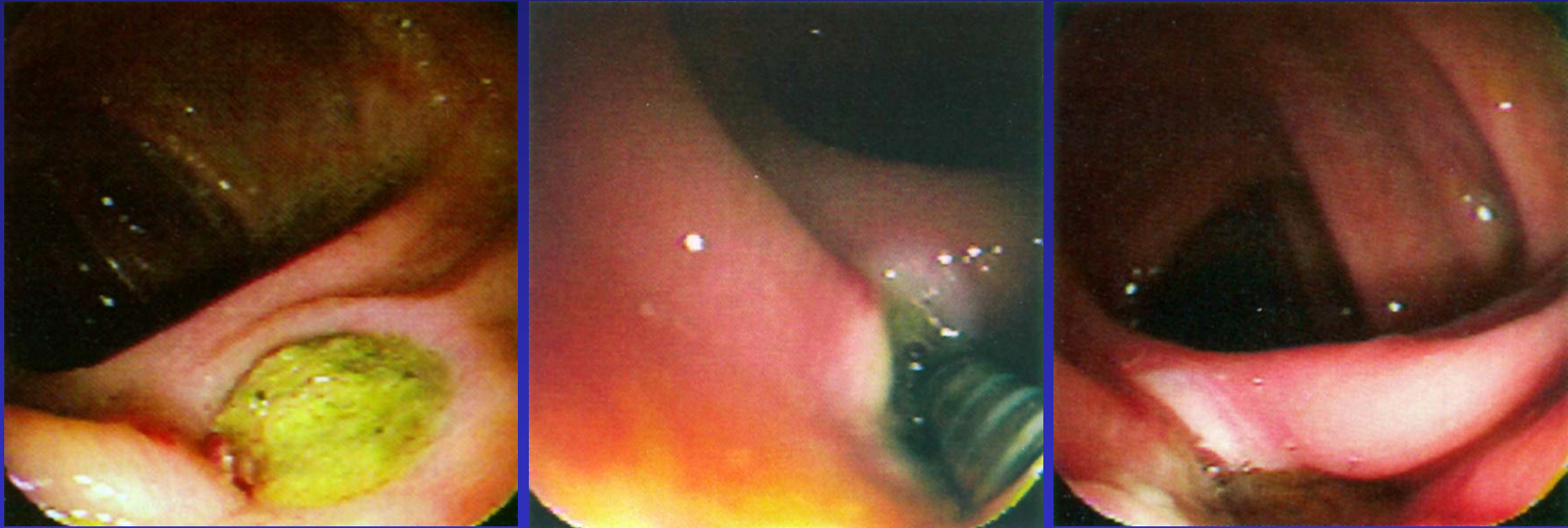


Endoscopic control of bleeding: Endoclips



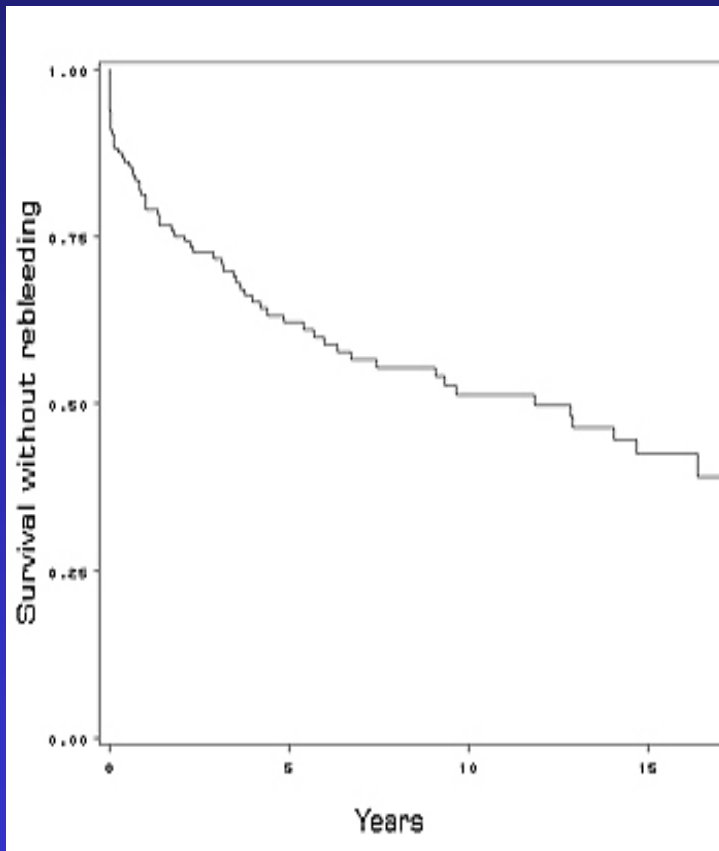
Gastrointestinal Endoscopy 2004;59:433

Endoscopic control of bleeding: Thermal coagulation



Patient with LGIB, 'visible vessel' next to diverticulum, flattened with Gold Probe electrocautery

Diverticular Bleeding: Long Term Outcome & Risk Factors for Recurrence



- N=146 pts with index diverticular bleed (definite or probable) 1975-1989
- Avg F/U 9.7 years
- Mean age=69 yrs (range 50-92 yrs)
- 56% men
- 51% using aspirin/NSAIDs or anticoagulants at index bleed
- Overall rate of rebleeding 44.5%
- Mean time to rebleed: 43 months
- Rebleeds had ↑ surgical & death rates
- Age was the only characteristic associated with an ↑ risk of readmission (HR 1.03, p=0.03, CI 1.0-1.06).

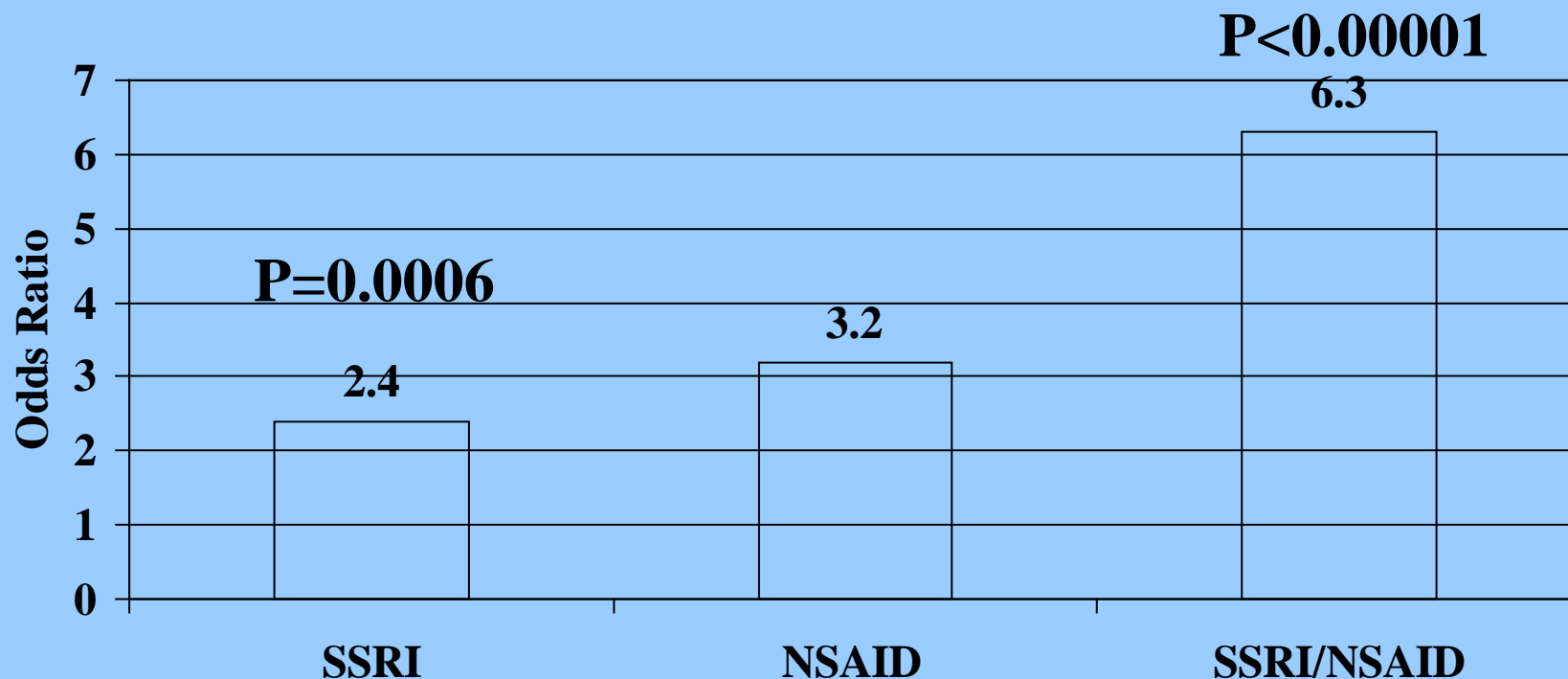
Jun S, Allison J, Tekawa I, Merchant M, Thygeson M, Stollman N (to be presented at DDW, May 2004)

SSRI Therapy Associated with Increased Risk of GI Hemorrhage

- **Release of serotonin by platelets in response to vascular injury plays an important role in vasoconstriction and platelet aggregation**
- **Platelets cannot synthesize serotonin**
- **SSRI inhibit the serotonin transporter which leads to a depletion of platelet serotonin and impaired platelet function**
- **Numerous clinical studies have indicated an association between all types of SSRI and bleeding disorders**
 - **Prolonged bleeding time**
 - **Purpura**
 - **Epistaxis**
 - **Intracranial bleeding**
 - **GI Bleeding**

SSRI Therapy Associated with Increased Risk of GI Hemorrhage

Meta-analysis of four observational studies:
153,000 patients

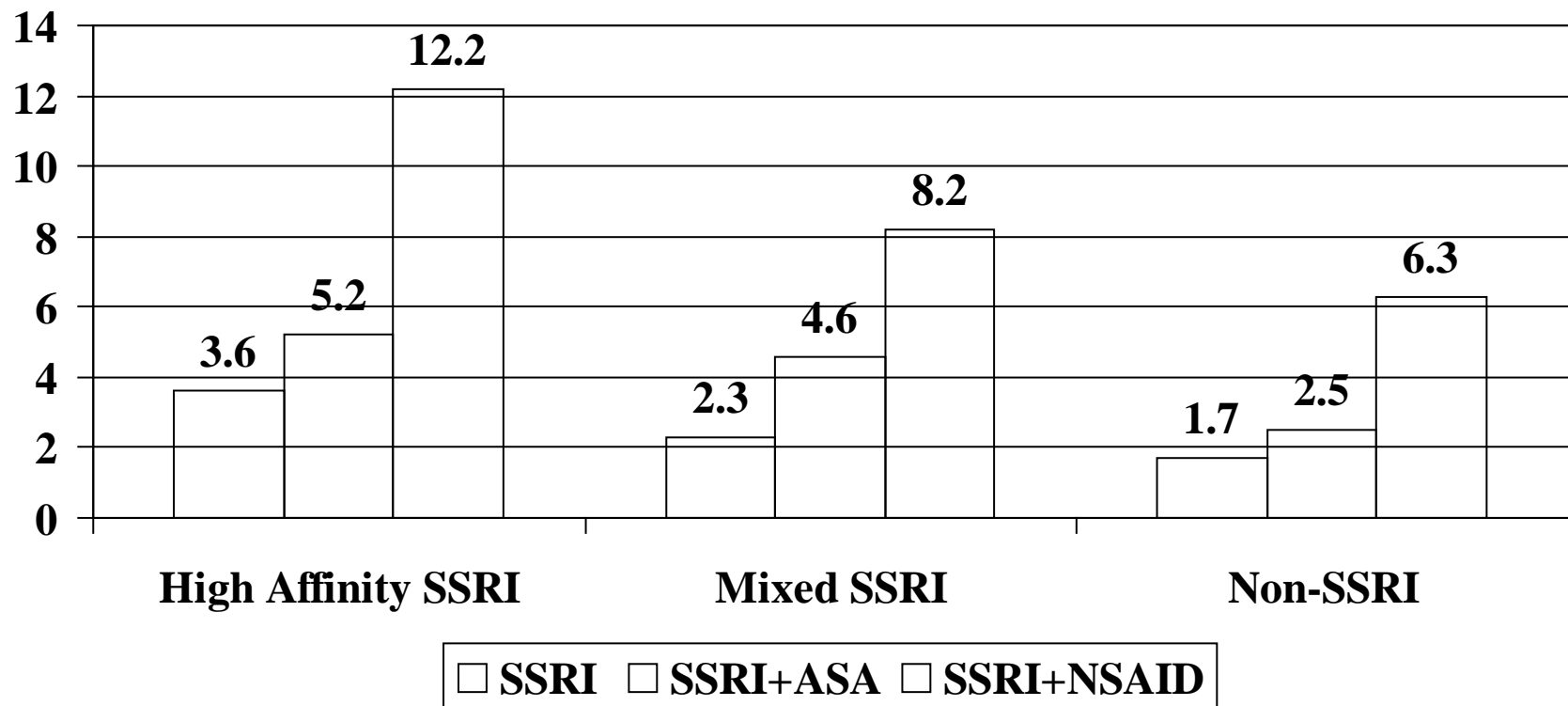


Median time to UGIB: 25 weeks

Aliment Pharmacol Ther. 2008;27:31

Bleed Risk Varies with Affinity of SSRI

Odds Ratio for UGI Bleed 1991-1995



Diverticular Bleeding: Risk Factors for Recurrence

- **Retrospective multicenter case-control study of SSRI, aspirin, NSAID, Plavix and GIB risk**
- **All agents associated with increased risk of GI bleed**
- **Significant interaction between SSRI, and NSAID and aspirin**
- **SSRI use was more strongly associated with LGIB (OR 1.8, $p=0.003$) than UGIB (OR 1.3)**

Diverticular Disease

Summary I

- **Diverticulosis common in Western societies and incidence increases with age.**
- **Majority of patients will remain asymptomatic throughout lifetime.**
- **High fiber diets may decrease development of symptomatic diverticular disease**
- **Once complications occur, no proven benefit of high fiber diet in preventing recurrent diverticulitis or bleeding**
- **No role for restricting consumption of nuts or seeds**

Diverticular Disease

Summary II

- **Complications:**
 - **Diverticulitis (with abscess, fistula)**
 - **Hemorrhage**
- **Diverticulitis: initial Rx medical w/ gram negative and anaerobic coverage**
- **Abscesses: CT-guided percutaneous drainage**
- **Surgery generally utilized after recurrent attacks of diverticulitis or bleeding.**

Etiology / Pathogenesis I

Colonic Wall Resistance

- **No evidence that atherosclerosis or venous changes predispose**
- **>200% increase in elastin deposition, laid down in contracted form, \Rightarrow shortening of taenia and bunching of circular muscle**
- **Precocious diverticulosis occurs in patients with connective tissue disorders (Ehlers-Danlos, Marfan's)**

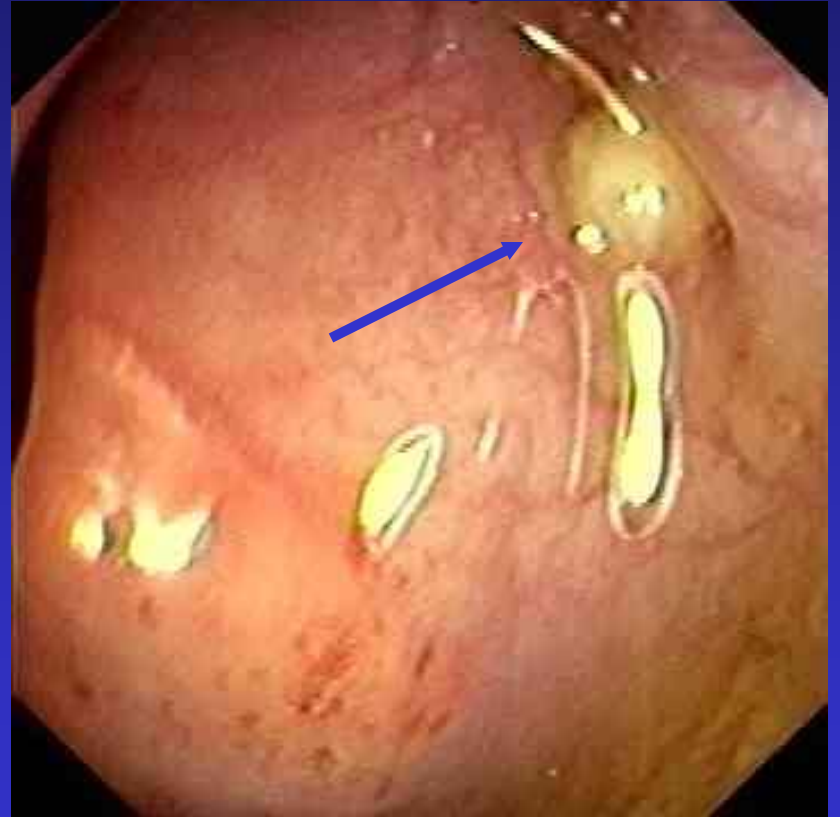
Complicated diverticulosis

Diverticulitis - Diagnostic Modalities II

- **CT scanning**
 - More accurate, as mainly extra-luminal disease
 - Abd & Pelvic scans; oral / rectal / IV contrast
 - Findings: pericolic infiltration of fatty tissues, wall thickening, abscess
 - Sensitivity and Specificity: 75-95%
 - Severe disease predicts complications and poor prognosis.



BE with spasm, Endo with pus



Complicated diverticulosis

Hemorrhage

	<u>Surgical ('86-'92)</u>	<u>Colonoscopic ('94-'98)</u>
DEFINITE Div Hemorrhage	17 (23%)	10 (21%)
ENDOSCOPIC FINDINGS		
Active bleeding	6 (35%)	5 (50%)
Non-bleeding VV	4 (24%)	2 (20%) Adherent Clot
7 (41%)	3 (30%)	
Additional bleeding	9 (53%)	0 (0%)
Emergency colectomy	6 (35%)	0 (0%)
Median time to discharge	5 days	2 days
Complications	2 (12%)	0 (0%)
Late re-bleeding	0 (0%)	0 (0%)

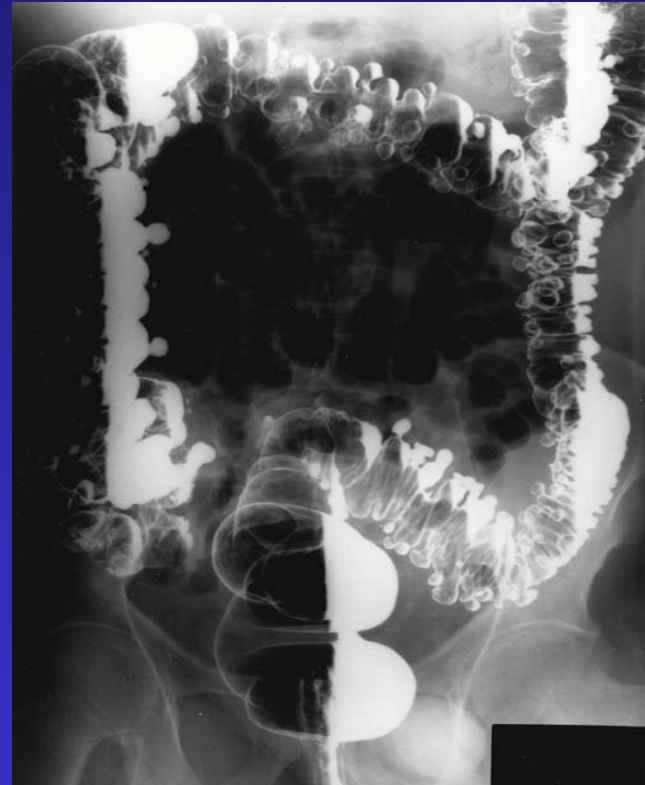
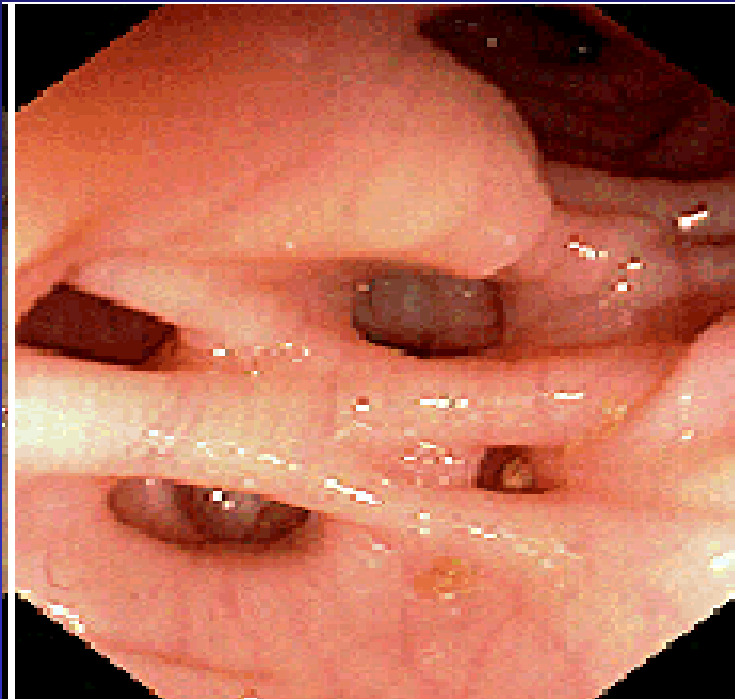
Issues: historical cohort only, small number of patients (n=10)

Complicated diverticulosis

Hemorrhage IV

- **“Urgent colonoscopy for severe diverticular hemorrhage”** Jensen DM et al. NEJM 2000.
- 121 pts w/ severe hematochezia & diverticulosis
- Rapid oral purge with PEG solution
- Colonoscopy within 6-12 hours
- 1986-1992: 73 patients treated medically and surgically, if recurrent or severe bleeding
- 1994-1998: 48 patients treated medically and with colonoscopic therapy for select stigmata

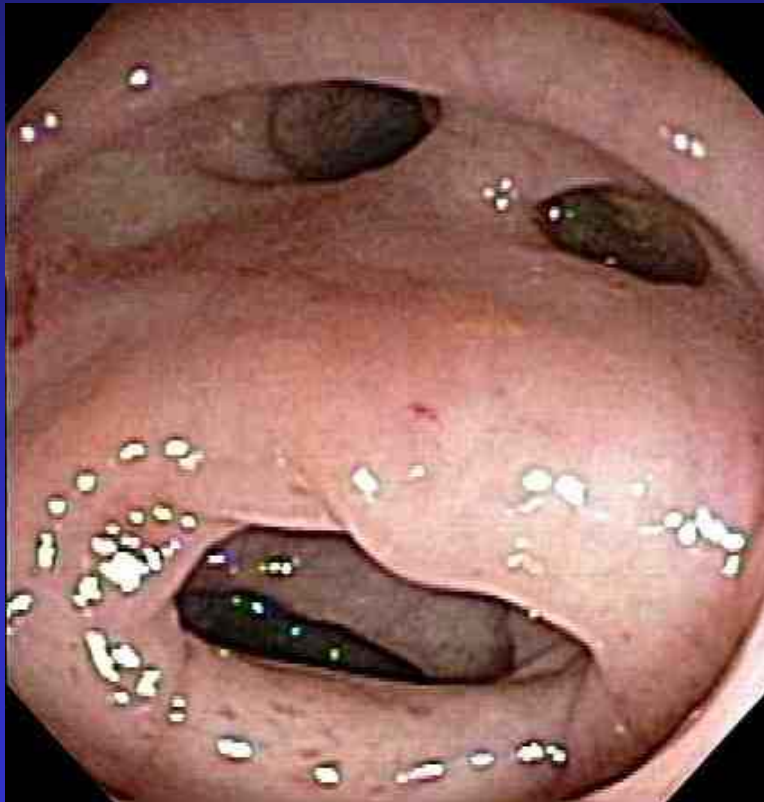
Barium Enema Detects Diverticuli with Greater Sensitivity Than Colonoscopy



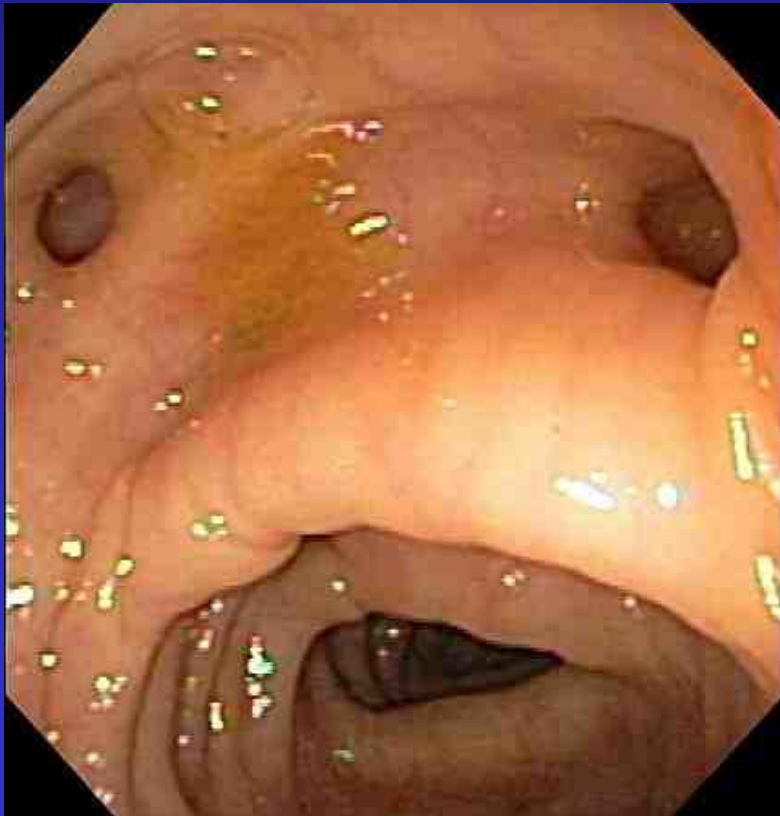
Etiology / Pathogenesis: IBS?



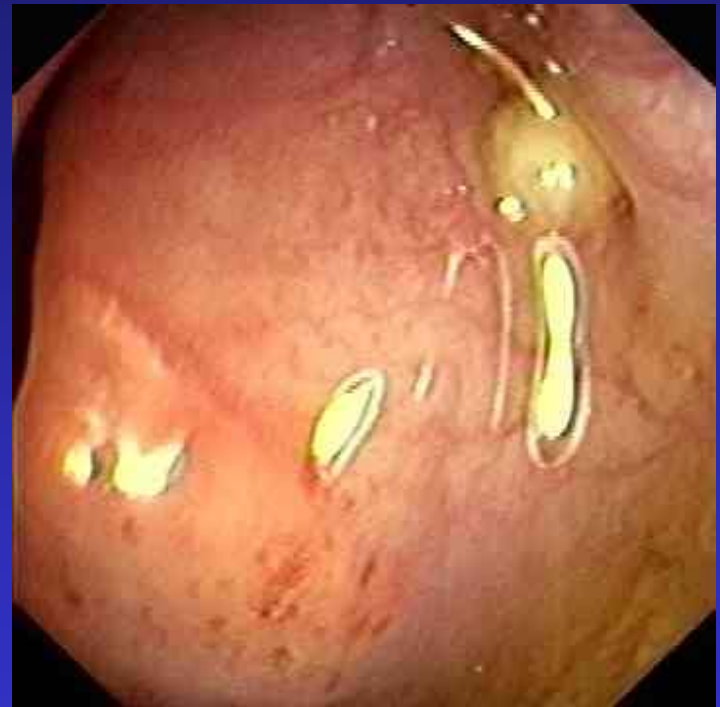
Scopes trial?



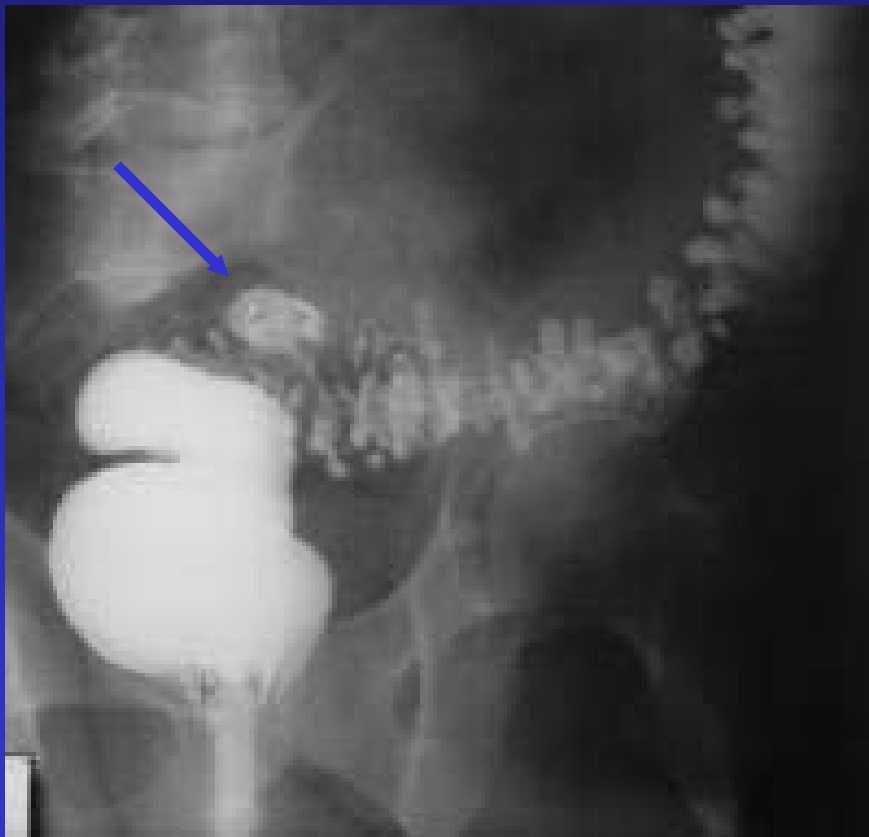
Etiology / Pathogenesis: Curmudgeon



Endoscopic Presentation of Diverticulitis

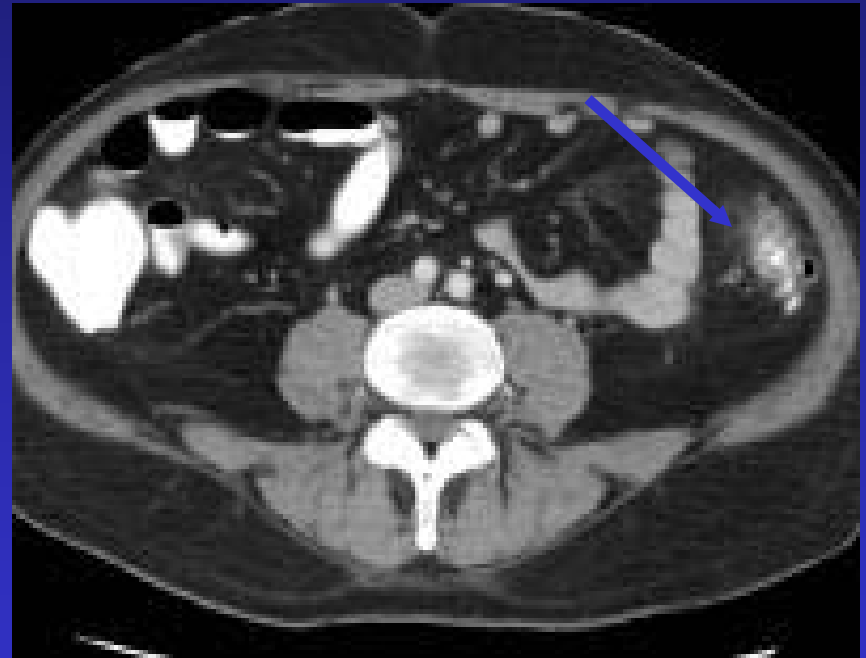
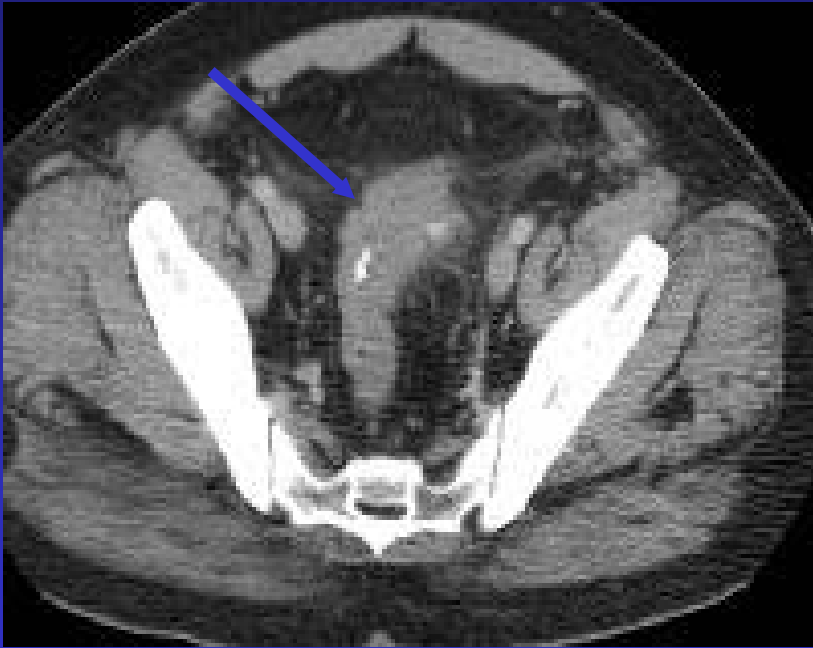


BE and CT with Diverticular Abscess



Sigmoid (L) & Desc Colon (R)

Diverticulitis: CT



Diverticulitis - The Young Patient

- Jan 1994-June 1999, prospective study 327 patients with left-sided colonic diverticulitis
 - Group 1: <50 years old (n=72) 22% M/F 3:1
 - Group II: >50 years old (n=255)
- No significant difference in need for emergency surgery (24%), elective surgery (7.0%), or recurrent diverticulitis (25% vs 22%; p=0.93)

BJS 2002;89:1137
- 2005 study 149 patients <40 with diverticulitis 1991-2002
 - M/F 3.8/1
 - Of those treated non-surgically, 5-year recurrence rate 55% vs 15% of those treated surgically

APT 2005;21:1225