

# **Extraintestinal Manifestations of IBD**

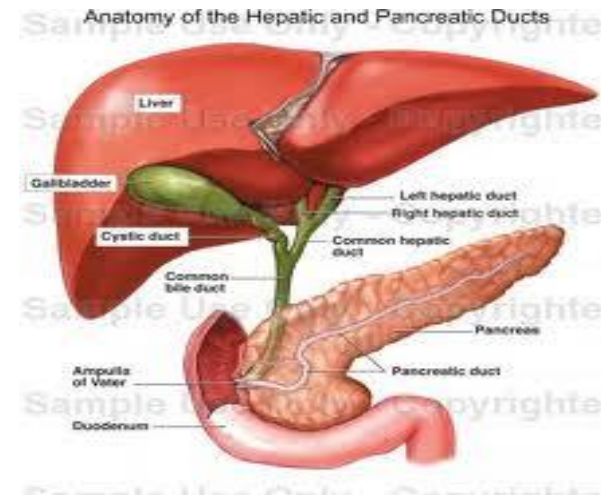
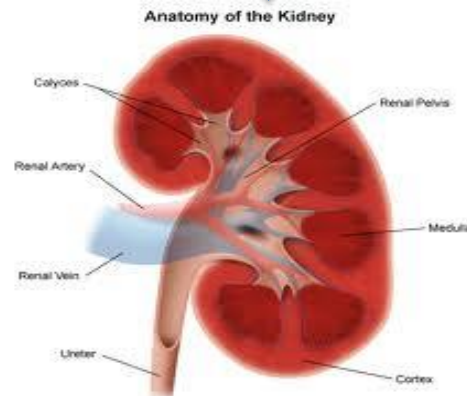
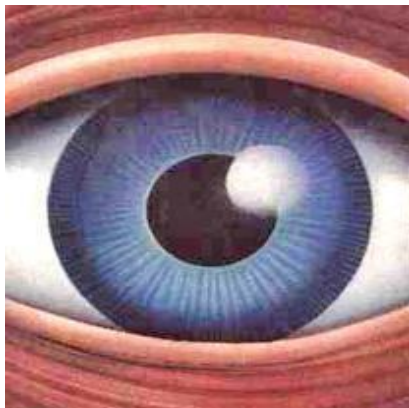
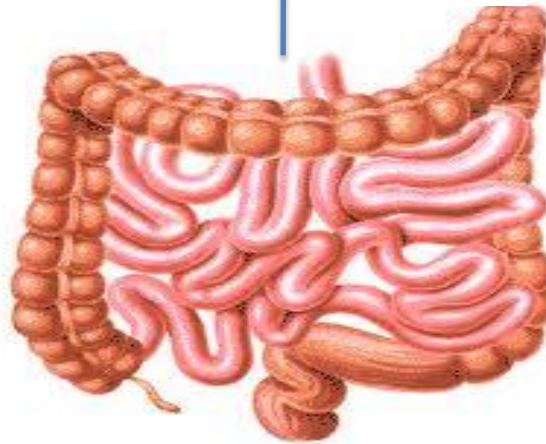
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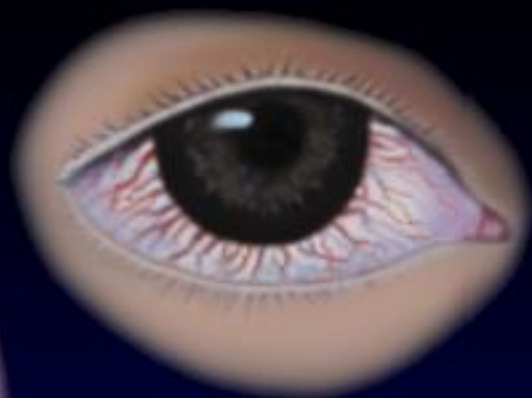
# Why Other Organs Involved in IBD?



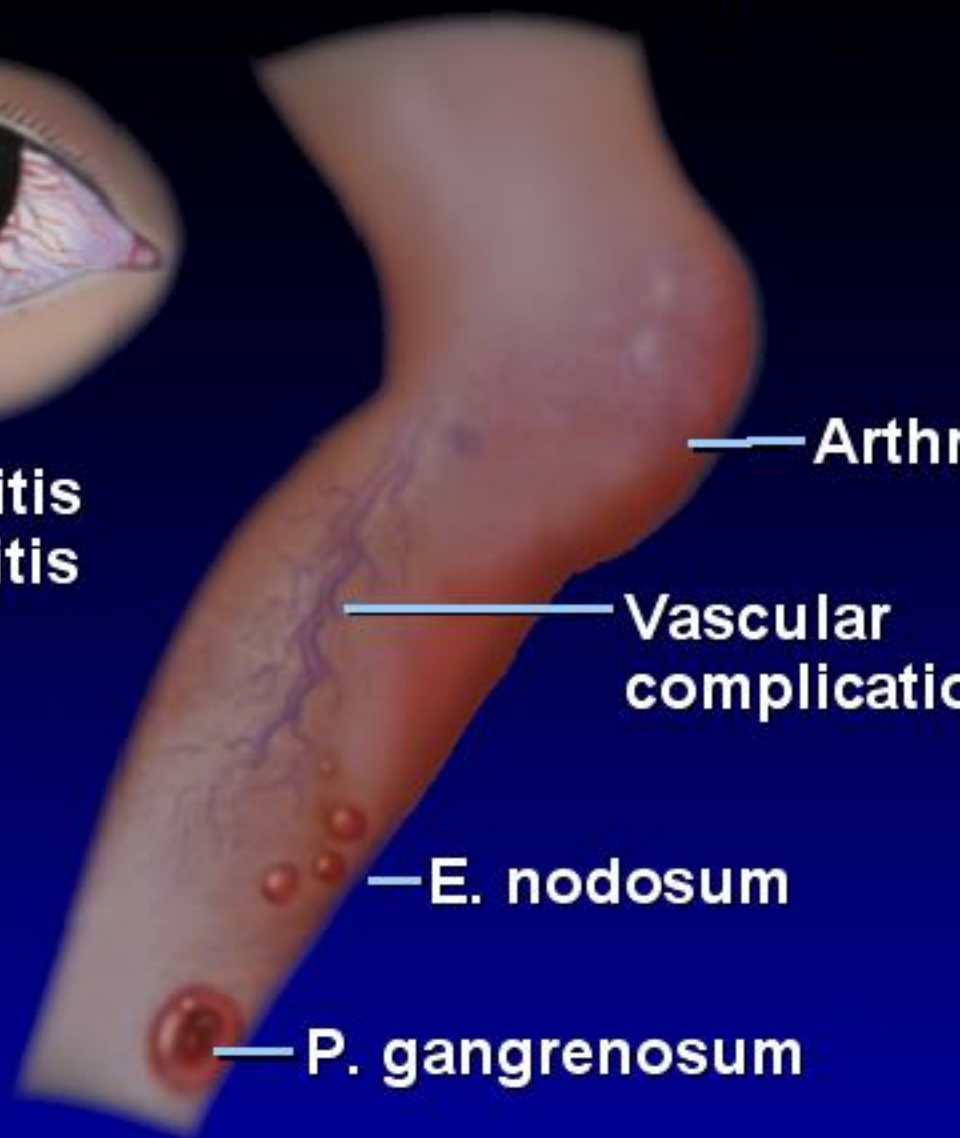
## IBD - Extraintestinal Manifestations Related to Disease Activity



**Aphthous stomatitis**



**Episcleritis and uveitis**



**Arth**

**Vascular complication**

**E. nodosum**

**P. gangrenosum**



# Organ Involvement

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**Bones, Joints**

**Eyes**

**Skin**

**Liver, Bile Ducts, Gallstones**

**Kidney**

**Pancreas**

# Bone and Joint

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## Peripheral Arthritis

- Seen in 25-40% of patients, more in CD
- Knees, ankles, wrists, elbows commonly affected – warm, tender
- Can be associated with arthralgia
- Can be associated with erythema nodosum, uveitis
- Rheumatoid factor negative; not erosive or deforming arthritis
- Treatments: Treat the bowel disease – mesalamine (sulfasalazine), steroid, pain medication

# Peripheral Arthritis



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

# Axial Arthritis

- Ankylosing spondylitis, Sacroiliitis – low back pain, pelvic bone pain, spine pain
- HLA-B27 +
- Bone inflammation can lead to bone fusion and skeletal deformity
- Usually need aggressive treatment for IBD, including TNF Ab, pain management, steroid joint injection
- May not be associated with bowel inflammation

# Ankylosing Spondylitis





# Sacroiliitis

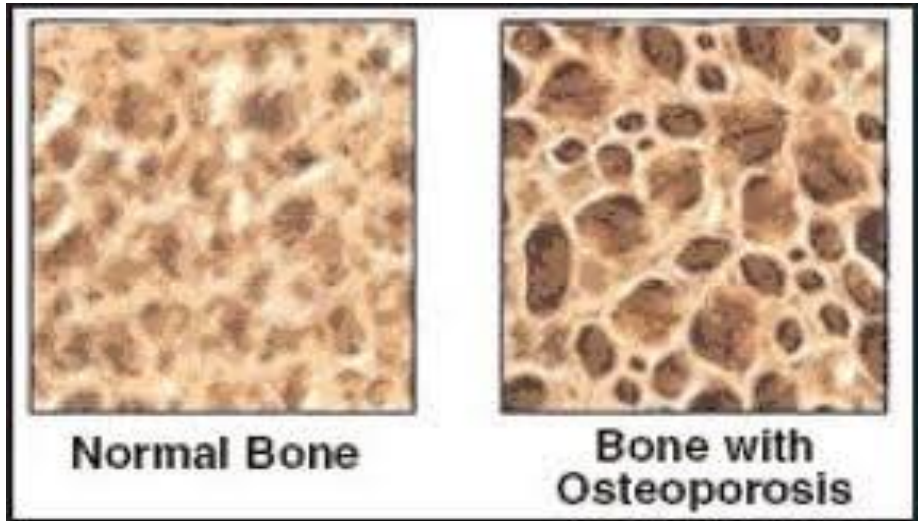




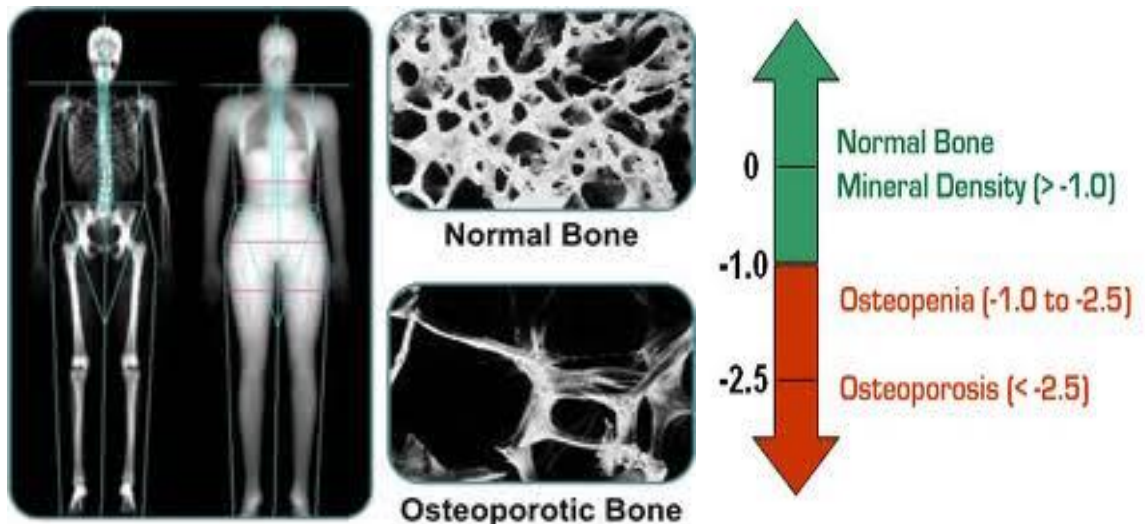
# Osteoporosis

## Major complications from:

1. Prolonged steroid treatment-dose,duration
2. Extensive small bowel inflammation-malabsorption
3. Small bowel resection (short bowel syndrome) – malabroption of  $\text{Ca}^{2+}$ , Vit. D



- Important to get bone density scan every 1-2 years in active IBD

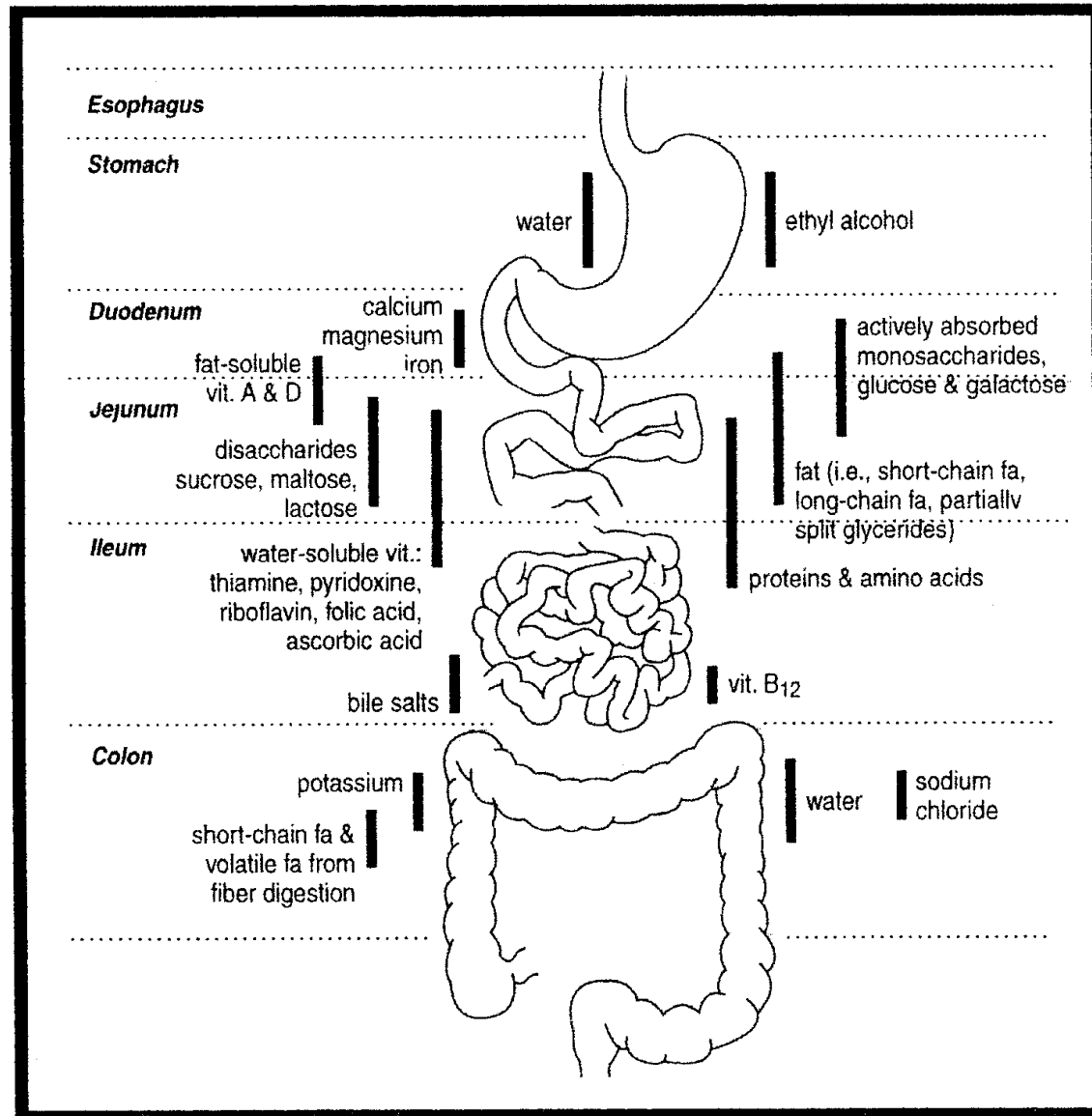


# Site of Nutrient Absorption

Stomach

Small  
Bowel

Colon



# **Osteopenia Risk Factors**

## **Baseline**

- **Ethnicity**
- **Family History**
- **Lifestyle and dietary habits**
- **Body habitus**
- **Reproductive history**



## **Disease related**

### **Inflammation**

**Cytokines  
(CD > UC)**

### **IBD medication**

**Corticosteroids**

# Causes of Bone Mineral Loss



- **Calcium and vitamin D malabsorption**
- **Coexisting conditions**  
menopause, inflammation
- **Medications**  
steroids, cholestyramine
- **Parenteral nutrition**



# Bone Health in IBD

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## **Osteoporosis is associated with:**

- Prior or current steroid use
- Family history of osteoporosis
- Tobacco & alcohol use
- Menstrual loss
- Extensive ileal disease or resection
- Inadequate calcium intake
- Prolonged active disease
- Liver disease

# Treatment of Bone Loss

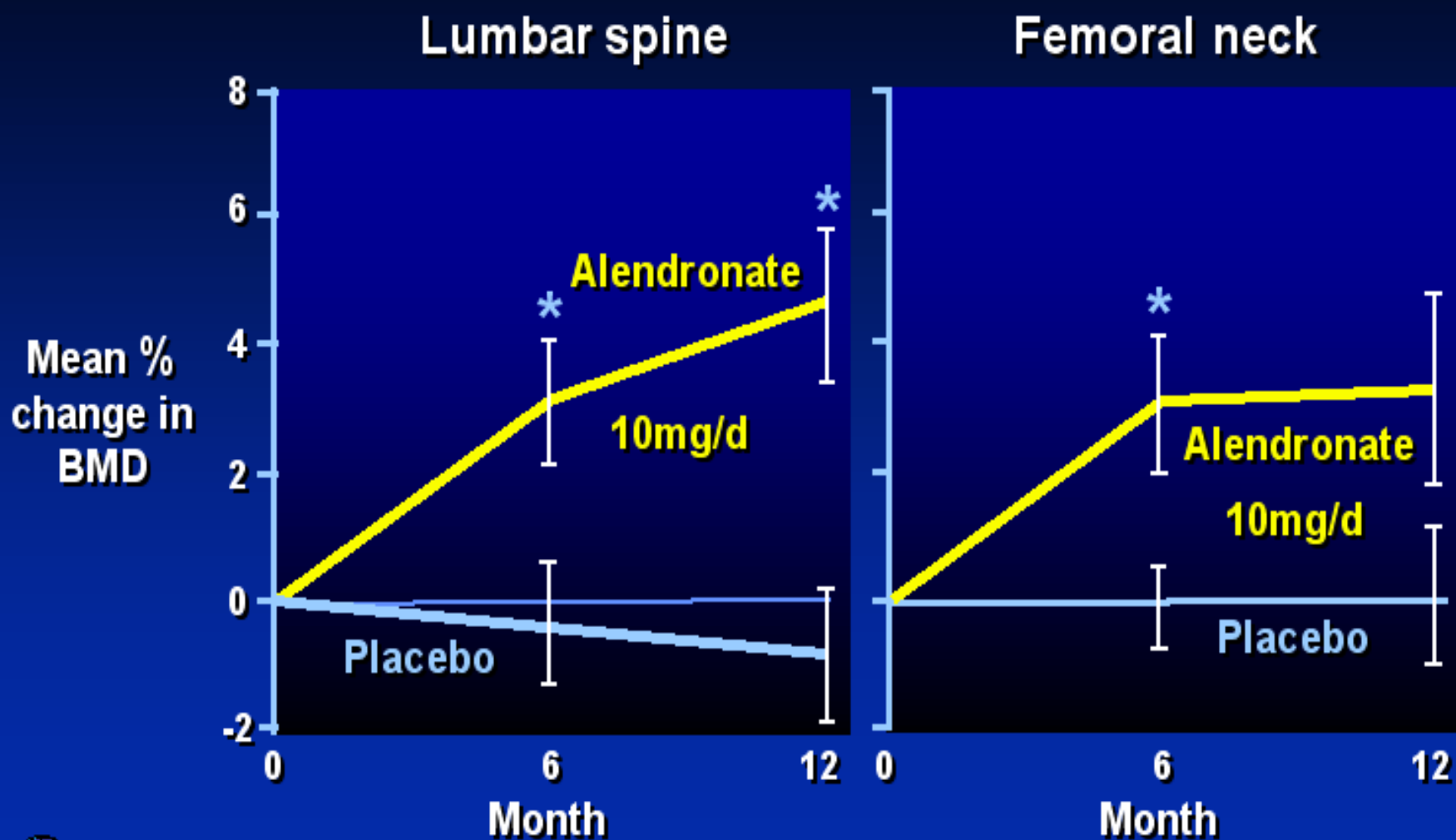
- Supplement Calcium, Vitamin D
- Exercise (weight bearing, walking)
- Treat underlying disease
- Don't smoke, avoid excessive alcohol
- Eliminate offending medications
- Consider using estrogen, bisphosphonates





## Crohn's Disease

# Treatment of Low Bone Mineral Density

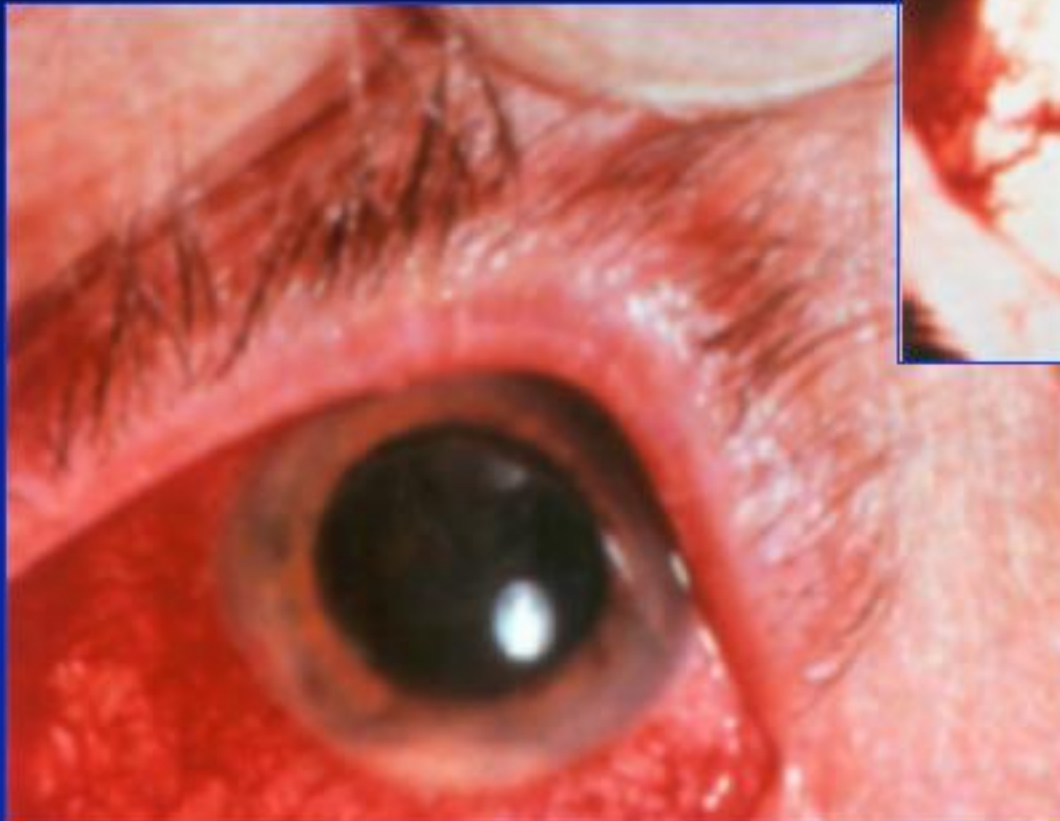
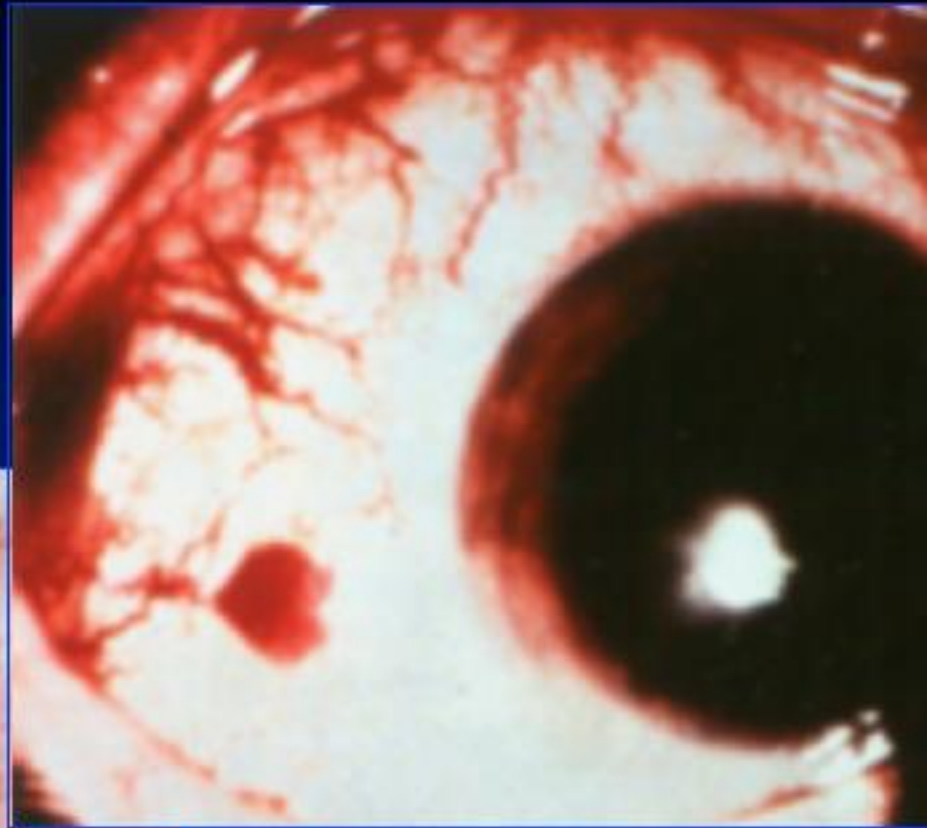


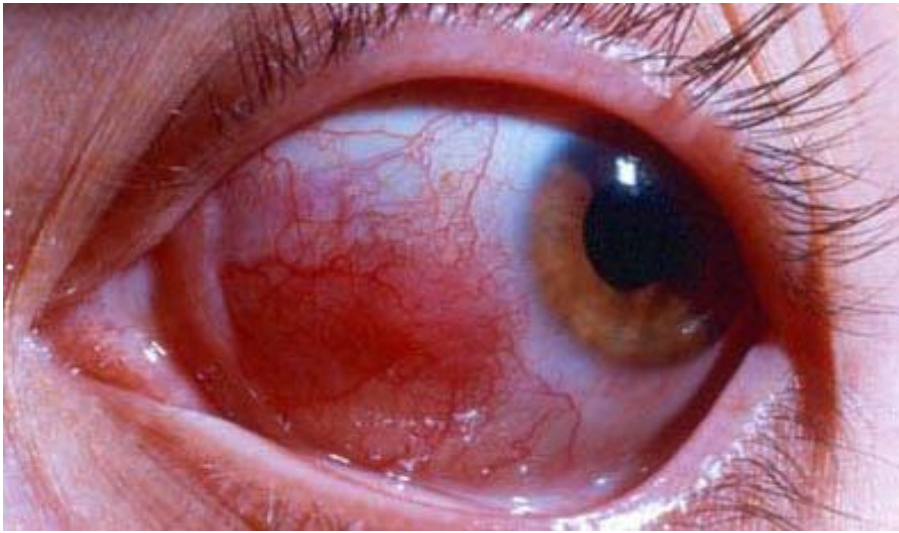
# Eye

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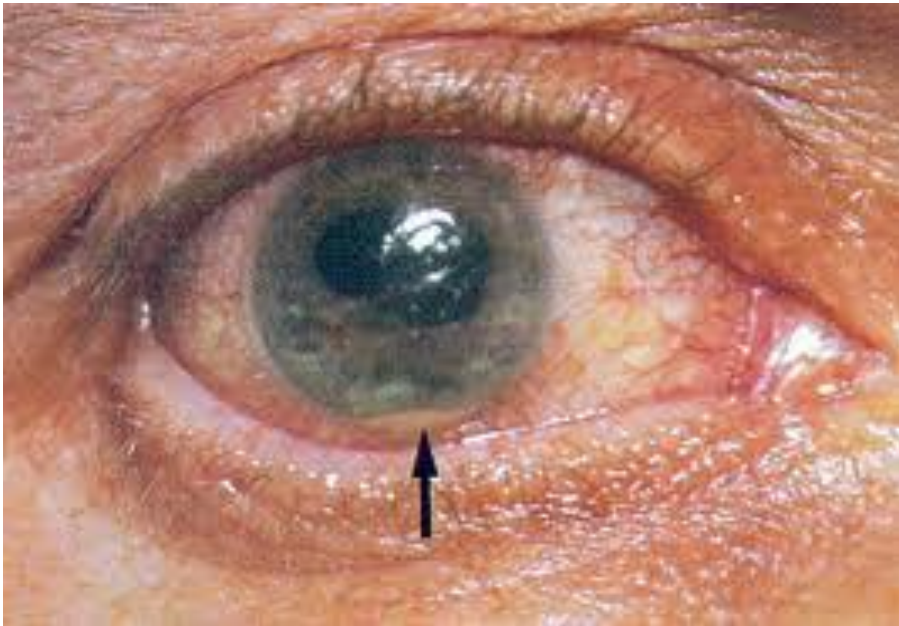
- Ocular inflammation seen in 1.9% - 13% IBD
- More common in Crohn's disease > UC
- Can see anterior uveitis, scleritis, keratitis, retinal vasculitis
- Anterior Uveitis – pain, redness, photophobia
  - More common in HLA-B27 + pts
  - Not reflect IBD activity
- Scleritis – discomfort, episcleral inflammation
- Treatment: Steroid eye drop, Ophthalmology evaluation.

## UC - IBD Systemic Complications





**Episcleritis**



**Uveitis**

# Skin

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- **Pyoderma gangrenosum** – painful ulceration with purple borders; induced by trauma
  - May not reflect that of bowel activity
- **Erythema nodosum** – painful nonulcerated nodules on lower extremity
  - Can also be seen in sarcoid, drugs, rheumatologic disease, streptococcal/viral infection
  - Skin lesion reflect that of bowel activity
- **Sweet's syndrome** – painful plaques on the head, neck, upper extremities, can be vesicles
- **Aphthous stomatitis** – painful oral ulcers; associated with active IBD
- **Vasculitis** – affect superficial blood vessels; may be palpable purpura on lower extremities; associated with active IBD

# Erythema Nodosum



# Pyoderma Grangrenosum - Ankle



## UC - IBD Systemic Complications







**Sweet's Syndrome**



**Aphthous Stomatitis  
(oral ulcers)**



**Vasculitis**

# Skin Cancer

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- Both non-melanoma skin cancer (NMSC) and melanoma can be seen in IBD patients
- Kappelman et al. *Danish Study, 2014*:
  - NMSC risk: CD 2.1, UC 1.8 vs non-IBD pt
  - Melanoma risk: CD 1.4, not in UC
- Singh et al. *Mayo Clinic Study, 2014*: Melanoma only
  - Melanoma risk: 37% higher than non-IBD pt.
  - Before 1998 (pre-biologic era): 52% higher risk
  - After 1998 (post-biologic era): No significant risk (limited study)
  - CD 1.80 vs UC 1.23

# Skin Cancers

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- NMSC risk higher in thiopurine treatment (6-mercaptopurine, azathiopurine) by increasing photosensitivity to ultraviolet A (UVA)
  - higher risk in longer treatment duration
- Prevention:
  1. Sunscreen lotion, sun protection clothing
  2. Avoid tanning salon
  3. No smoking
  4. Get regular dermatology exam, careful self-exam for skin lesion

# Basal Cell Skin Cancer



# Squamous Cell Skin CA



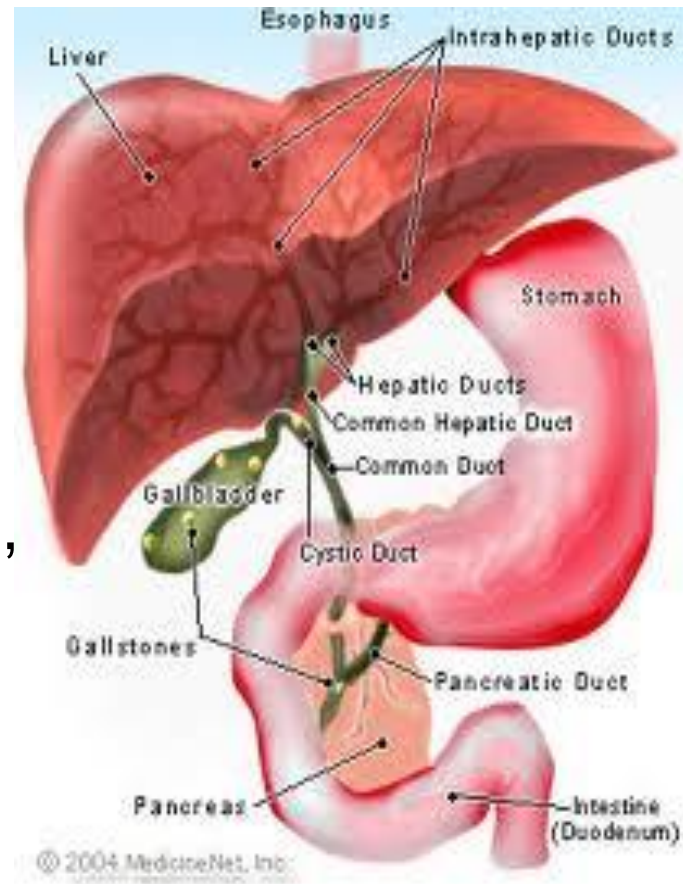
# Melanoma Skin CA



# Liver, Bile Ducts

## Primary Sclerosing Cholangitis (PSC)

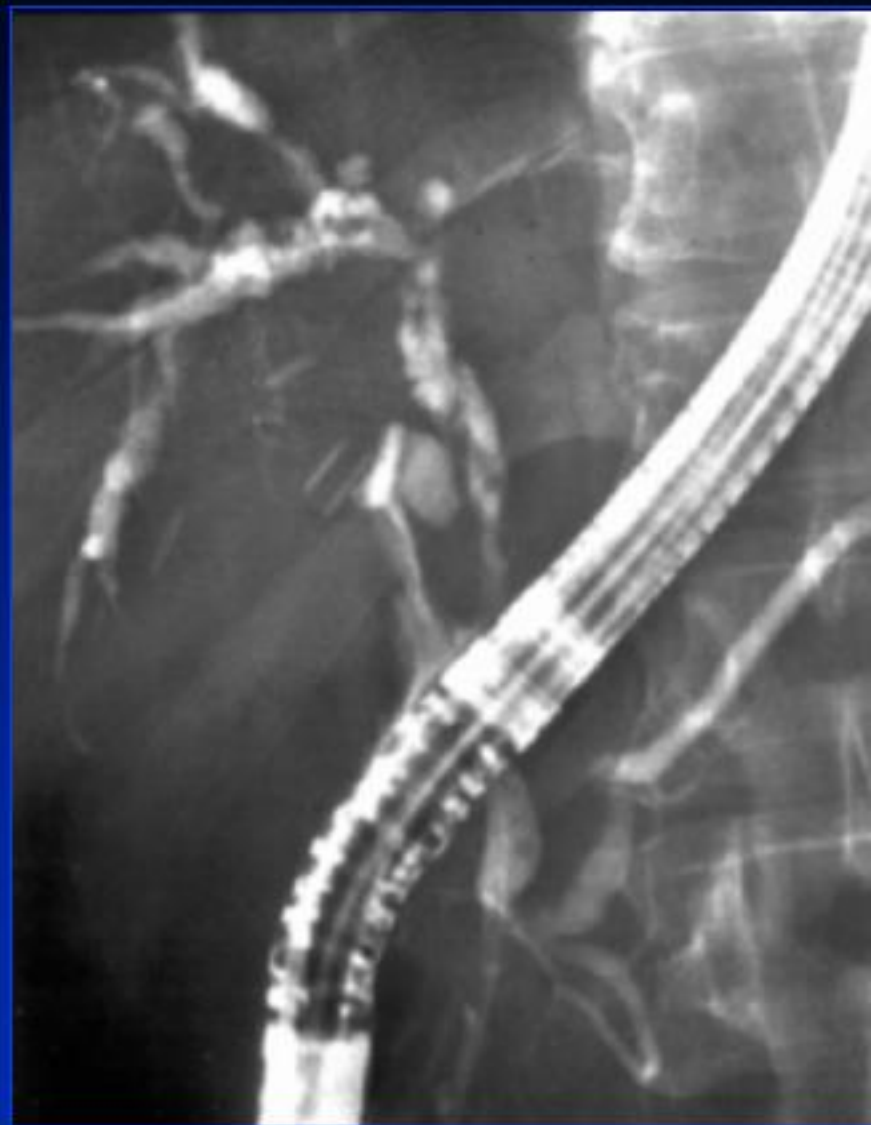
- The most common bile duct injury seen in IBD – 2.5-7.5%
- Causes inflammation, fibrosis leading to stricture of the bile ducts
- Strong association with Ulcerative Colitis – 5-10%
- Fever, chills, abnormal LFT, RUQ abdominal pain, jaundice, dark urine, itching (pruritus)
- Slowly progressive, leading to cirrhosis, portal hypertension, liver transplantation
- May lead to cholangiocarcinoma (5-15% of PSC) & higher risk of colon cancer



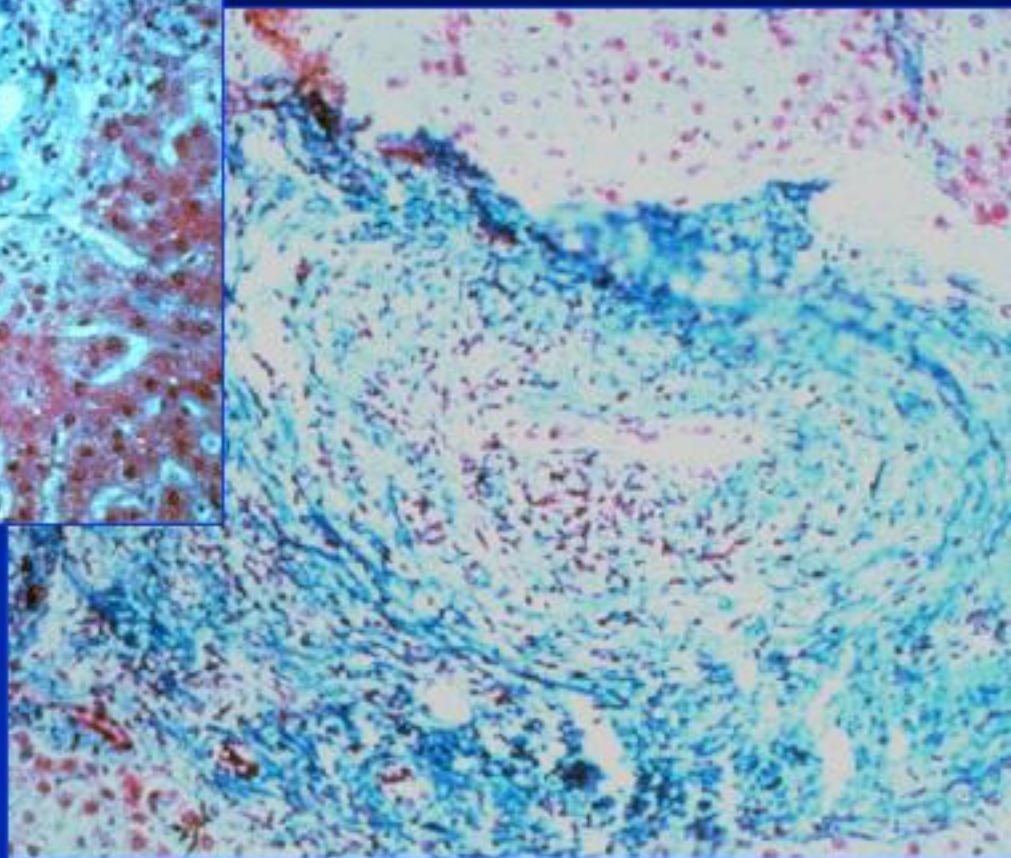
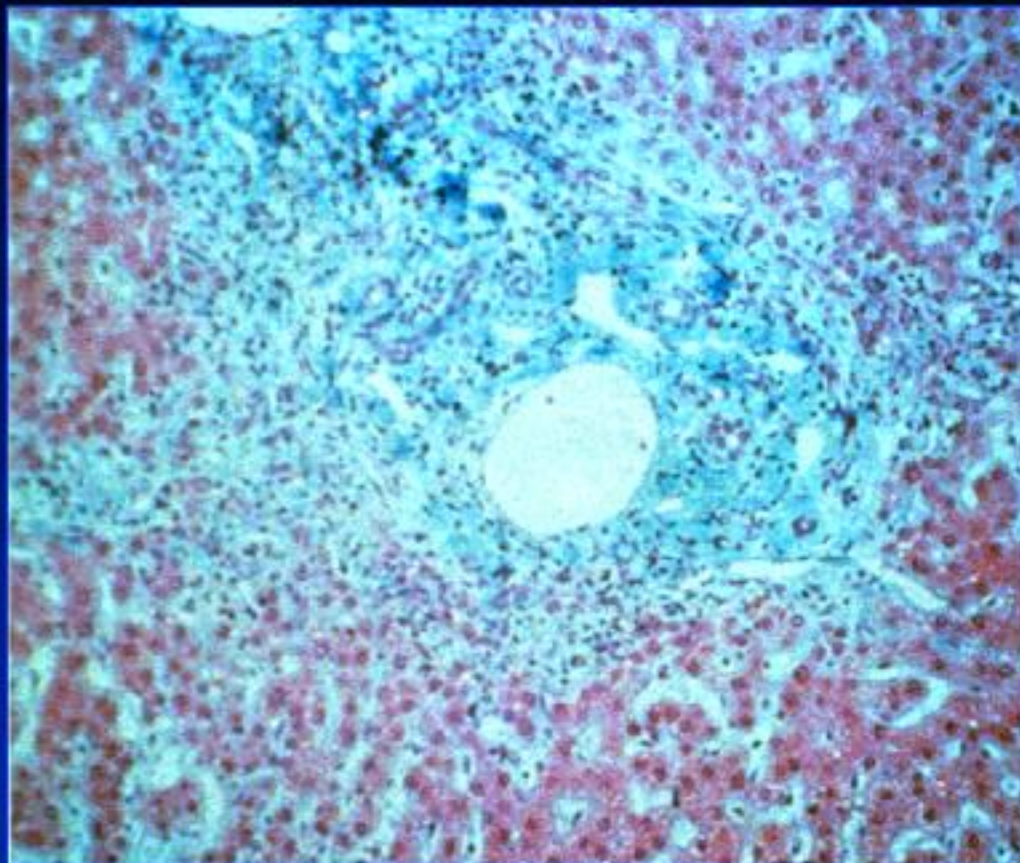
# PSC-Associated Colitis

- Mild or subclinical colitis
- Microscopic ileitis
- High risk of colonic neoplasia
- High risk of pouchitis
- Usually pANCA positive





## UC - IBD Systemic Complications







# Pancreas

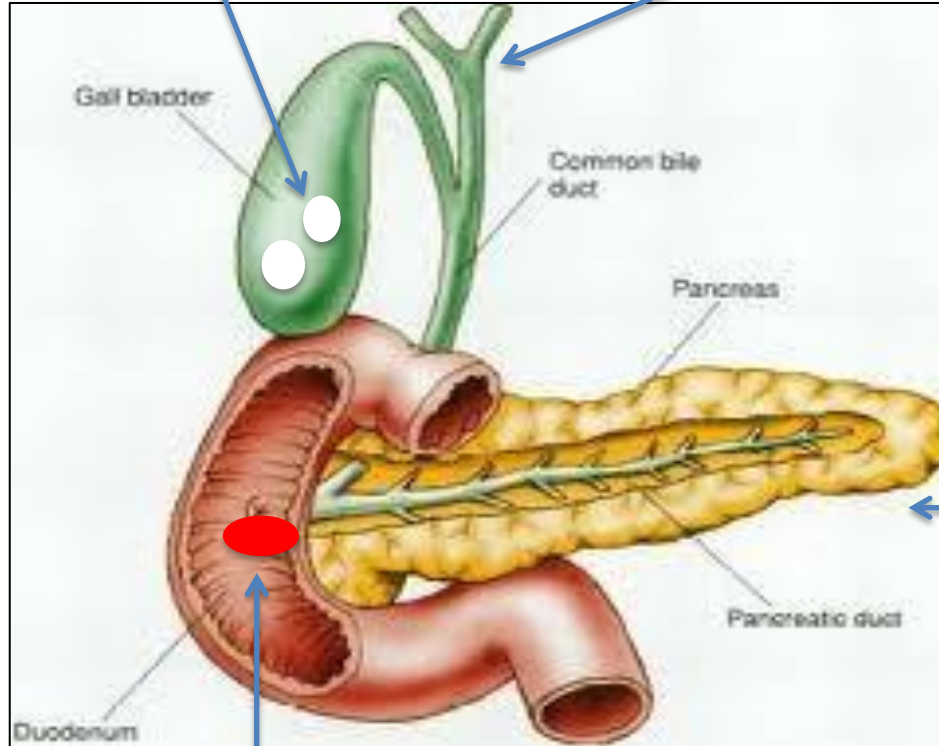
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## Pancreatitis – Multifactorial:

1. **Drug Induced** – 6-Mercaptopurine, azathioprine, steroid, mesalamine, metronidazole  
- most common cause of acute pancreatitis
2. **Duodenal Crohn's disease** – fistula from duodenum to pancreatic duct, ulcer into duct
3. **Biliary tract disease** – Gallstone, primary sclerosing cholangitis
4. **Autoimmune** – when no other cause is found, pancreatic auto-antibodies CD>UC
5. **TPN** - ↑ Triglyceride during TPN use

Gallstones

PSC



Medication  
IBD

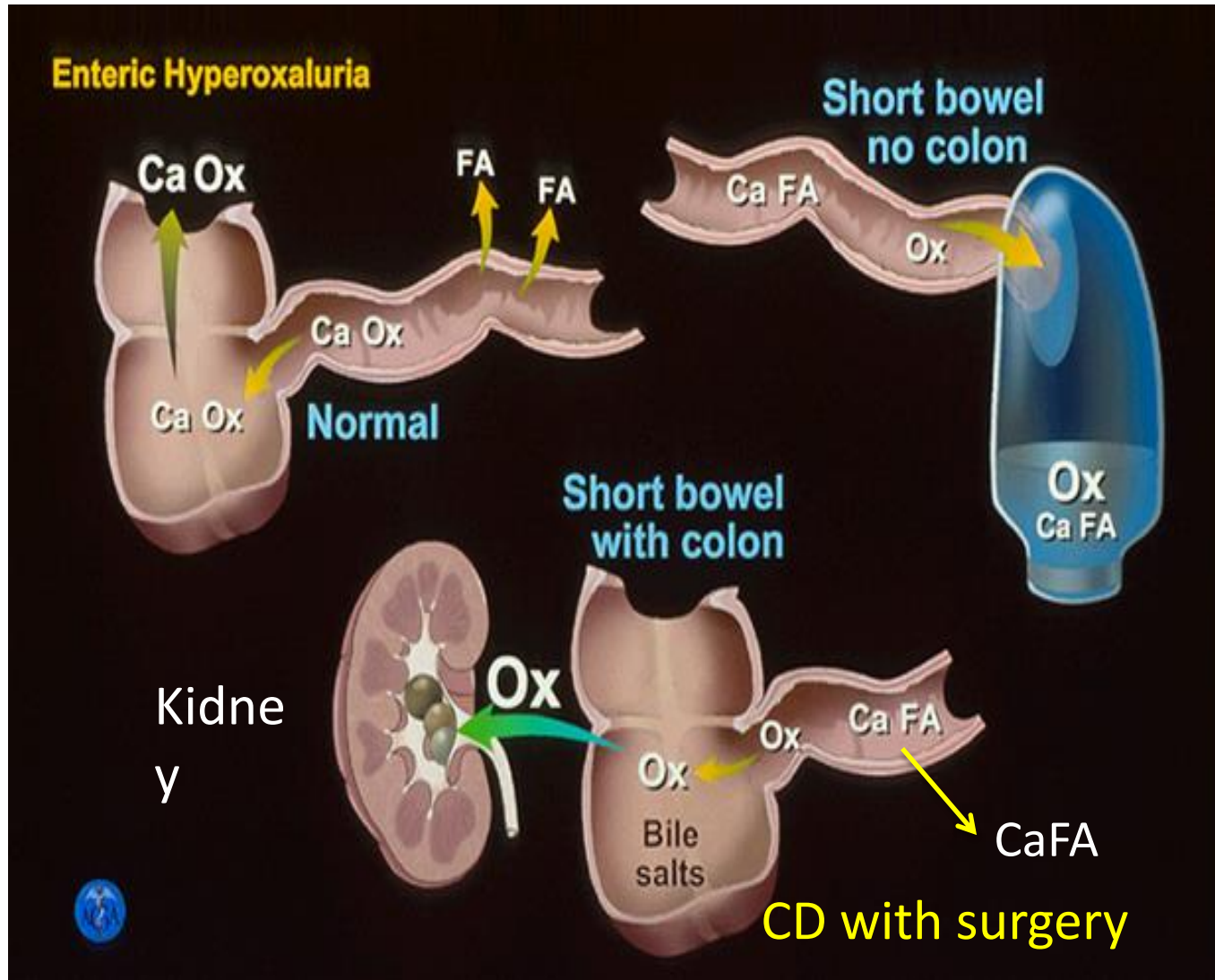
Duodenal Crohn's ulcer

# Kidney

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- Kidney stones seen up to 1-5% of IBD patients- CD>UC
- Oxalate stones – most common in small bowel CD
- Uric acid stones – most common in an ileostomy without colon; due to dehydration and acidic urine which precipitates uric acid crystals in kidney
- Risks of kidney stones – dehydration, UTI, acidic urine, steroid use (more  $\text{Ca}^{2+}$  absorption), sodium loss due to diarrhea
- Symptoms: dysuria, abdominal/flank pain, hematuria
- Rx: Good hydration, dietary oxalate restriction, treat IBD, sodium bicarbonate, anti-diarrheal medicine

# Oxalate Kidney Stone Formation



## Foods to Avoid

- Vitamin C
- Sorrel
- Rhubarb
- Buckwheat
- Spinach/chard
- Nuts
- Chocolate
- Berries
- Beets
- Tea
- Cola
- Celery
- Carrot

# Extraintestinal Manifestations and Response to Treatment

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|  | <u>Response to Treatment?</u> |
|--|-------------------------------|
| Ankylosing spondylitis, sacroilitis, axial arthritis | No                            |
| Peripheral arthritis                                 | Yes                           |
| Erythema nodosum                                     | Yes                           |
| Pyoderma gangrenosum                                 | No                            |
| Episcleritis   | Yes                           |
| Uveitis  | No                            |
| Sclerosing cholangitis                               | No                            |

## Vitamin and Mineral Deficiencies

### Manifestations

**Vitamin B<sub>12</sub> / Folate  
Iron**

anemia, glossitis, cheilitis,  
angular stomatitis,  
diarrhea\*, paresthesias\*, ataxia\*

\*Vitamin B<sub>12</sub> only

**Vitamin D  
Calcium / magnesium**

osteoporosis, osteomalacia,  
paresthesias, tetany

**Zinc**

anorexia, diarrhea, rash, alopecia

**Vitamin A**

night blindness, dry eyes,  
hyperkeratosis, diarrhea

**Vitamin K**

ecchymoses, bleeding

**Vitamin E**

paresthesias, ataxia, retinopathy