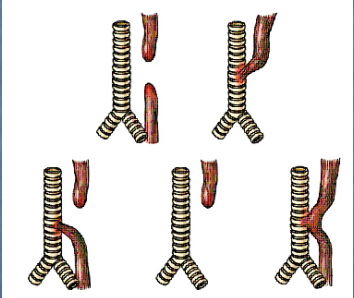


# Gastrointestinal Disorders

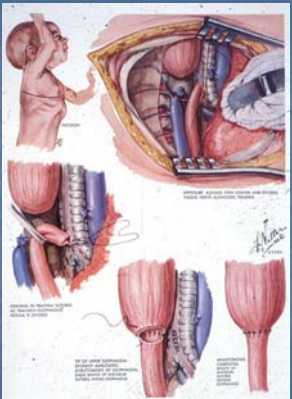
## Disorders of the Esophagus

### Congenital Abnormalities

- Types
  - Stenosis
  - Atresia
  - Fistula
- Newborn aspirates while feeding.
- Pneumonia

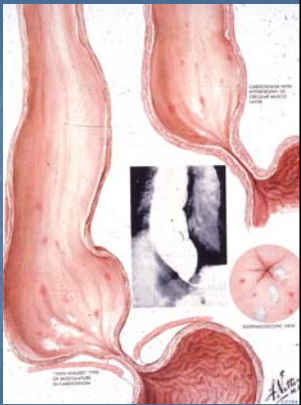


Not an easy repair



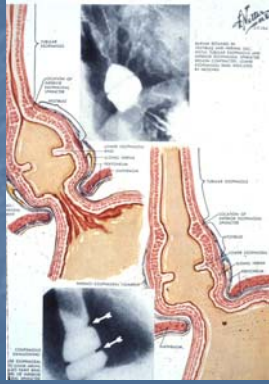
### Achalasia

- Lack of relaxation of cardiac sphincter
  - The default condition is contraction
- Inflammation leads to
  - Scarring and
  - Loss of ganglia cells
- Decreased innervation means no relaxation
- Leads to retention of food, inflammation and more scarring



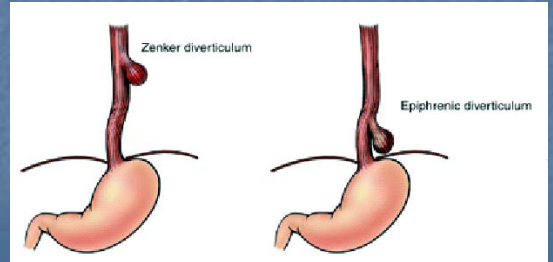
## Esophageal Scarring and Ring formation

- Inflammation leads to
  - Scarring and
  - Loss of ganglia cells
- Decreased innervation means no relaxation
- Leads to retention of food, inflammation and more scarring



## Esophageal Diverticulae

- Traction
- Pulsion
- Magicians



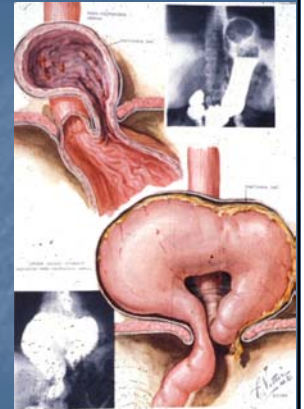
## Hiatal Hernia

- Incompetence of diaphragmatic opening
- Portion of stomach is in thorax
- 'Sliding' type ->
- Leads to
  - Regurgitation of food
  - Acid reflux
  - Ulceration



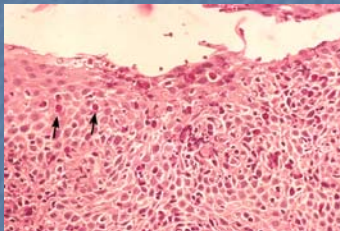
## Hiatal Hernia

- "Rolling type"
- May lead to gastric mucosal ischemia.
- Ulceration
- GI bleeding



## Esophagitis

- Inflammation of mucosa
- Lots of causes
  - Reflux of stomach acid ->
  - Infectious agents
    - Bacteria
    - Viral (HIV)
    - Fungal (HIV)
  - Cytotoxic agents
  - Autoimmune

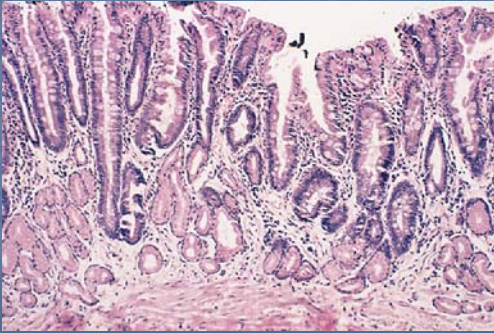


## Barrett's Change

- Metaplasia of squamous epithelium
  - Columnar epi
  - Repeat injury
    - Reflux
  - Indicates serious or prolonged damage
  - Cancer risk?

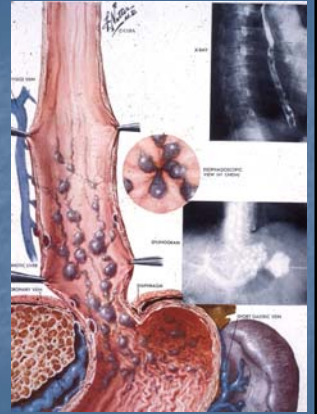


## Barrett's Change

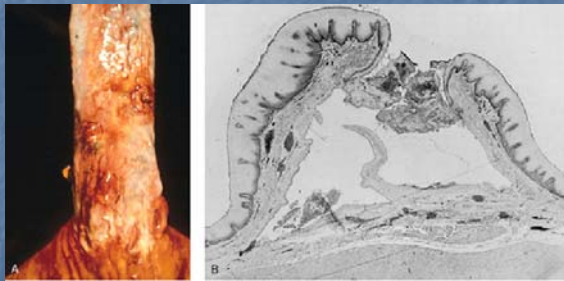


## Esophageal Varices

- Dilation of esophageal veins, distal 1/3.
- Increased venous portal pressure.
  - Cirrhosis
- Life threatening hemorrhage



## Esophageal Varices



## Esophageal Varices

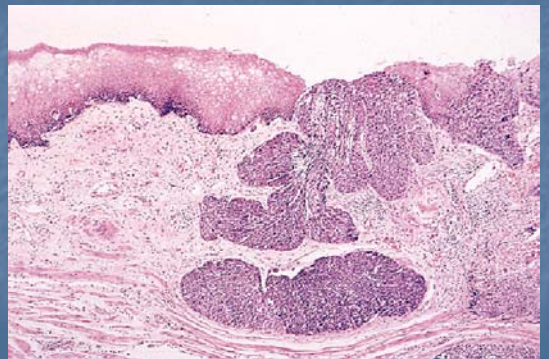


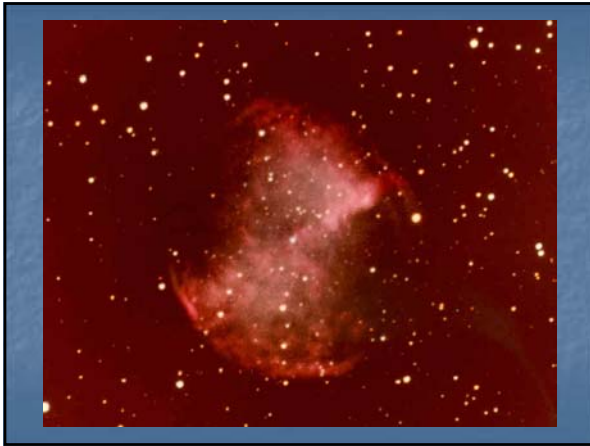
## Esophageal Cancer

- Squamous cell
- Repeat irritation
- Tobacco
- Invasive
- Barrett's change
  - Adenocarcinoma



## Esophageal Cancer

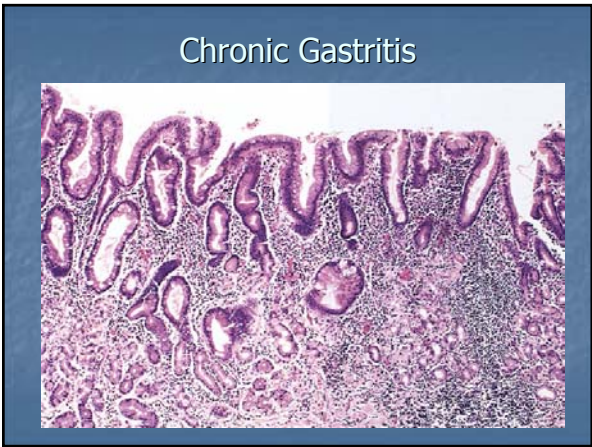




# Disorders of the Stomach

## Gastritis

- Acute
  - Polys
  - ETOH
  - H. pylori
  - Pain
  - Bleeding
- Chronic
  - Mucosal atrophy
  - Mucin cell hyper
  - Lymphocytes
  - Autoimmune
  - B-12 deficiency



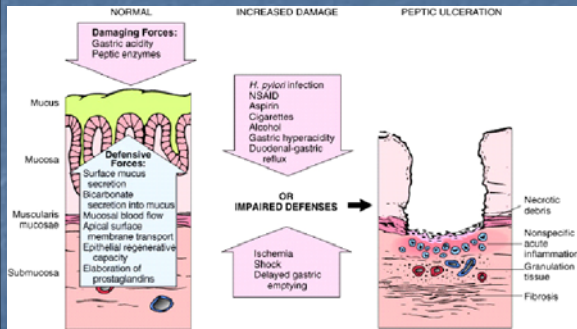
## Helicobacter pylori

- Gram negative rod
- Lives on the epithelial surface.
- Urease destroys mucus
- Increases acid secretion
- Reduces duodenal bicarb
- Intensifies inflammatory response
- Immunogenic

## Peptic Ulcer

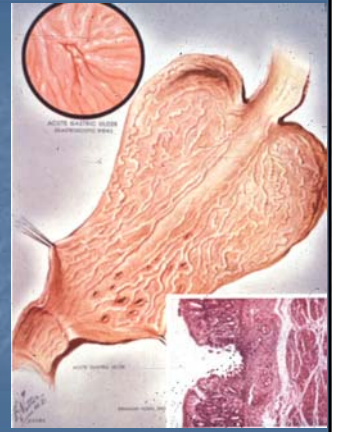
- Action of digestion
- Balance between good and evil
- H. pylori
- NSAIDs
  - Aspirin
- Complications
  - Bleeding
  - Perforation
  - Penetration
  - Scarring
- Zollinger-Ellison
  - Gastrin secreting tumor

## Good and Evil



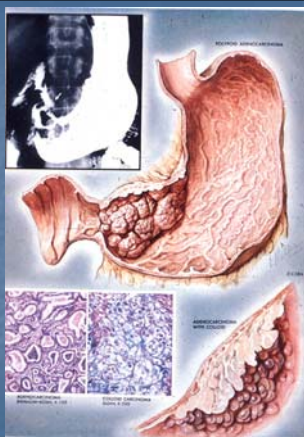
## Stress Ulcers

- This means stress, not surprise (pop quiz)
- Trauma
  - Major
  - Head injury
  - Burns
- Vascular mediated
  - Rearranged blood flow
- Multiple 'erosions'
- Confined to mucosa
- Can bleed seriously

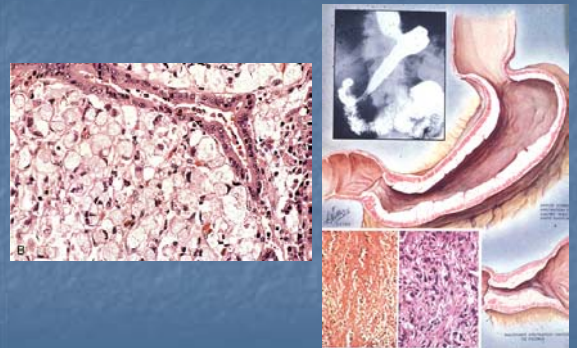


## Gastric Cancer

- Adenocarcinoma
- Risk factors
  - Nitrites
  - Smoked foods
  - Chronic gastritis with *H. pylori*

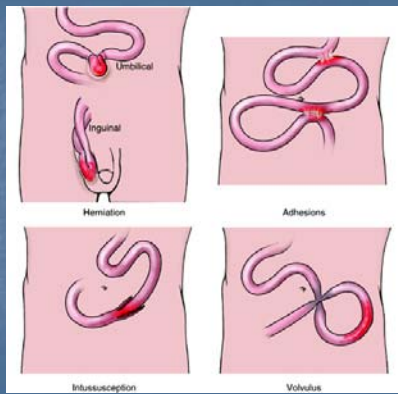


## Linitis Plastica

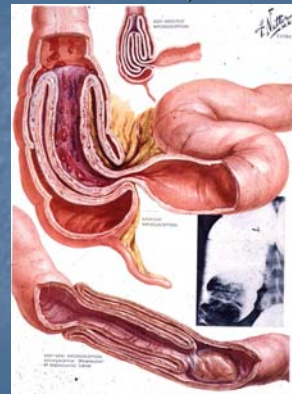


## Small Bowel Disease

## Mechanical Problems



## Intussusception

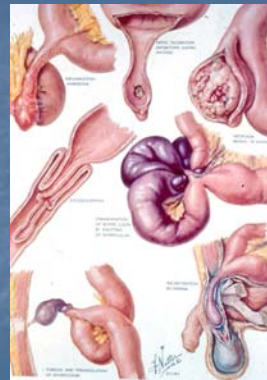


## Meckle's Diverticulum

- Congenital diverticulum of the distal small bowel.
  - 2 kinds of mucosa
  - 2 feet from the ileocecal valve.
  - 2 inches in size.
  - Twice as common in males

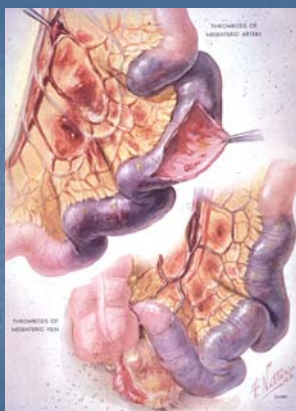


## Problems with a Meckle's



## Vascular Related

- Bowel infarction
- Hemorrhagic
  - Venous
  - Arterial
- Septic shock
- Very painful



## Bowel infarction

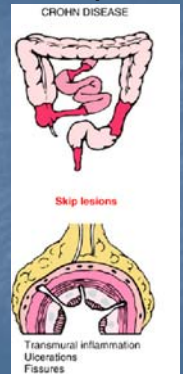


## Infectious Enteritis

- Many agents infect the small bowel.
  - Viral
  - Bacteria
    - Salmonella
  - Parasites
    - Unicellular
      - Giardia
    - Multicellular
      - Worms

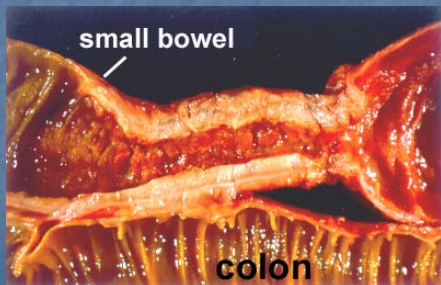
## Non-infectious Inflammatory

- Crohn's disease
  - Granulomatous enteritis
  - Transmural inflammation
  - No known infectious agent
  - Granulomas in about 40%
  - Fistula formation
  - Relapsing
  - Small bowel or colon
  - Ethnicity
  - No significant increased risk of cancer (minimal at best)



## Crohn's Disease

- Transmural inflammation
- Scarring and stricture formation
- Fistulae



## Crohn's Microscopic

- Granulomas about 40% of the time.
- Transmural all the time



## Colonic Disease

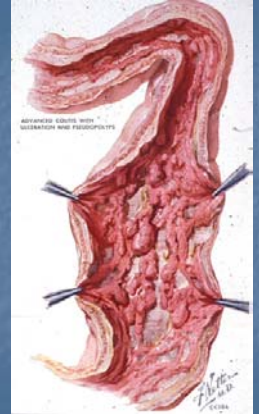
## Hirschprung's Disease

- Aganglionic segment
- Peristalsis stops
- Dilation of colon back stream of the defective segment.
- Remove distal portion that looks healthy.
- Look for ganglia.

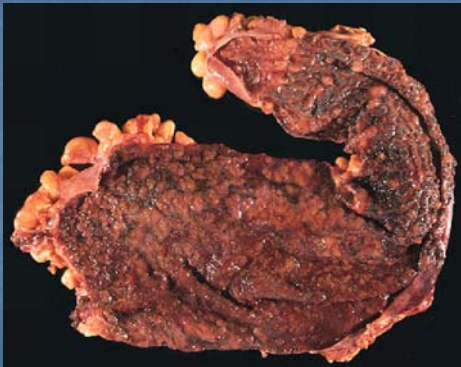


## Ulcerative Colitis

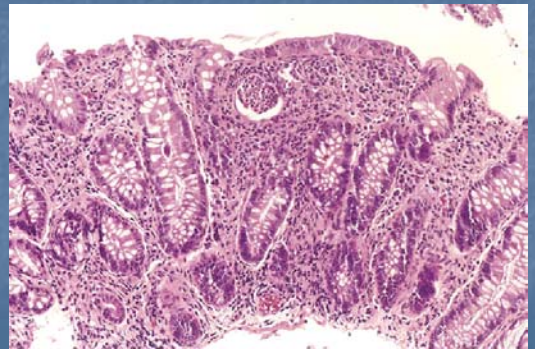
- Mucosal
  - Crypt abscesses
- Autoimmune element?
- Starts in rectum and works its way back.
- Pseudopolyps
- Toxic megacolon
- Increased cancer risk



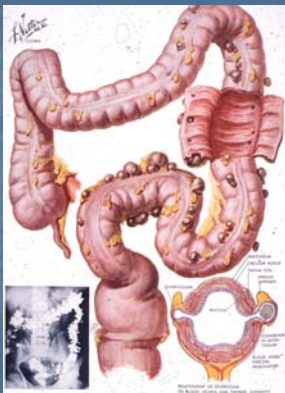
## Ulcerative Colitis



## Crypt Abscess



## Diverticulosis

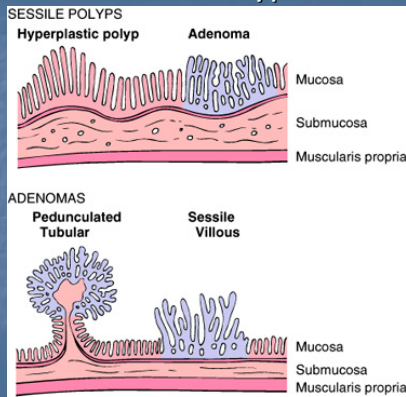


## Diverticulitis

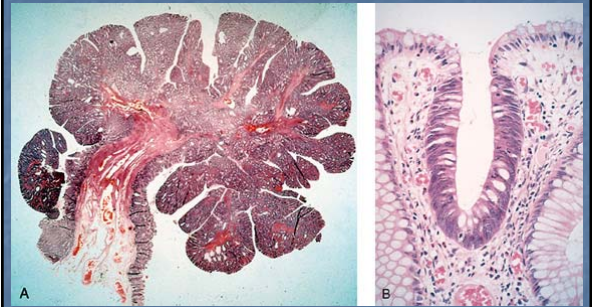




## Colonic Polyps



## Colonic Polyps



## Familial Polyposis

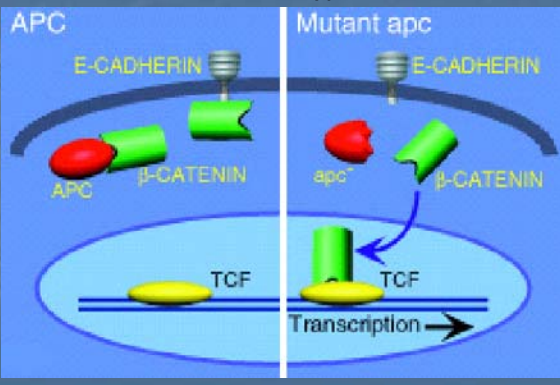
- Millions of adenomatous polyps
- Genetic predisposition
- 100% of chance of cancer



## Familial Polyposis

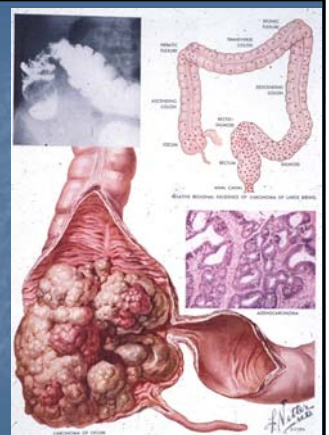


## Familial Polyposis

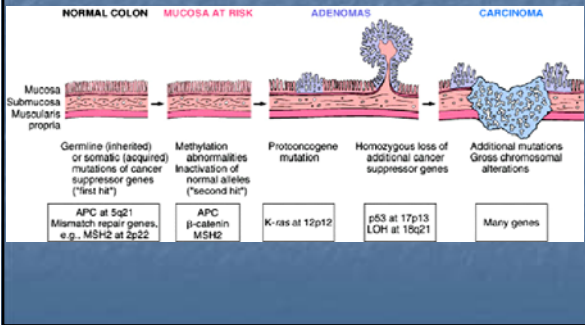


## Colon Cancer

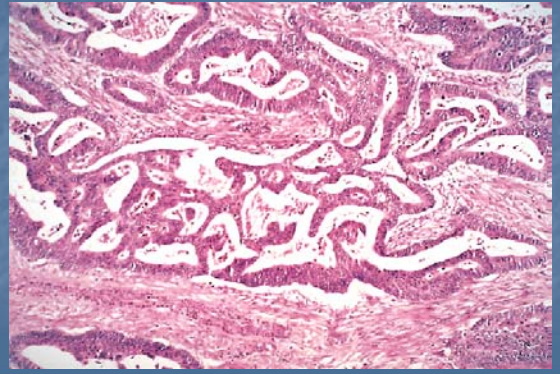
- Right and left side have different presentations
  - Right = anemia
  - Left = bowel changes
- Contributing factors
  - Genetics
  - Dietary fiber
  - Dietary fat
- Spread
  - Liver
  - Lymph nodes



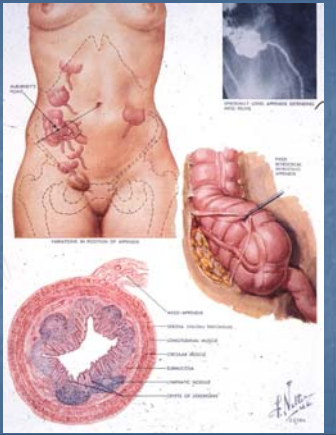
# Genetics of Colon Cancer



# Colon Cancer



# Appendicitis

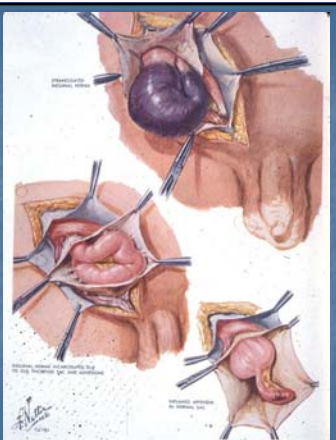


# Appendicitis

- Obstruction of mouth of appendix
  - Fecolith
  - Enlarged lymph nodes
- Bacteria proliferate and invade wall.
- Rupture
  - Peritonitis
  - Abscess



# Inguinal Hernia



# Direct Abdominal Hernia

