Introduction to Gastroenterology

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Who is a Gastroenterologist?

- Medical Degree - 4 years
- Residency in Internal Medicine – 3 years Board Certification
- Fellowship in Gastroenterology – 3 years Board certification

- Specializes in diseases of the esophagus, stomach, small intestine, colon, anorectal diseases, pancreas, liver and gallbladder
- Procedures performed:
- Upper GI endoscopy, colonoscopy, treatment of hemorrhoids such as banding, anorectal manometry, and placement of feeding tube

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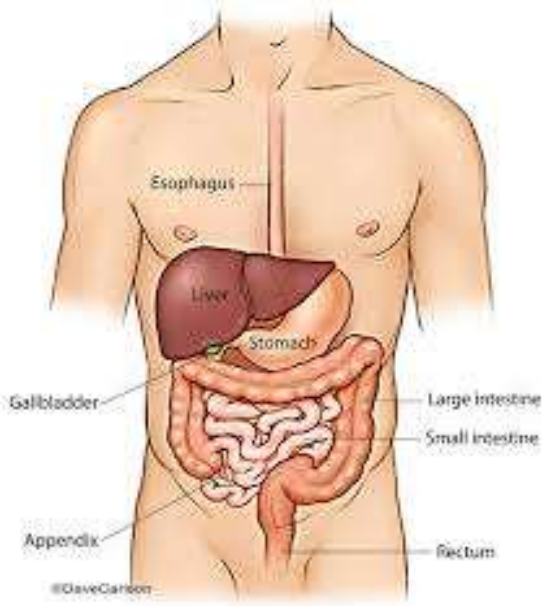
Anatomy



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Common Diseases of Esophagus

- Cancer
  - Risk factors are smoking, alcohol ingestion, chronic acid reflux
- Strictures
  - Risk factors are chronic acid reflux, could be due to cancer
- Barrett's esophagus
  - Chronic acid reflux. Most common risk factors are white, middle-aged, male

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Common Diseases of the Stomach

- Gastritis
  - Inflammation of gastric lining
  - Causes: aspirin, NSAIDS, alcohol, Helicobacter *pylori* infection, spicy food
  - Symptoms: burning pain, bloating, nausea
  - Treatment:
    - Eliminate the causative factor
    - Medications to reduce acid production such as proton pump inhibitor therapy (most common is Omeprazole) and H2 blocker therapy (most common are Ranitidine and Famotidine)
    - Medications to coat the stomach lining- Sucralfate

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Common Diseases of the Stomach

- Peptic ulcer disease
  - Cut on the surface of the stomach
  - Causes: Aspirin, NSAIDS, Steroids, Helicobacter pylori infection
  - Symptoms: Pain, nausea, bloating, vomiting, bleeding, black stool, weight loss
  - Treatment:
    - Eliminate the cause
    - Treat Helicobacter *Pylori* infection if present
    - Medications to reduce acid production such as proton pump inhibitor therapy (most common is Omeprazole) and H2 blocker therapy (most common are Ranitidine and Famotidine)
    - Upper GI endoscopy. (EGD)

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Nonsteroidal Anti-Inflammatory Drugs (NSAIDS)

- Gastritis or ulcers
- Pain
- Bloating
- Damage due to COX -1 inhibition pathway
- Most offending agents: Naproxen, Ibuprofen
- Less offending: Selective COX-2 inhibitors: Nabumetone (Relafen), Meloxicam (Mobic), Celecoxib (Celebrex)
- Concurrent use of PPI will minimize but not eliminate the symptoms and complications

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Common Diseases of the Stomach

- Helicobacter Pylori infection
  - Present in up to 50% of the world population, especially in the developing world
  - Present in up to 25% of U.S. population
  - Most patients who are colonized will never be symptomatic
  - May cause gastritis, peptic ulcer disease, cancer
  - Ingestion of NSAIDS may cause exacerbation/aggravation of H. *Pylori* symptoms.
  - Thus although H. pylori is a non-industrial condition, treatment with NSAIDS will make it an industrial condition
  - Diagnosis: Urea breath test, stool testing, EGD
  - Treatment of H. Pylori. Antibiotic regimen 80-95% effective.
  - Patients should be retested not earlier than 2 weeks after cessation of treatment

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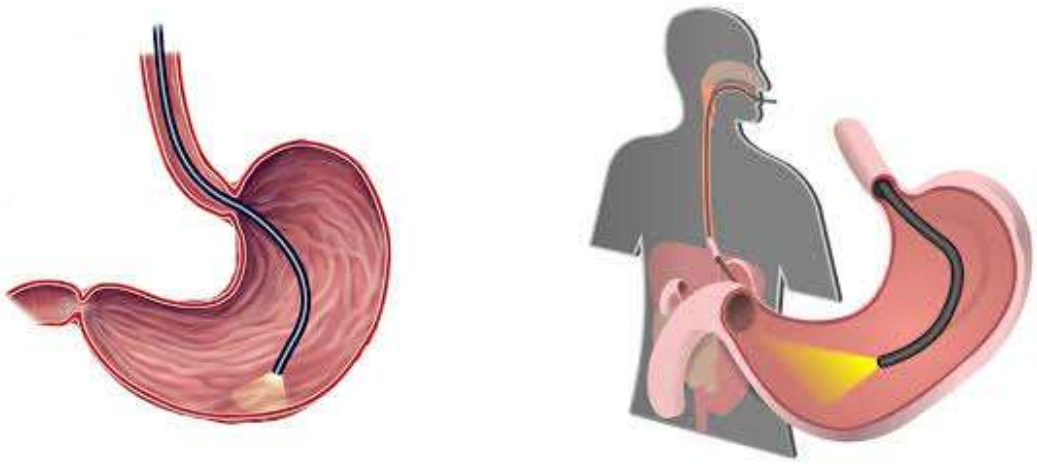
Upper GI Endoscopy



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Indications for Upper GI Endoscopy

- Evaluation of causes of symptoms: i.e. pain, nausea, burning
- Evaluation of anatomic abnormalities: hiatal hernia, obstruction, etc.
- Ruling out peptic ulcer disease, gastritis, cancer, infections, inflammatory bowel disease, celiac disease, malabsorptive conditions, etc.
- Biopsy /removing lesions. Stop bleeding. Dilation of strictures

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Case Example- Scenario 1

- 45 year Latino gentleman status post fall at work. Status post right tibial fracture and surgical correction 12 months ago. Patient required 4 months of NSAIDS therapy which caused epigastric pain and nausea and dyspepsia. He was treated with Omeprazole. He has been having epigastric burning after taking spicy food for the past 15 years. Otherwise he doesn't have any other GI symptoms currently. Has maintained weight
- Helicobacter pylori (H. *Pylori*) breath testing is positive. Thus he has H. *Pylori* infection
- Questions:
  - Any ratable disability?
  - Should H. *Pylori* be treated? If so Industrial or not?

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AMA Guides - Table 6-3, page 121

Table 6-3 Criteria for Rating Permanent Impairment Due to Upper Digestive Tract (Esophagus, Stomach and Duodenum, Small Intestine, and Pancreas) Disease

Class 1 0%-9% Impairment of the Whole Person	Class 2 10%-24% Impairment of the Whole Person	Class 3 25%-49% Impairment of the Whole Person	Class 4 50%-75% Impairment of the Whole Person
Symptoms or signs of upper digestive tract disease, or anatomic loss or alteration ***and*** continuous treatment not required ***and*** maintains weight at desirable level* ***or*** no sequelae after surgical procedures	Symptoms and signs of upper digestive tract disease, or anatomic loss or alteration ***and*** requires appropriate dietary restrictions and drugs for control of symptoms, signs, or nutritional deficiency ***and*** weight loss below desirable weight but does not exceed 10%*	Symptoms and signs of upper digestive tract disease, or anatomic loss or alteration ***and*** appropriate dietary restrictions and drugs do not completely control symptoms, signs, or nutritional state ***or*** 10%-20% weight loss below desirable weight due to upper digestive tract disorder*	Symptoms and signs of upper digestive tract disease, or anatomic loss or alteration ***and*** symptoms uncontrolled by treatment ***or*** greater than 20% weight loss below the desirable weight due to upper digestive tract disorder*

*Refer to Tables 6-1 and 6-2.

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Case continued

- Although this patient has symptoms, continuous treatment is not required and he has maintained his weight.
- No ratable disability
- He has been off NSAIDS for 8 months and symptoms are at the pre-industrial injury level. Thus H.*pylori* is not aggravated. Should NOT be treated on industrial basis.

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Case Example- Scenario 2

- Same patient, but he has continued taking NSAIDS and has daily epigastric abdominal pain and burning. No bleeding but is eating less due to pain and has lost weight 5%.
- Upper GI endoscopy revealed gastric ulcer and Helicobacter Pylori infection
- Questions:
  - H. *pylori* infection industrial or not?
  - Is patient MMI for rating purposes?
  - What is the disability level?

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Case Example- Scenario 2

- H. *Pylori* should be treated on industrial basis. Aggravated by NSAIDS use.
- Patient is not MMI. Treat H. Pylori, stop NSAIDS if possible, treat with PPI.
- Above is done and patient should stay on PPI therapy because remains symptomatic despite medical treatment.
  - MMI now
  - Disability rating: table 6-3 10%-24%. Has signs and symptoms, needs medications and has had weight loss

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Common Diseases of the Small Intestine

- Duodenal ulcer
  - Causes: NSAIDS, H. Pylori
- Celiac disease
  - Gluten allergy. Non-industrial
- Crohn's disease
  - An autoimmune condition
  - Can affect any part of the GI system
  - Generally believed to be non-industrial

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Common Diseases of the Colon

- Constipation
  - The function of colon is to reabsorb all the water from the stool and solidify it
  - Risk factor
    - Opiates: Decrease gut motility
    - Lack of water and fiber in diet
    - Lack of mobility
    - Other meds: Anticholinergics, calcium channel blockers
  - Complications:
    - Pain, bloating, flatulence, nausea and vomiting, abdominal distention, mood irritability
  - Treatment
    - Avoid the causing meds, increase water and fiber, increase gut motility
    - Medications: Stool softeners, motility agents, laxatives, Guanylate cyclase agonists

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Common Diseases of the Colon

- Crohns disease
- Ulcerative colitis
  - Autoimmune condition
  - Non-industrial but NSAIDS may flare up the condition
    - Treat by avoiding spicy food, NSAIDS, appropriate medications
- Diverticulosis
  - 60% of Americans by age 60
  - Asymptomatic. Complications: diverticular bleeding, diverticulitis
  - Non-industrial condition

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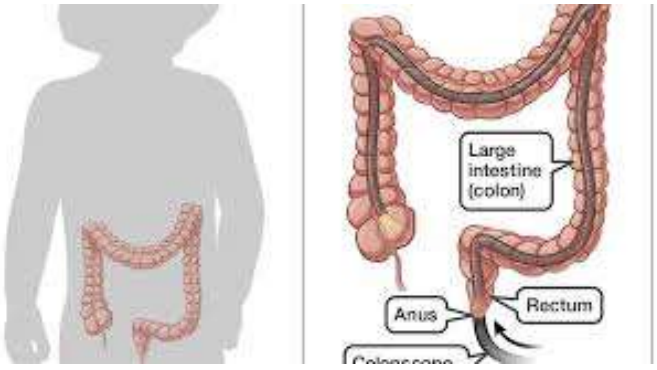
Colonoscopy



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Indications for a Colonoscopy

- Evaluation of causes of symptoms: i.e pain, diarrhea, bleeding, obstructive symptoms such as constipation
- Evaluation of anatomic abnormalities: hemorrhoids, diverticulosis, strictures, masses, ulcers
- Ruling out polyps, cancer, inflammatory bowel disease, strictures,
- Biopsy /removing lesions. Stop bleeding. Dilation of strictures

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Case Example

- 35 year woman who after an industrial injury has been treated with opiates. She denies any previous GI symptoms. But now has abdominal pain, bloating, constipation and chronic nausea. Multiple attempts at stopping opiates have been unsuccessful. On occasions she takes OTC laxatives to have BM
- Questions:
  - Are symptoms due to industrial injury itself? Or consequences of treatment of the industrial treatment?
  - What is your rating?

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AMA Guides - Table 6-4, page 128

Table 6-4 Criteria for Rating Permanent Impairment Due to Colonic and Rectal Disorders

Class 1 0%-9% Impairment of the Whole Person	Class 2 10%-24% Impairment of the Whole Person	Class 3 25%-49% Impairment of the Whole Person	Class 4 50%-75% Impairment of the Whole Person
Signs and symptoms of colonic or rectal disease infrequent and of brief duration ***and*** limitation of activities, special diet, or medication not required ***and*** no systemic manifestations present, and weight and nutritional state can be maintained at desirable level ***or*** no sequelae after surgical procedures	Objective evidence of colonic or rectal disease or anatomic loss or alteration ***and*** mild gastrointestinal symptoms with occasional disturbances of bowel function, accompanied by moderate pain ***and*** minimal restriction of diet or mild symptomatic therapy may be necessary ***and*** no impairment of nutrition results	Objective evidence of colonic or rectal disease or anatomic loss or alteration ***and*** moderate to severe exacerbations with disturbance of bowel habit, accompanied by periodic or continual pain ***and*** restriction of activity, special diet, and drugs required during attacks ***and*** constitutional manifestations (fever, anemia, or weight loss)	Objective evidence of colonic or rectal disease or anatomic loss or alteration ***and*** persistent disturbances of bowel function present at rest with severe persistent pain ***and*** complete limitation of activity, continued restriction of diet, and medication do not entirely control symptoms ***and*** constitutional manifestations (fever, weight loss, or anemia) present ***or*** no prolonged remission

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Case Example

- She should be treated on industrial basis
- She is at MMI
- Table 6-4 Class 1 0%-9% Impairment
  - Signs and symptoms
  - No systemic manifestation
  - Rarely takes meds

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Case Example

- Same patient but requires laxatives frequently. Imaging reveals lots of retained stool in colon. But she has not lost weight
- Disability rating:
- Class 2 10%-24% impairment

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Irritable Bowel Syndrome

- The Rome IV criteria for the diagnosis of irritable bowel syndrome require that patients have had:
  - Recurrent abdominal pain on average at least 1 day per week during the previous 3 months that is associated with 2 or more of the following :
- Related to defecation (may be increased or unchanged by defecation)
- Associated with a change in stool frequency
- Associated with a change in stool form or appearance

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Irritable Bowel Syndrome

- Four bowel patterns may be seen with irritable bowel syndrome, and these remain in the Rome IV classification. These patterns include the following:
  - IBS-D (diarrhea predominant)
  - IBS-C (constipation predominant)
  - IBS-M (mixed diarrhea and constipation)
  - IBS-U (unclassified; the symptoms cannot be categorized into one of the above three subtypes)

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Common Diseases of the Anus

- Hemorrhoids
  - Enlarged veins around the anus
  - Internal / External
  - Risk factors: Constipation, prolonged sitting, squatting, weight lifting
  - Complications: bleeding, pain, burning, itching, thrombosis
  - Treatment: creams, injections, banding, sclerotherapy, surgery
  - Could be an industrial condition if patient has constipation or prolonged sitting on industrial basis

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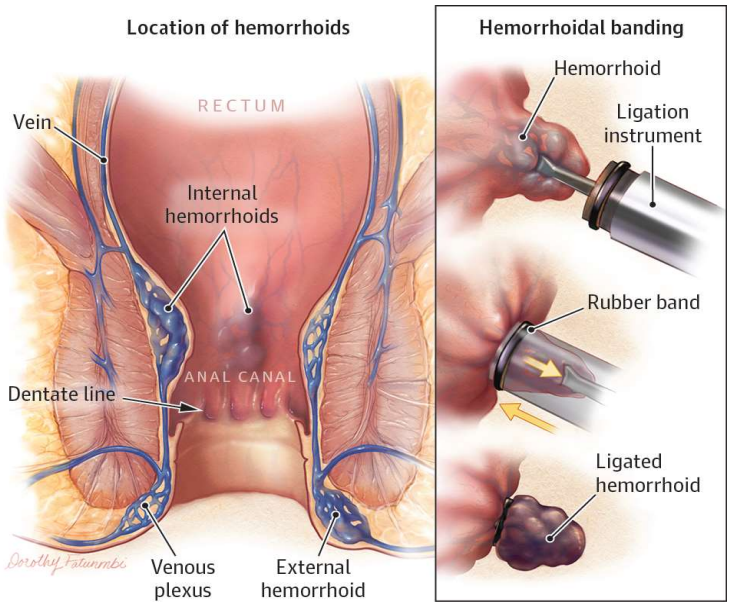

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Common Diseases of the Anus

- Anal Fissures
- Cut on anal canal from firm stool, forceful wiping, anal penetration
- Symptoms: bleeding, sharp pain,
- Treatment: special creams, stool softeners
- Could be industrial if due to constipation

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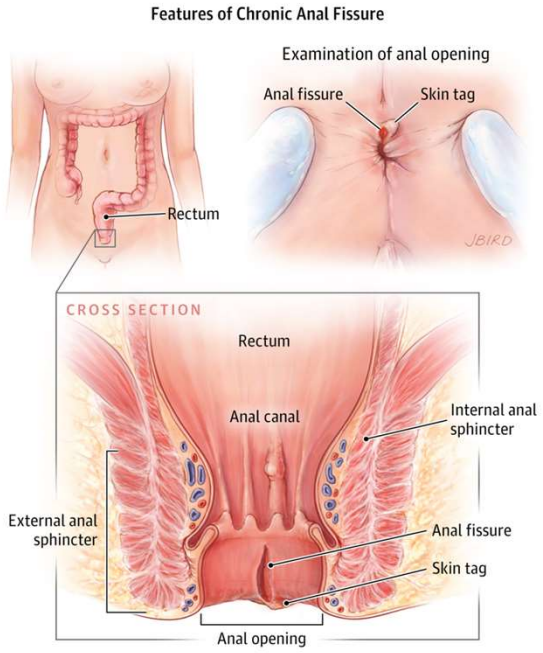

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Common Diseases of the Anus

- Fecal incontinence
  - Risk factors: Multiple child birth, episiotomy, receptive anal intercourse, spine surgery, neuromuscular disorder, age

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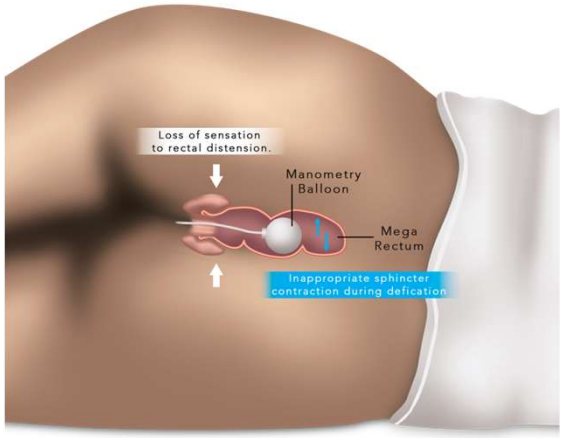
Anorectal Manometry



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Anorectal Manometry

- Indication
  - Evaluation of constipation- Pelvic floor dysfunction
    - Obstructive symptoms
  - Evaluation of fecal incontinence – Anorectal injury
    - Diarrhea or fecal incontinence?
    - Muscular or neurologic injury?

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Example of Ratings for Fecal Incontinence

- 47 year old female. Without previous GI symptoms. Status post lumbar spine surgery on industrial basis. Develops post-operative "diarrhea" and fecal incontinence. Complains of soiling her underwear with liquid stool twice a weak. At times has "accidents", Unable to control her flatus well but able to control her stool. Denies pain. Has tried anti-diarrhea medications and bulking agents.
  - Workup: normal colonoscopy, no infections, but anorectal manometry revealed low resting anal pressure and weak anal squeeze pressure.
  - Ratings: Class 2, 10-19% impairment she has signs of organic anal disease, and moderate but partial fecal incontinence requiring continual treatment.

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AMA Guides - Table 6-5, page 131

Table 6-5 Criteria for Rating Permanent Impairment Due to Anal Disease

Class 1 0%-9% Impairment of the Whole Person	Class 2 10%-19% Impairment of the Whole Person	Class 3 20%-35% Impairment of the Whole Person
Signs of organic anal disease or anatomic loss or alteration ***or*** mild incontinence involving gas or liquid stool ***or*** anal symptoms mild, intermittent, and controlled by treatment	Signs of organic anal disease or anatomic loss or alteration ***and*** moderate but partial fecal incontinence requiring continual treatment ***or*** continual anal symptoms incompletely controlled by treatment	Signs of organic anal disease and anatomic loss or alteration ***and*** complete fecal incontinence ***or*** signs of organic anal disease and severe anal symptoms unresponsive or amenable to therapy

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Example of Ratings for Fecal Incontinence

- Same patient except she has “complete fecal incontinence” i.e: incontinence of solid stool. Manometry revealed diminished anal resting and squeeze pressure.
- Class 3 20-35% impairment of the whole person

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Common Diseases of Gallbladder

- Gallstones
  - Risk factors: female, forty, obesity, Latina, American Indian
  - Generally a non-industrial condition
  - Can cause infection of gallbladder
    - Pain, infection
  - Treatment: Cholecystectomy
    - No impairment ratings

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Common Diseases of Liver

- Function: Detoxify blood, Produce proteins and coagulation factors, conjugate bilirubin
- Viral Hepatitis
  - Hepatitis A, contaminated food, water. Could be industrial
    - Self-limited condition
  - Hepatitis B & C: Blood borne, needle stick injuries, blood transfusion, sexual intercourse
    - Treatment: oral medications
    - May lead to liver failure, chronic conditions

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Case Example

- 63 year old otherwise healthy RN. Status post needlestick injury at work 15 years ago. Now has Chronic HCV infection.
  - Labs: normal
  - Asymptomatic
- Question: Industrial? If so what is the rating?

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AMA Guides, tables 6-7 and 6-8, page 133

Table 6-7 Criteria for Rating Permanent Impairment Due to Liver Disease

Class 1 0%-14% Impairment of the Whole Person	Class 2 15%-29% Impairment of the Whole Person	Class 3 30%-49% Impairment of the Whole Person	Class 4 50%-95% Impairment of the Whole Person
Persistent liver disease objective evidence; no symptoms of liver disease and no history of ascites, jaundice, or bleeding esophageal varices within 3 years ***and*** good nutrition and strength ***and*** biochemical studies indicate minimal disturbance in function ***or*** primary disorders of bilirubin metabolism	Chronic liver disease objective evidence; no liver disease symptoms and no history of ascites, jaundice, or bleeding esophageal varices within 3 years ***and*** good nutrition and strength ***and*** biochemical studies indicate more severe liver damage than class 1	Progressive chronic liver disease objective evidence or history of jaundice, ascites, or bleeding esophageal or gastric varices within past year ***and*** possibly affected nutrition and strength ***or*** intermittent hepatic encephalopathy	Progressive chronic liver disease objective evidence or persistent jaundice or bleeding esophageal or gastric varices, with central nervous system manifestations of hepatic insufficiency ***and*** poor nutritional state

Table 6-8 Criteria for Rating Permanent Impairment Due to Biliary Tract Disease

Class 1 0%-14% Impairment of the Whole Person	Class 2 15%-29% Impairment of the Whole Person	Class 3 30%-49% Impairment of the Whole Person	Class 4 50%-95% Impairment of the Whole Person
Occasional biliary tract dysfunction episode	Recurrent biliary tract impairment, irrespective of treatment	Irreparable biliary tract obstruction with recurrent cholangitis	Persistent jaundice; progressive liver disease due to common bile duct obstruction

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Case Example

- 63 year old otherwise healthy RN. Status post needle stick injury at work 15 years ago. Now has Chronic HCV infection.
- Labs: abnormal, has elevated liver enzymes, coagulopathy
- Ascites
- Question: Industrial? If so what is the rating?

Table 6-7: class 3 30%-49% impairment. She has ascites

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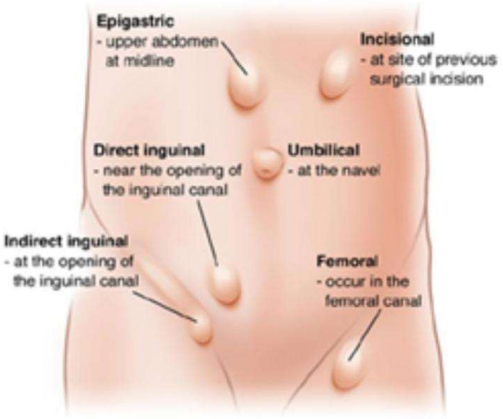
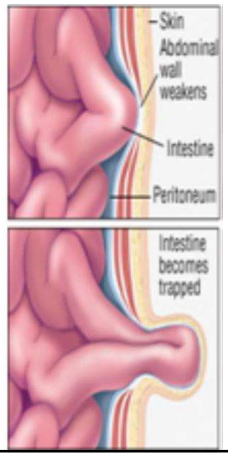
Hernias

- Definition
  - A condition in which part of an organ is displaced and protrudes through the wall of the cavity containing it (often involving the intestine at a weak point in the abdominal wall).





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Case Example # 1

- 28 year old man. Software engineer. Sedentary job. Lifts weight 5 days a week. Now with right inguinal hernia. Asymptomatic. Patient is bothered by the cosmetic aspect of it
  - On exam: Palpable right inguinal hernia. Easily reducible
  - Industrial? What is your rating?
  - Table 6.9 Page 136
  - Answer: Class I 0-9%

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AMA Guides, table 6-9 page 136

Table 6-9 Criteria for Rating Permanent Impairment Due to Herniation

Class 1 0%-9% Impairment of the Whole Person	Class 2 10%-19% Impairment of the Whole Person	Class 3 20%-30% Impairment of the Whole Person
Palpable defect in supporting structures of abdominal wall ***and*** slight protrusion at site of defect with increased abdominal pressure; readily reducible ***or*** occasional mild discomfort at site of defect but not precluding most activities of daily living	Palpable defect in supporting structures of abdominal wall ***and*** frequent or persistent protrusion at site of defect with increased abdominal pressure; manually reducible ***or*** frequent discomfort, precluding heavy lifting but not hampering some activities of daily living	Palpable defect in supporting structures of abdominal wall ***and*** persistent, irreducible, or irreparable protrusion at site of defect ***and*** limitation in activities of daily living

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Case Example # 2

- 28 year old man. Construction worker. Heavy lifting at work. Now with right inguinal hernia. Protrudes frequently and at times with pain limiting his performance. On exam: Palpable right inguinal hernia. Easily reducible
  - Industrial? What is your rating?
  - Table 6.9 Page 136

- Class 2 10-19%

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THE END

THANK YOU

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