MEDICAL-SURGICAL NURSING I · STUDY GUIDE

Exam 6 Study Guide

This guide covers chapters 11 and 12. You will learn to assess the abdomen, run the first minutes of a GI bleed, tell the bowel disorders apart and care for a stoma and a feeding tube, then read a liver panel and manage cirrhosis, gallstones and pancreatitis. Work one chapter at a time. Read the "what to know" paragraphs, copy the tables out by hand, then try each worked case with the steps covered. Finish each chapter with its ten self-test items. The cram sheet at the end puts every number and rule in one place.

WHAT THIS GUIDE COVERS

- Chapter 11 · abdominal assessment order and pain types, upper versus lower GI bleeding and first actions, GERD and hiatal hernia, peptic ulcer and H. pylori, gastric surgery and dumping, appendicitis, peritonitis, diverticulitis, Crohn disease versus ulcerative colitis, toxic megacolon, celiac disease, IBS, C. difficile, obstruction versus ileus, colorectal cancer screening, stoma care, NG tubes and enteral feeding, refeeding syndrome and laxatives.
- Chapter 12 · what the liver does, jaundice types, the liver panel, biopsy care, MELD, hepatitis A to E, hepatitis B serology, exposure management, acetaminophen and acute liver failure, cirrhosis and portal hypertension, ascites and paracentesis, SBP, varices, encephalopathy and lactulose, hepatorenal syndrome, gallstones, cholecystitis and cholangitis, cholecystectomy and ERCP, acute and chronic pancreatitis, enzyme replacement and pancreatic cancer.

CHAPTER 11

Gastrointestinal Disorders

Read it in full: **Chapter 11 in the textbook**. Practice it in the lab: **GI Bleed Command: What Comes First** and **The Blocked Bowel: Pattern, Acid-Base and the Call**.

What to know

Assess the abdomen in this order: **inspect, auscultate, percuss, palpate**, because touch changes bowel sounds. Listen five minutes per quadrant before charting absent sounds. Visceral pain is dull and midline; parietal pain is sharp, focal and worse with movement; referred pain shows up

far away (shoulder from the diaphragm). Rebound, guarding and a board-like abdomen mean peritoneal irritation. Do not palpate a pulsatile mass.

Upper GI bleeding (above the ligament of Treitz: ulcer, gastritis, varices, Mallory-Weiss) gives hematemesis, coffee grounds and melena, with a BUN to creatinine ratio above 20:1. Lower bleeding gives hematochezia. The early hemoglobin can look normal because whole blood is lost. **Resuscitate before diagnosing**: airway and positioning against aspiration, oxygen, two 18 gauge or larger IVs, isotonic fluid, type and crossmatch, NPO, monitoring; transfuse below 7 (8 with coronary disease); IV pantoprazole; octreotide for varices. Reverse anticoagulants by drug: vitamin K and PCC for warfarin, protamine for heparin, idarucizumab for dabigatran, four-factor PCC for Xa inhibitors (andexanet was withdrawn in December 2025). Heart rate rises before pressure falls.

GERD: raise the head of the bed 6 to 8 inches on blocks, no food three hours before lying down, smaller meals; PPIs 30 to 60 minutes before breakfast (long-term risks: C. difficile, pneumonia, low magnesium and B12, fractures). Barrett esophagus is premalignant. After endoscopy, NPO until the gag returns. A paraesophageal hernia can strangulate.

Peptic ulcer comes mainly from H. pylori and NSAIDs (enteric coating does not protect). Duodenal pain comes 2 to 3 hours after meals and at night and food helps; gastric pain comes soon after eating, food worsens it, and gastric ulcers are biopsied. Bismuth quadruple therapy for 14 days: finish it, bismuth blackens stool, no alcohol with metronidazole. Sucralfate goes on an empty stomach. Misoprostol is contraindicated in pregnancy. Perforation: sudden severe pain, rigid abdomen; NPO, vitals, call the surgeon.

After gastrectomy, lifelong B12 is needed. **Early dumping** (15 to 30 minutes after eating) brings cramping, diarrhea and tachycardia; **late dumping** (1.5 to 3 hours) brings hypoglycemia. Teach small meals, high protein, low simple sugar, fluids between meals, and lying down after eating. After bariatric surgery, a heart rate over 120 is a leak until proven otherwise.

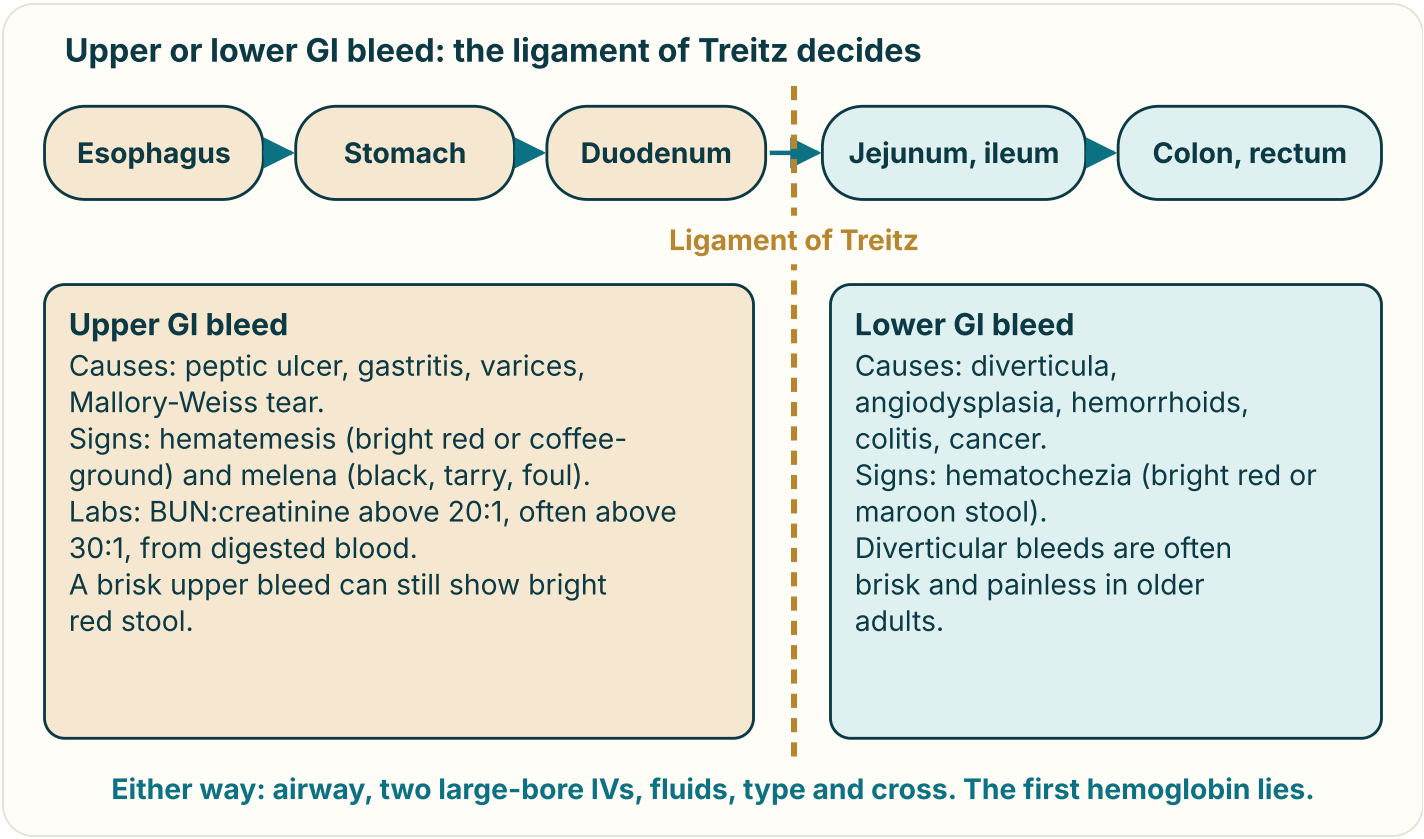
Appendicitis: periumbilical pain that moves to McBurney point; NPO, no heat, no enemas or laxatives. Sudden relief of pain suggests rupture. **Diverticulitis**: left lower quadrant pain and fever; CT, not colonoscopy, in the acute phase; high fiber after recovery. **Crohn disease** is

transmural with skip lesions, fistulas and strictures; **ulcerative colitis** is continuous from the rectum with bloody diarrhea, and colectomy cures it. **Toxic megacolon**: distention, fever, HR over 120 and fewer stools; stop antidiarrheals and opioids, NPO, call. Screen for TB and hepatitis B before biologics. C. difficile: soap and water, bleach, oral vancomycin or fidaxomicin, no loperamide.

Small-bowel obstruction comes on fast with colicky pain, early vomiting and metabolic alkalosis; large-bowel obstruction is gradual with marked distention. Ileus has absent sounds from the start. Manage with NPO, NG suction, isotonic fluid and potassium. Pain that turns constant, fever, rising lactate or rebound means strangulation. Pain out of proportion to a soft abdomen in an older adult with AF suggests mesenteric ischemia.

Colorectal screening starts at 45: colonoscopy every 10 years or FIT yearly. Unexplained iron deficiency over 50 is colorectal cancer until proven otherwise. A healthy **stoma** is pink to beefy red and moist; dusky, purple or black means ischemia. Cut the barrier no more than 1/8 inch larger than the stoma; empty at one third to one half full. Ileostomy output is liquid and corrosive; avoid enteric-coated and extended-release tablets.

Confirm a new blind feeding tube by x-ray before first use; then check the marked length and aspirate pH (5.5 or less gastric) before each use. Head of bed 30 to 45 degrees; flush 30 mL before and after each drug. A residual over 500 mL with distention or vomiting means hold and notify. **Refeeding syndrome** drops phosphorus, potassium and magnesium in 24 to 72 hours: thiamine first, start slow. Bulk laxatives need a full glass of water; no loperamide in suspected C. difficile.



Where the bleed starts changes the stool. Acid turns blood to coffee grounds and the gut turns it black and tarry; bleeding past the ligament of Treitz stays red or maroon.

LOCK THESE IN

- Abdomen: inspect, auscultate, percuss, palpate. Listen 5 min per quadrant before charting absent.
- Upper GI bleed: coffee grounds, melena, BUN:creatinine above 20:1.
- Bleed first actions: airway, oxygen, two 18 g IVs, fluids, type and cross, NPO.
- Duodenal ulcer: pain 2 to 3 h after meals, food helps. Gastric: food worsens, biopsy.
- Appendicitis: no heat, no enemas; sudden pain relief may mean rupture.
- Crohn: transmural, skip lesions, fistulas. UC: rectum up, continuous, bloody.
- Healthy stoma pink and moist; dusky or black is ischemia.
- New blind feeding tube: x-ray before first use. Refeeding: thiamine, start slow.

Crohn disease versus ulcerative colitis

Feature	Crohn disease	Ulcerative colitis
Location	Mouth to anus, skip lesions; terminal ileum	Rectum upward, continuous; colon only
Depth	Transmural; cobblestone	Mucosa and submucosa
Stool	3 to 5 loose, usually no gross blood	10 to 20 liquid with blood and mucus
Complications	Fistula, abscess, stricture; B12 loss	Toxic megacolon, hemorrhage; cancer risk
Surgery	Not curative	Proctocolectomy is curative

Obstruction versus ileus

Feature	Small bowel	Large bowel	Paralytic ileus
Onset	Rapid	Gradual	After surgery, opioids, low K
Vomiting	Early, profuse	Late	Possible
Bowel sounds	High-pitched early, absent late	Hypoactive to absent	Absent from the start
Acid-base	Metabolic alkalosis	Acidosis more likely	Depends on losses

Laxatives by mechanism

Type	Examples	Point
Bulk-forming	Psyllium	Full glass of fluid or it can obstruct
Osmotic	PEG, lactulose, Mg citrate	Avoid magnesium in renal impairment
Stimulant	Senna, bisacodyl	Do not crush bisacodyl; not within 1 h of milk or antacid
Softener	Docusate	Weak alone
Opioid-induced	Stimulant plus softener; methylnaltrexone	Start with the opioid

Worked cases

WORKED CASE 1 · A COFFEE-GROUND EMESIS

Mr. Dorsey, 70, takes ibuprofen and apixaban. He vomits 400 mL of coffee grounds. HR 118 (was 78), BP 104/86, BUN 48, creatinine 1.2, Hgb 11.8.

STEP 1 · READ THE VITALS

HR rose 40 points while the BP is still in the 100s, and the pulse pressure is narrow (18): he is compensating.

STEP 2 · READ THE LABS

BUN:creatinine = 48 ÷ 1.2 = **40**, above 20:1: upper source. The Hgb of 11.8 lies early.

STEP 3 · ACT IN ORDER

Side-lying or upright with suction, oxygen, two 18 gauge IVs, isotonic fluid, type and cross, NPO, monitor.

STEP 4 · URINE GOAL

At 80 kg: 0.5 x 80 = **40 mL/hr**.

STEP 5 · CALL

SBAR, requesting IV pantoprazole, transfusion parameters, apixaban reversal (four-factor PCC, not vitamin K) and urgent endoscopy.

WORKED CASE 2 · APPENDICITIS THAT SUDDENLY FEELS BETTER

Ms. Pena, 22, has right lower quadrant pain, WBC 15,000 and a low fever. While awaiting surgery she says the pain is suddenly gone.

STEP 1 · RECOGNIZE

Sudden relief can mean the appendix ruptured and released the pressure.

STEP 2 · ASSESS

Vital signs, abdomen for rigidity and rebound, temperature.

STEP 3 · ACT

Keep her NPO, no heat, no laxatives or enemas, and notify the surgeon now.

WHY IT MATTERS

A brief calm is followed by peritonitis: diffuse pain, rigidity, fever and tachycardia.

WORKED CASE 3 · A DUSKY STOMA ON DAY ONE

Mr. Webb has a new sigmoid colostomy. On day one the stoma is dark purple and dry.

STEP 1 · COMPARE

Normal is pink to beefy red, moist and slightly raised with mild edema.

STEP 2 · INTERPRET

Dark purple means poor blood flow: ischemia.

STEP 3 · ACT

Report to the surgeon immediately with SBAR.

TEACHING LATER

Cut the barrier no more than 1/8 inch (about 3 mm) larger than the stoma and empty the pouch at one third to one half full.

WORKED CASE 4 · A TUBE FEED WITH A HIGH RESIDUAL

Mrs. Sun, on continuous feeds, has a residual of 520 mL, a distended abdomen and nausea. Tube length at the nostril is unchanged.

STEP 1 · PLACEMENT

Marked length unchanged; aspirate pH should be 5.5 or less for gastric placement.

STEP 2 · RESIDUAL RULE

A single high value alone is not a reason to stop, but over 500 mL with distention and nausea is.

STEP 3 · ACT

Hold the feeding, keep the head of bed 30 to 45 degrees, and notify.

SAFETY

Aspiration is the main risk. Never use an air bolus to confirm placement.

TRAPS PEOPLE FALL INTO

- **Palpating before listening.** Touch changes what you hear.
- **Trusting an early normal hemoglobin.** Whole blood is lost; the ratio has not changed yet.
- **Giving vitamin K for an apixaban bleed.** Vitamin K does nothing for Xa inhibitors; four-factor PCC is the usual choice now that andexanet alfa has been withdrawn.
- **Teaching extra pillows for reflux.** Blocks under the head of the bed; pillows bend the trunk.
- **Mixing up reflux and dumping teaching.** Upright after meals for reflux; lie down after meals for dumping.
- **Heat or an enema for suspected appendicitis.** Both speed rupture.
- **Colonoscopy during acute diverticulitis.** It can turn a contained perforation into a free one.
- **Confirming a new tube by air bolus.** Only an x-ray confirms a new blind feeding tube.

Chapter 11 self-test · ten items

1. In what order is the abdomen assessed?

A. Inspect, palpate, percuss, auscultate
B. Palpate, inspect, auscultate, percuss
C. Auscultate, inspect, palpate, percuss
D. Inspect, auscultate, percuss, palpate

D. Inspect, auscultate, percuss, palpate Listening comes before touch.

2. Which finding suggests an upper GI bleed?

A. Black, tarry, foul stool
B. Bright red stool alone
C. Maroon clots per rectum
D. Blood on the toilet paper

A. Black, tarry, foul stool Melena comes from blood digested in the upper tract.

3. A patient is vomiting blood. What comes first?

A. Insert a nasogastric tube
B. Send a CBC to the lab
C. Position to protect the airway
D. Start an IV iron infusion right away

C. Position to protect the airway Airway first, then circulation and access.

4. Which ulcer pain pattern fits a duodenal ulcer?

A. Pain right after eating
B. Pain at 2 a.m., relieved by food
C. Pain with weight loss and anorexia
D. Pain worsened by food

B. Pain at 2 a.m., relieved by food Duodenal pain comes 2 to 3 hours after meals and at night.

5. What should a patient on bismuth quadruple therapy be told?

A. Stop when the pain is gone
B. Alcohol is fine in small moderation each day
C. Take it for three days
D. Black stool from bismuth is expected

D. Black stool from bismuth is expected Finish all 14 days; no alcohol with metronidazole.

6. Which teaching prevents dumping syndrome?

A. Large meals with sweet drinks
B. Sit upright for 2 hours after all meals
C. Fluids between meals, not with them
D. A high simple-sugar diet

C. Fluids between meals, not with them Small, high-protein meals, low sugar, fluids between meals, lie down after.

7. Which describes ulcerative colitis?

A. Skip lesions from the mouth to anus
B. Continuous from the rectum, bloody
C. Transmural with fistulas
D. Terminal ileum with a mass

B. Continuous from the rectum, bloody UC is continuous mucosal disease starting at the rectum.

8. A patient with severe UC has fewer stools, a distended tympanic abdomen and HR 128. What is suspected?

A. Toxic megacolon
B. Improving colitis
C. Simple constipation
D. Paralytic ileus only

A. Toxic megacolon Fewer stools with distention and tachycardia is an emergency.

9. Which stoma finding must be reported at once?

A. Pink, moist stoma
B. Dark purple, dry stoma
C. Mild edema on day two
D. Small ooze when cleaned

B. Dark purple, dry stoma Dusky or dark means ischemia.

10. How is a new blindly placed feeding tube confirmed before first use?

A. Air bolus with stethoscope
B. Asking the patient to hum
C. Chest or abdominal x-ray
D. Checking for bubbles in water

C. Chest or abdominal x-ray Radiographic confirmation is required.

CHAPTER 12

Hepatobiliary and Pancreatic Disorders

Read it in full: **Chapter 12 in the textbook**. Practice it in the lab: **Liver Panel Decoder: Damage or Function** and **Pancreatitis Watch: When Do You Escalate**.

What to know

The liver **synthesizes** albumin and clotting factors, **metabolizes** ammonia, glucose and drugs, **excretes** bilirubin and **stores** glycogen and vitamins A, D, E and K. Lose each and you get edema and ascites with a rising INR, confusion and long-acting sedatives, jaundice, and worse bleeding. Look for jaundice in the sclerae, palate and palms in darker skin; check for asterixis.

Jaundice shows above about 2 to 3 mg/dL (normal 0.3 to 1.2). Prehepatic (hemolysis) raises indirect bilirubin; intrahepatic raises both; **obstructive** jaundice gives the triad of yellow skin,

dark urine and pale clay stool. Cholestatic itch comes from bile salts; cholestyramine and cool baths help more than antihistamines.

Split the panel. **Damage**: ALT (7 to 56) and AST (10 to 40) for hepatocytes, AST:ALT above 2:1 suggests alcohol; ALP (30 to 120) and GGT for the bile ducts. **Function**: albumin (3.5 to 5.0, weeks), INR (0.8 to 1.1, hours to days) and bilirubin. Falling enzymes with a rising INR means a dying liver. After liver biopsy, lie on the right side for two hours and watch for bleeding and pneumothorax. MELD includes creatinine, so protect the kidneys.

Hepatitis A and E are **fecal-oral** and do not become chronic (E is dangerous in pregnancy). B, C and D are **blood-borne** and can become chronic; D needs B. Hepatitis B: HBsAg means infected; anti-HBs means immune; anti-HBc means real exposure (IgM recent). Vaccination gives anti-HBs alone. After a needlestick, wash, report, and a non-immune worker gets HBIG plus vaccine within 24 hours; there is no PEP for hepatitis C, but antivirals cure over 95%.

Acetaminophen is the leading cause of acute liver failure. Maximum 4 g a day, 2 g or less with liver disease, malnutrition or regular alcohol; count every combination product. N-acetylcysteine works best within 8 hours (load 150 mg/kg per protocol). In acute liver failure, protect the airway, check glucose often, raise the head 30 degrees with the neck midline, avoid sedatives and call for transplant evaluation early.

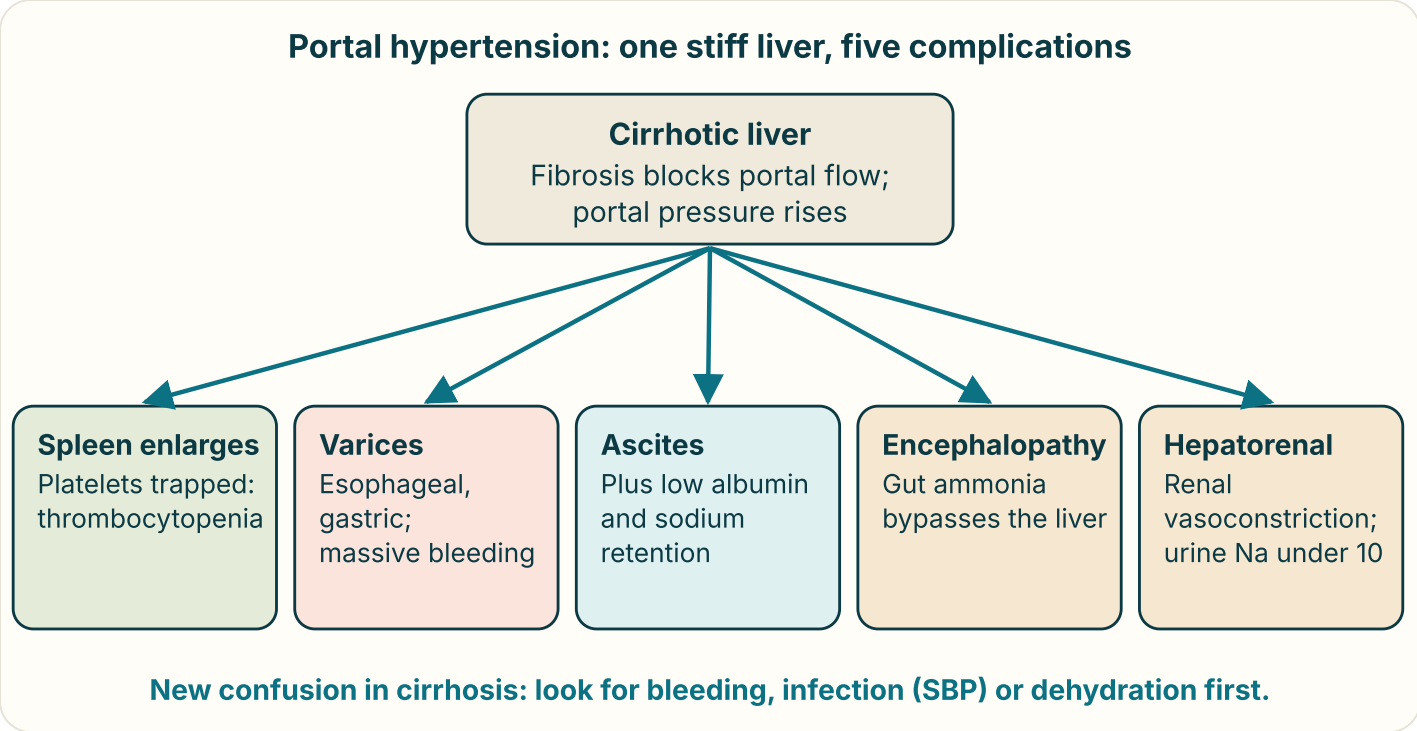
In **cirrhosis**, portal pressure causes thrombocytopenia (spleen), varices, ascites, encephalopathy and hepatorenal syndrome. Baseline BP may run in the 90s; follow the trend. **Ascites**: sodium 2,000 mg a day, spironolactone with furosemide (100:40), lose about 0.5 kg a day (1 kg with edema). Paracentesis: void first, weigh and measure girth, albumin 6 to 8 g per liter if over 5 L removed. **SBP** may show only confusion or rising creatinine; ascitic PMN of 250 or more; cefotaxime or ceftriaxone plus albumin.

A **ruptured varix** is an airway emergency first: suction, often intubation, then two large IVs, restrictive transfusion (Hgb about 7), octreotide 50 mcg bolus then 50 mcg/hr, ceftriaxone and banding within 12 hours. Prevent with a nonselective beta blocker (propranolol, nadolol, carvedilol) to HR 55 to 60; avoid NSAIDs and straining. **Encephalopathy**: lactulose to 2 to 3 soft stools a day plus rifaximin; do not restrict protein (1.2 to 1.5 g/kg). First look for bleeding,

infection or dehydration. **Hepatorenal syndrome**: rising creatinine, urine sodium under 10; avoid NSAIDs and contrast.

Biliary colic is episodic RUQ pain after fatty meals with no fever. **Cholecystitis** is constant pain, fever, WBC 12,000 to 20,000 and a positive Murphy sign. **Charcot triad** (fever with rigors, jaundice, RUQ pain) is cholangitis; add hypotension and confusion for Reynolds pentad (septic shock) and urgent ERCP. Older adults may show only confusion. After laparoscopic cholecystectomy, shoulder pain from CO_2 is expected; fever and rising pain are not. T-tube: bag below the gallbladder, 300 to 500 mL the first day. After ERCP, NPO until the gag returns; watch for pancreatitis.

In **acute pancreatitis**, enzymes activate inside the gland and digest it. Causes: gallstones and alcohol (also triglycerides over 1,000). Boring epigastric pain to the back, eased by leaning forward; third spacing and shock; low calcium (Chvostek, Trousseau). Diagnosis needs two of: typical pain, lipase or amylase 3 times normal or more, imaging; the enzyme level does not show severity. Give goal-directed lactated Ringer’s (about 5 to 10 mL/kg/hr) to urine output of at least 0.5 mL/kg/hr, strong analgesia, and early feeding. Watch for ARDS. In chronic pancreatitis, give enzymes with every meal and snack, swallowed whole; the stool is the outcome measure. Painless jaundice with weight loss suggests pancreatic head cancer.



Trace the pressure. Every major complication of cirrhosis follows blood that cannot get through the liver.

LOCK THESE IN

- Damage: ALT, AST, ALP, GGT. Function: albumin, INR, bilirubin.
- Obstructive jaundice: yellow skin, dark urine, clay stool.
- HBsAg infected; anti-HBs immune; anti-HBc exposed. Vaccine gives anti-HBs only.
- Acetaminophen max 4 g; 2 g or less with liver disease. NAC within 8 h.
- Ascites: Na 2,000 mg; spironolactone:furosemide 100:40; albumin if over 5 L tapped.
- Varices: airway, IVs, octreotide, ceftriaxone, banding; nonselective beta blocker to prevent.
- Lactulose to 2 to 3 soft stools; do not restrict protein.
- Pancreatitis: lipase 3 x normal; LR to urine 0.5 mL/kg/h; watch ARDS and calcium.

Liver panel

Test	Range	Meaning
ALT	7 to 56 U/L	Hepatocyte injury; most liver specific
AST	10 to 40 U/L	Also heart and muscle; AST:ALT over 2:1 suggests alcohol
ALP / GGT	30 to 120 / 8 to 60 U/L	Both up: biliary; ALP alone: bone
Total bilirubin	0.3 to 1.2 mg/dL	Jaundice visible over 2 to 3
Albumin	3.5 to 5.0 g/dL	Synthesis over weeks
INR / PT	0.8 to 1.1 / 11 to 12.5 s	Fastest marker of decline
Ammonia	15 to 45 mcg/dL	Correlates poorly with mental status

Hepatitis A to E

Virus	Route	Chronic?	Prevention
A	Fecal-oral	No	Two-dose vaccine; hand hygiene
B	Blood, sexual, perinatal	Yes (5% adults, up to 90% infants)	Vaccine; HBIG plus vaccine after exposure
C	Blood	Yes (about 75%)	No vaccine; antivirals cure over 95%
D	Blood; needs B	Yes	Hepatitis B vaccine
E	Fecal-oral, water	Rarely	Safe water; high mortality in pregnancy

Biliary conditions

Condition	Pain	Fever / WBC	Urgency
Biliary colic	Episodic after fatty meal	None / normal	Elective
Cholecystitis	Constant RUQ, Murphy sign	Yes / 12,000 to 20,000	Same-admission surgery
Choledocholithiasis	RUQ with jaundice	Variable	ERCP
Cholangitis	RUQ with rigors	High / marked	Emergency: sepsis
Gallstone pancreatitis	Epigastric to back	Present	Emergency

Worked cases

WORKED CASE 1 · A PARACENTESIS AND THE ALBUMIN DOSE

Mr. Cole, cirrhosis, has 6 L of ascites drained.

STEP 1 · BEFORE

Have him void, sit him upright, weigh him and measure girth at the marked line.

STEP 2 · ALBUMIN RULE

More than 5 L removed: 6 to 8 g of albumin per liter.

STEP 3 · COMPUTE

6 x 6 = 36 g to 6 x 8 = **48 g** of IV albumin.

STEP 4 · AFTER

Watch blood pressure, recheck weight and girth, and inspect the site.

WORKED CASE 2 · SBP THAT SHOWS UP AS CONFUSION

Mrs. Ruiz, 70 kg, has cirrhotic ascites. She is newly confused, afebrile, and her creatinine has risen. Ascitic PMN count is 310.

STEP 1 · ASK THREE QUESTIONS

Is she bleeding, infected or dry? Here the ascitic PMN of 310 (250 or more) answers it: SBP.

STEP 2 · ANTIBIOTIC

Cefotaxime or ceftriaxone as ordered.

STEP 3 · ALBUMIN

1.5 g/kg on day 1 = **105 g**; 1 g/kg on day 3 = **70 g**.

WHY ALBUMIN

It protects the kidneys from hepatorenal syndrome.

WORKED CASE 3 · COUNTING HIDDEN ACETAMINOPHEN

Mr. Hart, 60 kg, drinks daily. In 24 hours he took acetaminophen 650 mg four times, hydrocodone/acetaminophen 5/325 two tablets four times, and two 500 mg tablets of a cold remedy.

STEP 1 · ADD

650 x 4 = 2,600. 325 x 2 x 4 = 2,600. 500 x 2 = 1,000. Total = **6,200 mg**.

STEP 2 · COMPARE

Over the 4 g limit, and far over the 2 g limit for regular alcohol use.

STEP 3 · ANTIDOTE

Report now; NAC loading at 150 mg/kg x 60 kg = **9,000 mg** per protocol.

TEACH

Read labels for acetaminophen in every product.

WORKED CASE 4 · THE FIRST HOURS OF PANCREATITIS

Ms. Grant, 70 kg, has gallstone pancreatitis: lipase 1,900 (normal up to 160), HR 118, BP 98/60, RR 22.

STEP 1 · CONFIRM

3 x 160 = 480. Her lipase is well above that, plus typical pain: diagnosis made. The number does not show severity.

STEP 2 · FLUIDS

Lactated Ringer's at 5 to 10 mL/kg/hr = **350 to 700 mL/hr**, titrated to urine output of at least 35 mL/hr (0.5 x 70).

STEP 3 · WATCH

Respiratory rate and saturation for ARDS; Chvostek and Trousseau for low calcium.

STEP 4 · COMFORT AND FEEDING

Opioid analgesia, side-lying with knees flexed, early oral or enteral feeding.

TRAPS PEOPLE FALL INTO

- **Reading falling enzymes as recovery.** A rising INR with falling enzymes means the liver is running out of cells.
- **Restricting protein in encephalopathy.** These patients need 1.2 to 1.5 g/kg.
- **Reaching for lactulose first.** Look for bleeding, infection and dehydration first.
- **Hanging octreotide before the airway.** A vomiting, confused patient will aspirate.
- **Using metoprolol for variceal prevention.** Only nonselective beta blockers lower portal pressure.
- **Waiting for fever in an older adult with cholangitis.** Confusion may be the only sign.
- **Judging pancreatitis severity by lipase.** Severity is organ failure and necrosis.
- **Crushing pancreatic enzymes or giving them after meals.** Swallow whole, with food.

Chapter 12 self-test · ten items

1. Which lab best shows liver function over hours to days?

A. ALT
B. ALP
C. INR
D. GGT

C. INR INR reflects clotting factor synthesis quickly; enzymes show damage.

2. Yellow skin, dark urine and clay-colored stool suggest what?

A. Hemolysis
B. Bile duct obstruction
C. Early hepatitis A only
D. Normal finding

B. Bile duct obstruction Conjugated bilirubin backs up into blood and urine and none reaches the bowel.

3. A nurse has anti-HBs positive and anti-HBc negative. What does this mean?

A. Immune from vaccine
B. Chronic infection
C. Acute infection
D. Not immune

A. Immune from vaccine Vaccination gives surface antibody only.

4. Which hepatitis is fecal-oral and never chronic in healthy hosts?

A. Hepatitis B
B. Hepatitis C
C. Hepatitis D
D. Hepatitis A

D. Hepatitis A A and E spread by the fecal-oral route.

5. When does N-acetylcysteine work best?

A. Within 8 hours
B. After 72 hours
C. Only after liver failure
D. Only orally at 48 hours

A. Within 8 hours It replenishes glutathione before injury spreads.

6. How is lactulose titrated?

A. One formed stool daily
B. Until no stool at all
C. 8 to 10 stools daily
D. 2 to 3 soft stools daily

D. 2 to 3 soft stools daily Too few leaves ammonia; too many dehydrates.

7. Which drug lowers portal pressure to prevent variceal bleeding?

A. Metoprolol
B. Propranolol
C. Atenolol
D. Amlodipine

B. Propranolol Nonselective beta blockers work; cardioselective ones do not.

8. Fever with rigors, jaundice and RUQ pain is what?

A. Murphy sign
B. Cullen sign
C. Charcot triad
D. Courvoisier sign

C. Charcot triad Charcot triad means cholangitis.

9. After laparoscopic cholecystectomy, a patient has right shoulder pain and normal vitals. Why?

A. A definite bile duct leak
B. Retained CO_2 under the diaphragm
C. An acute myocardial infarction
D. Post-procedure pancreatitis

B. Retained CO_2 under the diaphragm It is expected and eases with walking; fever or rising pain is not.

10. How are pancreatic enzymes taken?

A. One hour before meals with water
B. At bedtime only
C. With every meal and snack
D. Crushed in milk

C. With every meal and snack They must mix with food; swallow whole or sprinkle on applesauce.

ONE PAGE

Cram sheet

Everything from chapters 11 and 12 in one place. Cover the right column and see if you can rebuild each row.

Numbers to know

Item	Value	Note
Bowel sounds	5 to 30 per minute	Listen 5 min per quadrant before absent
Upper bleed ratio	BUN:creatinine over 20:1 (often over 30:1)	Digested blood absorbed as protein
Transfusion	Hgb under 7; under 8 with coronary disease	One unit raises about 1 g/dL
Urine output	At least 0.5 mL/kg/hr	About 30 mL/hr
Reflux	Head of bed up 6 to 8 in on blocks	No food 3 h before lying down
H. pylori therapy	14 days bismuth quadruple	Hold PPI 2 weeks before testing
Dumping	Early 15 to 30 min; late 1.5 to 3 h	Late is hypoglycemia
Appendicitis WBC	10,000 to 18,000; over 20,000 suggests perforation	McBurney point
Fiber	25 to 35 g a day	After diverticulitis recovers
Colorectal screening	Start at 45; colonoscopy every 10 y or FIT yearly	Positive test needs colonoscopy
Stoma	Barrier 1/8 in larger; empty at 1/3 to 1/2 full	Ileostomy 500 to 1,000 mL/day early
Feeding tube	pH 5.5 or less gastric; HOB 30 to 45°; 30 mL flushes	Residual over 500 with symptoms: hold
Liver panel	ALT 7 to 56; AST 10 to 40; ALP 30 to 120; bili 0.3 to 1.2	Albumin 3.5 to 5.0; INR 0.8 to 1.1
Acetaminophen	4 g max; 2 g or less with liver disease or alcohol	NAC best within 8 h
Ascites	Na 2,000 mg; lose 0.5 kg/day (1 kg with edema)	Albumin 6 to 8 g/L if over 5 L tapped
SBP	Ascitic PMN 250 or more	Albumin 1.5 g/kg day 1, 1 g/kg day 3

Item	Value	Note
Varices	Octreotide 50 mcg then 50 mcg/hr; band within 12 h	Beta blocker to HR 55 to 60
Pancreatitis	Lipase 3 x normal; LR 5 to 10 mL/kg/hr	Triglycerides over 1,000 can cause it

Key terms and comparisons

Term	Meaning
Visceral vs parietal pain	Dull, midline, hollow organ stretch; sharp, focal, peritoneum
Melena vs hematochezia	Black tarry upper bleed; bright red or maroon lower bleed
Duodenal vs gastric ulcer	Food helps, night pain; food worsens, biopsy for cancer
Ileus vs obstruction	No movement, absent sounds; blockage, high-pitched sounds early
Damage vs function tests	ALT, AST, ALP, GGT; albumin, INR, bilirubin
Colic vs cholecystitis vs cholangitis	Episodic; constant with fever and Murphy; fever, jaundice, rigors
Early vs late dumping	Osmotic fluid shift 15 to 30 min after eating; hypoglycemia 1.5 to 3 h after

Rules that are not equations

Topic	The rule
GI bleed	Airway, oxygen, two large IVs, fluids, type and cross, NPO, then call.
Perforation	NPO, keep still, vitals, call the surgeon.
Appendicitis	NPO, no heat, no enemas; sudden relief is a red flag.
Toxic megacolon	Stop antidiarrheals and opioids, NPO, call.
Varix bleed	Airway first, then volume, octreotide, ceftriaxone, banding.
Cirrhosis confusion	Bleeding, infection, dehydration, constipation before blaming protein.
Cholangitis	Charcot triad; cultures, antibiotics, fluids, ERCP.
Delegation	UAP empties and measures pouches and drains; RN assesses stoma, abdomen and tube placement.

Dr. Garg Learning · CC BY-SA 4.0