

Surgery Past Papers Compilation

GI / Gastrointestinal Surgery

Compiled from JUH Exam, Surgery 2 (2019), Surgery 2 (2018),

Surgery 1 (2022), Surgery 1 (2021), Surgery 1 (2020)

—— Color Key ——

Answer in green *Reviewer notes* in orange italic

GI / Gastrointestinal Surgery

JUH Exam

1. Esophageal cancer definitive diagnosis modality

- Esophagogastroduodenoscopy (EGD) with biopsy
- Endoscopic ultrasound

Answer: Esophagogastroduodenoscopy (EGD) with biopsy

Explanation: EGD with biopsy is the definitive diagnostic modality for esophageal cancer — it allows direct visualization of the lesion and tissue sampling for histopathology. EUS is then used for local T and N staging once the diagnosis is established, but it cannot establish the diagnosis itself.

2. Child with abdominal distention and bilious vomiting, all of the following are true except

- Hirschsprung disease
- Duodenal atresia
- Rectoperineal fistula
- Meconium ileus
- Meconium plug

Answer: Rectoperineal fistula

Explanation: A rectoperineal fistula is a form of low-type imperforate anus where meconium passes through an abnormal opening; it usually does NOT present with bilious vomiting because the distal bowel still decompresses. All the other options cause complete distal obstruction with bilious vomiting and distention.

***Reviewer note:** Some sources list duodenal atresia here because the obstruction is so proximal that distention is minimal. However, rectoperineal fistula is the better answer because it is a low lesion that often passes meconium and presents without bilious vomiting.*

3. 30-year-old male presents with a reducible groin mass that is intermittently painful and increases in size with Valsalva

- Indirect inguinal hernia
- Direct inguinal hernia
- Femoral hernia
- Umbilical hernia
- Incisional hernia

Answer: Indirect inguinal hernia

Explanation: Indirect inguinal hernia is the most common type in young males, arising through a patent processus vaginalis at the deep inguinal ring (lateral to inferior epigastric vessels). It is typically reducible, enlarges with Valsalva, and may be intermittently painful. Direct hernias are more common in older men with weakened posterior wall.

4. Elderly man with painless jaundice, dilated CBD and dilated pancreatic duct. Most likely diagnosis?

- Pancreatic head adenocarcinoma
- Choledocholithiasis
- Cholangiocarcinoma

Answer: Pancreatic head adenocarcinoma

Explanation: The combination of painless obstructive jaundice with the 'double duct sign' (simultaneously dilated CBD and pancreatic duct) in an elderly patient is highly specific for pancreatic head adenocarcinoma obstructing both ducts at the ampulla. Courvoisier's sign (palpable nontender gallbladder) is often present.

5. Not a risk factor for gallbladder cancer

- Multiple small stones
- Gallbladder polyp larger than 1 cm
- Choledochal cysts
- PSC
- Porcelain gallbladder

Answer: Multiple small stones

Explanation: Risk factors for gallbladder cancer relate to chronic inflammation and include large solitary stones (>3 cm), porcelain gallbladder, polyps >1 cm, PSC, choledochal cysts, and chronic typhoid carriage. Stone NUMBER is not a risk factor — stone SIZE is what matters.

6. Elderly patient with long history of constipation presents with abdominal pain and distension. X-ray shows dilated colon >6 cm with preserved haustra. Most likely diagnosis?

- Ogilvie syndrome (colonic pseudo-obstruction)
- Sigmoid volvulus
- Small bowel obstruction

Answer: Ogilvie syndrome (colonic pseudo-obstruction)

Explanation: Ogilvie syndrome is acute colonic pseudo-obstruction without a mechanical cause, typically in elderly, post-operative, or critically ill patients. Preserved haustra distinguish it from sigmoid volvulus (which classically shows the 'coffee bean' sign with loss of haustra). Treatment includes neostigmine and colonoscopic decompression.

7. RTA. Patient is stable with seatbelt sign and elevated amylase. Best next step?

- FAST exam only
- CT with contrast
- Peritoneal lavage

Answer: CT with contrast

Explanation: In a hemodynamically stable trauma patient with seatbelt sign (raising concern for hollow viscus, mesenteric, or pancreatic injury) and elevated amylase, contrast-enhanced CT is the best next step. FAST is for unstable patients; peritoneal lavage is rarely used now.

8. Female with history of AFib came with severe abdominal pain, tenderness out of proportion to exam. Best imaging study

- CT angiography of mesenteric arteries
- Abdominal ultrasound

Answer: CT angiography of mesenteric arteries

Explanation: Pain out of proportion to physical findings in a patient with atrial fibrillation strongly suggests acute mesenteric ischemia (typically embolic to the SMA). CT angiography is the imaging modality of choice and should be obtained urgently — delay leads to bowel necrosis and high mortality.

9. Patient diagnosed with acute diverticulitis and an abscess was identified. What to do?

- IV antibiotics with percutaneous drainage of the abscess if feasible
- Hartmann procedure
- Colectomy

Answer: IV antibiotics with percutaneous drainage of the abscess if feasible

Explanation: Hinchey stage II diverticulitis (pericolic or distant abscess) is managed with IV antibiotics plus percutaneous drainage for abscesses >3-4 cm. Surgery (Hartmann procedure) is reserved for failure of conservative management, perforation with generalized peritonitis (Hinchey III/IV), or recurrent attacks.

10. Female with Charcot's triad, US shows no gallstones, dilated CBD

- HIDA scan
- ERCP
- Dynamic Ultrasound

Answer: ERCP

Explanation: Charcot's triad (fever, jaundice, RUQ pain) indicates ascending cholangitis. With a dilated CBD, ERCP is both diagnostic and therapeutic — allowing stone extraction, sphincterotomy, or stent placement to relieve obstruction. Antibiotics and resuscitation precede the procedure.

11. Patient with painful minimal rectal bleeding for 2 months with constipation, minimal bright fresh blood on toilet paper, and persistent perianal swelling

- Anal fissure
- Perianal abscess
- Hemorrhoids
- Fistula

Answer: Anal fissure

Explanation: Anal fissure classically presents with severe sharp pain on defecation (often described as 'passing glass'), minimal bright red blood on the toilet paper, and a sentinel skin tag (the 'persistent perianal swelling'). The pain-bleeding-skin tag triad with constipation is the hallmark.

Reviewer note: JUH key may list hemorrhoids; per textbook (Schwartz, Sabiston), the painful component plus the persistent perianal swelling (sentinel pile) most closely fits anal fissure. Hemorrhoids are usually painless.

12. Doesn't need prophylactic antibiotic

- Thyroidectomy
- Inguinal hernia repair with MESH
- Cholecystectomy
- Open heart surgery

Answer: Thyroidectomy

Explanation: Thyroidectomy is a clean surgery without entry into a colonized cavity or prosthetic implantation — antibiotic prophylaxis is NOT indicated. Mesh hernia repair (foreign body), cholecystectomy (biliary contamination risk), and cardiac surgery (high consequences of infection) all require prophylaxis.

13. Patient with suspected cholecystitis with equivocal US, next step?

- Elective surgery
- HIDA scan
- ERCP
- Dynamic ultrasound

Answer: HIDA scan

Explanation: When ultrasound findings are equivocal for acute cholecystitis, HIDA (cholescintigraphy) is the next step. Non-visualization of the gallbladder at 1 hour after radiotracer injection confirms cystic duct obstruction (acute cholecystitis) with very high sensitivity and specificity (~95%).

Surgery 2 (2019)

14. Pancreatic cancer most likely to be invasive

- IPMN-MD (Main-duct)
- IPMN-BD (Branch-duct)
- Serous cystadenoma
- Mucinous cystadenoma

Answer: IPMN-MD (Main-duct intraductal papillary mucinous neoplasm)

Explanation: Main-duct IPMN has the highest malignant potential among pancreatic cystic neoplasms (60-90% risk of invasive carcinoma at diagnosis). It is therefore an indication for resection regardless of size. Branch-duct IPMN has lower malignant risk and may be observed if small and without worrisome features.

15. Old patient with intestinal obstruction and calcification at the ileocecal valve seen on X-ray after decompression — best next step

- CT scan
- Colonoscopy
- Laparotomy

Answer: Colonoscopy

Explanation: After decompression of obstruction, calcification at the ileocecal valve raises suspicion for a cecal mass (cancer) or chronic granulomatous process. Colonoscopy allows direct visualization and biopsy. CT is also reasonable but colonoscopy is the answer per the source key.

Reviewer note: CT may also be acceptable as the initial workup. Answer per past paper key is colonoscopy — clarify with reference if needed.

16. Pancreatic cancer with rash

- Glucagonoma
- Insulinoma
- Gastrinoma
- VIPoma

Answer: Glucagonoma

Explanation: Glucagonoma is associated with the classic 4 D's: Dermatitis (necrolytic migratory erythema — the rash), Diabetes, DVT, and Depression. NME is a migrating erythematous rash with central blistering and crusting, often in flexural and perioral areas. Other islet cell tumors do not classically cause a rash.

17. Coffee bean sign on X-ray

- Sigmoidoscopy (for sigmoid volvulus)
- Laparotomy
- Barium enema

Answer: Sigmoidoscopy

Explanation: The 'coffee bean' or 'kidney bean' sign on plain abdominal X-ray indicates sigmoid volvulus — a massively dilated sigmoid loop pointing toward the RUQ. Initial management is flexible sigmoidoscopy with rectal tube decompression (successful in 70-90%), in the absence of peritonitis or signs of bowel ischemia.

18. Flat abdomen, no air on imaging

- Esophageal atresia with proximal fistula (without distal TEF)
- Duodenal atresia
- Pyloric stenosis

Answer: Esophageal atresia with proximal fistula (without distal TEF)

Explanation: Pure esophageal atresia (Type A) or EA with a proximal TEF only (Type B) produces a GASLESS abdomen because no air can pass into the distal GI tract. EA with a distal TEF (Type C, the most common, ~85%) shows air in the bowel because air enters via the fistula.

19. Esophageal foreign body presents with

- Respiratory symptoms
- Dysphagia only
- No symptoms

Answer: Respiratory symptoms

Explanation: Esophageal foreign bodies in children commonly present with RESPIRATORY symptoms (stridor, wheeze, cough, recurrent pneumonia) because the soft pediatric trachea is compressed anteriorly by the impacted esophageal object. This can mimic primary airway pathology and delay diagnosis.

20. Elderly with lower esophageal third — most common histology

- Adenocarcinoma
- Squamous cell carcinoma
- Small cell carcinoma

Answer: Adenocarcinoma

Explanation: Lower-third esophageal cancers are predominantly adenocarcinoma in Western populations, arising from Barrett's esophagus due to chronic GERD. Squamous cell carcinoma predominates in the upper and middle thirds and is associated with smoking, alcohol, and caustic injury.

21. Laxative that does not cause diarrhea

- Isphagula husk (psyllium)
- Senna
- Bisacodyl
- Lactulose

Answer: Isphagula husk (psyllium)

Explanation: Isphagula (psyllium) is a bulk-forming laxative that absorbs water and adds fiber to stool, increasing stool bulk without causing diarrhea. Stimulant laxatives (senna, bisacodyl) and osmotic laxatives (lactulose, PEG) cause loose stools and diarrhea.

22. Correct statement about UC

- 10% present with terminal ileal involvement (backwash ileitis)
- Skip lesions are characteristic
- Transmural inflammation

Answer: 10% present with terminal ileal involvement (backwash ileitis)

Explanation: About 10-20% of UC patients with pancolitis develop backwash ileitis — inflammation of the terminal ileum due to reflux of inflamed colonic contents through an incompetent ileocecal valve. UC is otherwise CONTINUOUS, mucosal/submucosal, and limited to the colon. Skip lesions and transmural inflammation are features of Crohn's.

23. Which does not cause strictures

- Ulcerative colitis
- Ischemic colitis
- Crohn's disease
- Diverticular disease
- Colon cancer

Answer: Ulcerative colitis

Explanation: UC rarely causes strictures because inflammation is limited to the mucosa and submucosa. Any stricture in UC is suspicious for malignancy and warrants biopsy. Crohn's (transmural fibrosis), ischemic colitis (healing with fibrosis), diverticular disease, and colon cancer all commonly cause strictures.

24. Which esophageal malignancy is operable/resectable

- Regional nodes (T1-3 N1 M0)
- Pericardium invasion
- Distant metastases

Answer: Regional nodes (T1-3 N1 M0)

Explanation: Esophageal cancer with regional nodal involvement is still potentially resectable, usually after neoadjuvant chemoradiation. Invasion of unresectable adjacent structures (aorta, trachea, vertebral body) or distant metastases (M1) makes the tumor unresectable. Pericardial invasion is generally considered unresectable.

25. Stage 1 cancer after cholecystectomy — management

- Follow up (T1a)
- Re-operation with hepatic resection
- Chemotherapy

Answer: Follow up (T1a)

Explanation: Incidental gallbladder cancer limited to the mucosa (T1a) found after simple cholecystectomy with negative margins is adequately treated by the cholecystectomy alone — only follow-up is needed. T1b (muscularis) or deeper invasion requires re-operation with hepatic resection (segments IVb/V) and portal lymphadenectomy.

26. RTA — splenic injury, what to do?

- Abdominal CT
- Abdominal US

Answer: Abdominal CT (in a stable patient)

Explanation: In a hemodynamically stable patient with suspected splenic injury, contrast-enhanced CT is the gold standard — it grades the injury (AAST grading) and guides management (non-operative vs angioembolization vs surgery). Unstable patients with positive FAST go directly to laparotomy.

27. Esophageal cancer T staging

- EUS
- CT
- MRI
- PET

Answer: EUS

Explanation: Endoscopic ultrasound is the most accurate modality for local T (depth of wall invasion) and regional N staging of esophageal cancer. CT and PET are used for M staging (distant metastases). Combined, EUS + CT + PET provide complete staging.

28. 8 hours post cholecystectomy: fever and abdominal pain

- Atelectasis
- Wound infection
- Bile leak
- DVT

Answer: Atelectasis

Explanation: Fever within the first 24 hours postoperatively is most commonly due to atelectasis — one of the '5 Ws' (Wind). Treatment is chest physiotherapy, incentive spirometry, and early ambulation. Wound infection typically appears at day 3-7, and bile leak at day 2-7.

29. Wrong statement about linitis plastica

- Commonly causes GI bleed
- Easily missed by endoscopy
- H. pylori is not a risk factor

Answer: Commonly causes GI bleed (wrong)

Explanation: Linitis plastica (diffuse infiltrative gastric cancer / signet-ring type) does NOT typically cause GI bleeding because the tumor infiltrates submucosally without ulcerating the mucosal surface. It presents with early satiety and weight loss. Because the mucosa appears normal, it is often missed on endoscopy unless deep biopsies are taken.

30. Achalasia diagnosis

- Manometry
- Barium swallow
- Endoscopy

Answer: Manometry

Explanation: Esophageal manometry is the gold standard for diagnosing achalasia, showing: (1) failure of LES relaxation with swallowing, (2) elevated LES resting pressure, and (3) aperistalsis in the esophageal body. Barium swallow shows the classic 'bird's beak' but is not definitive.

31. Wrong about Mirizzi syndrome

- Commonly presents with normal liver function (wrong)
- Caused by stone in cystic duct or gallbladder neck
- May cause obstructive jaundice

Answer: Commonly presents with normal liver function (wrong)

Explanation: Mirizzi syndrome (extrinsic compression of the common hepatic duct by an impacted gallbladder neck or cystic duct stone) typically presents with OBSTRUCTIVE JAUNDICE and ABNORMAL liver function (elevated bilirubin, ALP). Normal LFTs would argue against the diagnosis.

32. Cause of pyogenic liver abscess

- Biliary tract infection
- Hematogenous spread
- Direct extension

Answer: Biliary tract infection

Explanation: Ascending biliary tract infection (cholangitis from CBD obstruction) is the most common cause of pyogenic liver abscess in adults. Other causes include portal pyemia (appendicitis, diverticulitis), hematogenous (endocarditis), and direct extension. E. coli and Klebsiella are typical organisms.

33. Not to do in amebic liver abscess

- Surgical drainage as first line
- Metronidazole
- Aspiration in selected cases

Answer: Surgical drainage as first line

Explanation: Amebic liver abscess is treated MEDICALLY with metronidazole as first-line therapy — 90% respond to medical treatment alone. Aspiration is reserved for large (>5 cm), left-lobe, or rupture-threatening abscesses, or failure of medical therapy. Surgical drainage is rarely needed.

34. Cholestatic picture — best modality for diagnosis

- MRCP
- ERCP
- CT
- Ultrasound

Answer: MRCP

Explanation: MRCP (magnetic resonance cholangiopancreatography) is the best NON-INVASIVE diagnostic modality for cholestasis, providing excellent visualization of biliary anatomy, stones, strictures, and masses. ERCP is reserved for THERAPEUTIC intervention because it carries a 3-5% pancreatitis risk.

35. Wrong: Emphysematous cholecystitis medical management

- Conservative medical management is sufficient (wrong)
- Surgical intervention is required
- More common in diabetics

Answer: Conservative medical management is sufficient (wrong)

Explanation: Emphysematous cholecystitis is a surgical EMERGENCY due to high mortality (15-25%) and risk of perforation from gas-forming organisms (Clostridium, E. coli). Conservative management alone is inadequate — urgent cholecystectomy is required (or percutaneous cholecystostomy in very high-risk patients).

36. Hemorrhoids — true statement

- Form from dentate line to anorectal ring
- Always painful
- Always bleed

Answer: Form from dentate line to anorectal ring (internal hemorrhoids)

Explanation: Internal hemorrhoids arise from the superior hemorrhoidal cushions located ABOVE the dentate line, extending to the anorectal ring. They are covered by columnar epithelium (insensate). External hemorrhoids are below the dentate line, covered by squamous epithelium (somatic innervation, painful).

37. Early dumping syndrome

- Hyperosmolar load to small bowel
- Reactive hypoglycemia
- Vagal stimulation

Answer: Hyperosmolar load to small bowel

Explanation: Early dumping syndrome (15-30 minutes after meal) occurs after gastric surgery (Roux-en-Y, gastrectomy) due to rapid emptying of hyperosmolar gastric contents into the small bowel, causing fluid shifts into the bowel lumen with vasomotor symptoms (sweating, palpitations, diarrhea). LATE dumping (1-3 hours) is reactive hypoglycemia from rapid glucose absorption and insulin surge.

38. Complication of laparoscopic sleeve gastrectomy

- Reflux esophagitis (GERD)
- Dumping syndrome
- Internal hernia

Answer: Reflux esophagitis (GERD)

Explanation: GERD is a well-recognized complication of sleeve gastrectomy due to: (1) alteration of the angle of His, (2) increased intragastric pressure in the narrow tube, and (3) potential disruption of the LES. Internal hernia and dumping are complications of Roux-en-Y gastric bypass, not sleeve.

39. Not a complication of gastric sleeve

- Internal hernia
- Leak
- Stricture
- GERD

Answer: Internal hernia

Explanation: Internal hernia is a complication of Roux-en-Y gastric bypass (due to surgically created mesenteric defects — Petersen's space, mesojejunum, and mesocolic windows), NOT sleeve gastrectomy. Sleeve complications include staple-line leak (most feared), bleeding, stricture, and GERD.

40. Which is true: about 40% of femoral hernias present with

- Strangulation or incarceration
- Asymptomatic mass
- Reducible swelling

Answer: Strangulation or incarceration

Explanation: Femoral hernias have a narrow neck (femoral ring bounded by rigid structures — inguinal ligament, lacunar ligament, pubic ramus) which makes them prone to strangulation/incarceration (up to 40% at presentation). This is why ALL femoral hernias require surgical repair regardless of symptoms.

41. All factors benefit from early escharectomy except

- Less sepsis
- Less hospitalization
- Less blood transfusion
- Less joint contracture
- Less catabolism

Answer: Less blood transfusion (early escharectomy actually INCREASES blood loss)

Explanation: Early escharectomy (surgical excision of burn eschar within 3-5 days) reduces sepsis, hospital stay, contractures, and catabolism — but it INCREASES blood loss/transfusion requirements compared to delayed excision because of the highly vascular subeschar tissue.

Reviewer note: Question may also refer to escharotomy (a different procedure for release of pressure in circumferential burns). Clarify with original wording.

42. Laparoscopy: which is true

- Decreases urine output
- Increases CO

Answer: Decreases urine output

Explanation: Pneumoperitoneum during laparoscopy raises intra-abdominal pressure, which: (1) compresses the renal veins/parenchyma reducing renal blood flow and urine output, (2) decreases venous return and CO, and (3) increases SVR. Urine output normalizes after desufflation.

43. Trauma that causes the hemodynamic profile of gut perforation

- Low SVR
- High SVR
- Low CO

Answer: Low SVR

Explanation: Gut perforation causes distributive (septic) shock with LOW SVR due to massive vasodilation from inflammatory mediators (cytokines, NO). Early/warm phase has high CO; late/cold phase has low CO. This contrasts with hypovolemic and cardiogenic shock, which have HIGH SVR.

44. What not to do in a patient with diverticulitis

- Colonoscopy (in acute setting)
- IV antibiotics
- CT scan
- Bowel rest

Answer: Colonoscopy (in acute setting)

Explanation: Colonoscopy is CONTRAINDICATED in acute diverticulitis due to the risk of perforation through inflamed bowel. It should be performed 6-8 weeks after resolution of acute symptoms to rule out underlying malignancy that can mimic diverticulitis.

45. All cause massive lower GI bleeding except

- Colon cancer
- Meckel diverticulum
- IBD

Answer: Colon cancer

Explanation: Colon cancer typically causes CHRONIC occult bleeding (iron-deficiency anemia) or intermittent visible blood — NOT massive lower GI hemorrhage. Diverticulosis (#1 cause), angiodysplasia, Meckel's diverticulum (in children), and IBD can all cause massive lower GI bleeding.

46. Laparoscopic surgery effect on cerebral perfusion

- Increases SVR (and may decrease cerebral perfusion via raised ICP)
- Decreases SVR
- No change

Answer: Increases SVR (with raised ICP that may compromise cerebral perfusion pressure)

Explanation: Pneumoperitoneum raises SVR, intra-abdominal pressure, and intracranial pressure (CO₂ absorption causes vasodilation; raised intrathoracic pressure impairs cerebral venous drainage). The net effect can DECREASE cerebral perfusion pressure, especially in patients with intracranial pathology.

Reviewer note: Question wording is ambiguous. Laparoscopy generally INCREASES SVR and ICP, which may decrease cerebral perfusion.

Surgery 2 (2018)

47. A 55-year-old male undergoes EGD for epigastric pain and is found to have a gastric ulcer. Most appropriate next step?

- Start proton pump inhibitor therapy and follow up in 6 weeks
- Perform a biopsy of the ulcer margins
- Order a CT scan of the abdomen
- Prescribe antibiotics for H. pylori without testing
- Recommend surgical resection

Answer: Perform a biopsy of the ulcer margins

Explanation: All gastric ulcers must undergo multiple biopsies (at least 4-6 from the rim AND base) to exclude malignancy, because gastric ulcers have a much higher malignant potential than duodenal ulcers. PPI therapy and H. pylori testing follow after biopsy results are available.

48. Not required for the formation of cholesterol gallstones

- Supersaturation of bile with cholesterol
- Bile stasis
- E. coli infection
- Nucleation of cholesterol crystals
- Decreased gallbladder motility

Answer: E. coli infection

Explanation: Cholesterol stone formation requires the three components of Admirand's triangle: supersaturation, nucleation, and stasis (gallbladder hypomotility). Bacterial infection (E. coli, Klebsiella) is associated with BROWN PIGMENT stones, which form in the biliary tree due to bacterial deconjugation of bilirubin — not cholesterol stones.

49. True regarding Meckel's diverticulum

- Symptomatic in 50% of cases before the age of 2 years
- Most commonly located in the proximal jejunum
- Always lined by gastric mucosa
- Rarest congenital anomaly of the GI tract
- Typically presents with bilious vomiting

Answer: Symptomatic in 50% of cases before the age of 2 years

Explanation: Meckel's 'rule of 2s': 2% prevalence, 2:1 male-to-female ratio, located within 2 feet (60 cm) of the ileocecal valve, ~2 inches long, can contain 2 types of ectopic mucosa (gastric and pancreatic), and most symptomatic cases present before age 2. It is the MOST COMMON congenital GI anomaly, not the rarest.

50. Metabolic alkalosis from prolonged vomiting — main mechanism of compensation

- Hypoventilation leading to CO₂ retention
- HCO₃ excretion in urine
- Increased renal reabsorption of HCO₃
- Increased excretion of H⁺ in urine

Answer: Hypoventilation leading to CO₂ retention

Explanation: Acute respiratory compensation for metabolic alkalosis is hypoventilation, which retains CO₂ (raising H₂CO₃ and lowering pH back toward normal). This occurs within minutes. Renal compensation (HCO₃ excretion) is slower and takes hours to days.

51. 60-year-old with suspected pancreatic cancer — most appropriate imaging

- Ultrasound of the abdomen
- Thin-slice CT scan of the abdomen
- MRI with contrast
- Endoscopic ultrasound (EUS)
- PET scan

Answer: Thin-slice CT scan of the abdomen (pancreatic protocol)

Explanation: Pancreatic-protocol CT (thin-slice, multiphase contrast — arterial, portal venous, delayed) is the initial imaging of choice for diagnosis AND resectability assessment of pancreatic cancer. EUS is used for tissue sampling and assessing vascular invasion; MRI/MRCP for biliary anatomy.

52. Normal daily production of bilirubin in an adult

- 0.2-0.3 g/day
- 0.5-0.7 g/day
- 1.0-1.2 g/day
- 1.5-2.0 g/day
- 2.5-3.0 g/day

Answer: 0.2-0.3 g/day (approximately 250-300 mg/day)

Explanation: Normal adult bilirubin production is ~4 mg/kg/day, totaling 250-300 mg/day. Approximately 80% comes from breakdown of hemoglobin in senescent red blood cells; the rest from heme-containing proteins (myoglobin, cytochromes) and ineffective erythropoiesis.

53. 45-year-old male with urinary retention 2 days after hemorrhoidectomy — next step

- Administer alpha-blockers and monitor
- Urgent urology consultation
- Ensure proper analgesia
- Reassure and discharge

Answer: Ensure proper analgesia

Explanation: Postoperative urinary retention after anorectal surgery is commonly due to inadequate pain control (causing reflex sphincter spasm) and overhydration. Adequate analgesia and a single straight catheterization usually resolve the issue. Alpha-blockers or urology consultation are not first-line.

54. Patient with low SVR and high CO — most likely condition

- Cardiogenic shock
- Hypovolemic shock
- Cholangitis
- Pulmonary embolism
- Cardiac tamponade

Answer: Cholangitis (distributive/septic shock)

Explanation: Cholangitis causes septic shock with the distributive hemodynamic profile: LOW SVR (vasodilation from inflammatory mediators) and HIGH CO (compensatory). Cardiogenic, hypovolemic, and obstructive (PE, tamponade) shocks all have HIGH SVR and LOW CO.

55. Diagnostic yield of ultrasound for detecting stones in the lower CBD

- High, with excellent sensitivity and specificity
- Moderate, better for proximal than distal stones
- Poor, often obscured by bowel gas
- Excellent

Answer: Poor, often obscured by bowel gas

Explanation: Ultrasound has POOR sensitivity for distal CBD stones (~25-50%) because the duodenum overlies the distal CBD and bowel gas obscures the area. MRCP or EUS is preferred when choledocholithiasis is suspected but US is non-diagnostic.

56. 70-year-old female with RUQ pain, jaundice, and nausea for 4 days, history of gallstones. Bilirubin 5.0, ALP 380, normal lipase. CT: 3 cm gallstone impacted in gallbladder neck, intrahepatic biliary dilatation, compressed common hepatic duct, trace air in gallbladder fundus, normal distal CBD, no small bowel air-fluid levels. Most likely diagnosis?

- Gallstone ileus
- Mirizzi syndrome
- Acute cholecystitis with perforation
- Choledocholithiasis with cholangitis
- Biliary-enteric fistula without obstruction

Answer: Mirizzi syndrome

Explanation: The picture fits Mirizzi syndrome: an impacted stone in the gallbladder neck (Hartmann's pouch) extrinsically compresses the common hepatic duct, causing obstructive jaundice with INTRAHEPATIC dilatation and a NORMAL DISTAL CBD. The trace air may represent early cholecystocholedochal fistula formation (Csendes Type III/IV).

57. 65-year-old male with large painless rectal bleeding requiring transfusion — most likely cause

- Hemorrhoids
- Diverticulosis
- Angiodysplasia

- Ulcerative colitis
- Colon cancer

Answer: Diverticulosis

Explanation: Diverticulosis is the most common cause of massive painless lower GI bleeding in the elderly. The bleeding typically arises from a right-sided diverticulum where the vasa recta is exposed at the diverticular dome. Angiodysplasia is the second most common cause.

58. Where does the caudate hepatic lobe drain to

- Portal vein
- Inferior vena cava (IVC)
- Hepatic artery
- Common bile duct
- Falciform ligament

Answer: Inferior vena cava (IVC)

Explanation: The caudate lobe (segment I) drains directly into the IVC via small dorsal hepatic veins — INDEPENDENT of the three main hepatic veins (right, middle, left). This is why the caudate is spared and even hypertrophies in Budd-Chiari syndrome (which obstructs the main hepatic veins).

59. Condition on US associated with higher risk of liver cancer

- Primary biliary cholangitis (PBC)
- Hemangioma
- Simple cyst
- Focal nodular hyperplasia
- Fatty liver

Answer: Fatty liver (NAFLD/NASH)

Explanation: NAFLD/NASH (non-alcoholic fatty liver disease / steatohepatitis) can progress to cirrhosis and HCC and is the fastest-growing indication for liver transplantation. Hemangioma, simple cysts, and FNH have NO malignant potential.

Reviewer note: PBC can also progress to cirrhosis and HCC in advanced stages, so both fatty liver and PBC carry HCC risk. Answer per past paper key is fatty liver.

60. Most common location of an abdominal aortic aneurysm (AAA)

- Suprarenal
- Infrarenal
- At the aortic bifurcation
- Thoracoabdominal
- Proximal to the celiac trunk

Answer: Infrarenal

Explanation: Over 90% of AAAs are infrarenal. The infrarenal aorta has relative wall weakness due to decreased elastin content, fewer vasa vasorum, and higher wall tension (Laplace's law). Repair is indicated for AAA >5.5 cm, rapid growth (>0.5 cm/6 months), or symptoms.

61. 75-year-old diabetic with COPD presents with fever, RUQ pain, and mild jaundice. US shows gallbladder wall thickening and intramural gas (emphysematous cholecystitis). Best next step?

- Immediate open cholecystectomy
- Percutaneous cholecystostomy
- IV antibiotics alone
- Laparoscopic cholecystectomy

Answer: Percutaneous cholecystostomy

Explanation: In a high-risk patient (elderly, multiple comorbidities — diabetes, COPD) with emphysematous cholecystitis, PERCUTANEOUS CHOLECYSTOSTOMY is the safer initial option to control sepsis. Definitive cholecystectomy is performed later when the patient is stable. In low-risk patients, urgent cholecystectomy is preferred.

62. Most common cause of death in patients with acute pancreatitis

- Hypovolemic shock
- Respiratory failure
- Sepsis
- Renal failure
- Cardiac arrest

Answer: Respiratory failure (ARDS) early; sepsis from infected necrosis late

Explanation: Acute pancreatitis has a bimodal mortality pattern: EARLY deaths (first week) from SIRS/MODS, predominantly respiratory failure (ARDS). LATE deaths (after 1-2 weeks) from infected pancreatic necrosis and sepsis. The single most common cause per most references is respiratory failure.

63. True regarding unconjugated bilirubin

- Water-soluble and excreted in urine
- Tightly bound to albumin in the blood
- Conjugated in the kidneys
- Primary form excreted in bile
- Not affected by hemolysis

Answer: Tightly bound to albumin in the blood

Explanation: Unconjugated (indirect) bilirubin is LIPID-soluble and tightly bound to albumin for transport in the blood — it is NOT excreted in urine. It is conjugated in HEPATOCYTES (not kidneys) and the conjugated form is excreted in bile. Hemolysis dramatically raises unconjugated bilirubin.

64. Aberrant right hepatic artery most commonly arises from

- Celiac trunk
- Left gastric artery
- Superior mesenteric artery
- Inferior mesenteric artery
- Gastroduodenal artery

Answer: Superior mesenteric artery (SMA)

Explanation: The most common variant of hepatic arterial anatomy is a replaced or accessory right hepatic artery arising from the SMA (in 10-15% of the population). Surgeons must identify this during pancreaticoduodenectomy and other upper GI surgery to avoid injury — it runs in the posterolateral aspect of the porta hepatis.

65. Pyloric stenosis with prolonged vomiting — acid-base disturbance

- Hypochloremic, hyperkalemic metabolic alkalosis
- Hyperchloremic metabolic acidosis
- Hypochloremic, hypokalemic metabolic alkalosis
- Hypokalemic metabolic acidosis
- Normal acid-base status

Answer: Hypochloremic, hypokalemic metabolic alkalosis

Explanation: Prolonged vomiting from pyloric obstruction causes the classic triad: (1) loss of HCl from stomach → metabolic alkalosis and HYPOCHLOREMIA, (2) volume depletion activates aldosterone, which causes renal K⁺ wasting → HYPOKALEMIA, and (3) paradoxical aciduria as the kidney excretes H⁺ in exchange for Na⁺ to retain volume.

66. Most sensitive method for local T and N staging of gastric cancer

- CT scan
- PET scan
- Endoscopic ultrasound (EUS)
- MRI
- Laparoscopy

Answer: Endoscopic ultrasound (EUS)

Explanation: EUS provides the most accurate assessment of T stage (depth of invasion through the gastric wall layers) and regional N stage for gastric cancer. CT and PET are used for distant (M) staging. Diagnostic laparoscopy detects occult peritoneal disease before planned curative resection.

67. Incorrect regarding diagnosis of diverticular disease

- Colonoscopy is the gold standard for acute cases
- CT scan is preferred in acute settings
- Can present with lower GI bleeding
- Barium enema is avoided in acute inflammation
- Flexible sigmoidoscopy may be used in stable patients

Answer: Colonoscopy is the gold standard for acute cases (incorrect)

Explanation: Colonoscopy is CONTRAINDICATED in acute diverticulitis due to risk of perforation through inflamed bowel. CT scan is the modality of choice in the acute setting. Colonoscopy is performed 6-8 weeks AFTER resolution to rule out underlying malignancy.

68. True regarding GI atresias

- Jejunoileal atresia is less common than duodenal atresia
- Duodenal atresia is the second most common intestinal atresia
- Jejunoileal atresia is the second most common
- Colonic atresia is the most frequent

Answer: Duodenal atresia is the second most common intestinal atresia

Explanation: Frequency order: Jejunoileal atresia (most common) > Duodenal atresia (second) > Colonic atresia (rare). Duodenal atresia is associated with Down syndrome (~30%) and presents with bilious vomiting and the 'double bubble' sign.

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69. Medial to inferior epigastric artery — type of hernia

- Direct inguinal hernia
- Indirect inguinal hernia
- Femoral hernia

Answer: Direct inguinal hernia

Explanation: Direct inguinal hernias arise MEDIAL to the inferior epigastric vessels through Hesselbach's triangle (medial: rectus sheath, lateral: inferior epigastric vessels, inferior: inguinal ligament). Indirect hernias arise LATERAL to the inferior epigastric vessels at the deep inguinal ring.

70. Base of the mesentery — anatomical extent

- The duodenojejunal flexure to the ileocecal junction

Answer: The duodenojejunal flexure to the ileocecal junction

Explanation: The root (base) of the small bowel mesentery runs obliquely across the posterior abdominal wall from the duodenojejunal flexure (left of L2) to the ileocecal junction (right iliac fossa), measuring approximately 15 cm in length.

71. Embryonic origin of the greater omentum

- Dorsal mesentery
- Ventral mesentery

Answer: Dorsal mesentery (dorsal mesogastrium)

Explanation: The greater omentum develops from the DORSAL MESOGASTRIUM, which elongates during fetal life and folds down over the transverse colon. The lesser omentum (hepatogastric and hepatoduodenal ligaments) derives from the VENTRAL mesogastrium.

72. Posterior wall of the inguinal canal

- Transversalis fascia
- External oblique aponeurosis
- Conjoint tendon

Answer: Transversalis fascia (reinforced medially by the conjoint tendon)

Explanation: The posterior wall of the inguinal canal is formed by the transversalis fascia, reinforced medially by the conjoint tendon (combined aponeurosis of internal oblique and transversus abdominis). Weakness in this wall is the substrate for DIRECT inguinal hernia.

73. Free margin of the lesser omentum contains

- Portal triad
- Hepatic vein
- Gastroduodenal artery

Answer: Portal triad (portal vein, hepatic artery, common bile duct)

Explanation: The free edge of the lesser omentum is the HEPATODUODENAL LIGAMENT, which contains the portal triad: portal vein (posteriorly), proper hepatic artery (medially), and common bile duct (laterally). This is where the Pringle maneuver (clamping for hepatic inflow control) is applied.

74. Meckel's diverticulum — distance from cecum

- 60 cm
- 30 cm
- 100 cm

Answer: 60 cm (within 60-100 cm of the ileocecal valve)

Explanation: Meckel's diverticulum is typically located within 60-100 cm proximal to the ileocecal valve, on the ANTIMESENTERIC border of the ileum. It is a remnant of the omphalomesenteric (vitelline) duct.

75. Narrowest point of the esophagus

- Cricopharyngeus (UES)
- Aortic arch level
- LES

Answer: Cricopharyngeus (upper esophageal sphincter)

Explanation: The cricopharyngeus (UES) at the level of C6 is the narrowest point of the esophagus and the MOST COMMON site for foreign body impaction in children. The three classic narrowings are: (1) cricopharyngeus, (2) aortic arch / left main bronchus, and (3) diaphragmatic hiatus / LES.

76. Not associated with gastric cancer

- E. coli
- H. pylori
- Smoking
- Nitrosamines

Answer: E. coli

Explanation: H. pylori is the most established infectious risk factor for gastric adenocarcinoma. EBV is also implicated in a subset. E. coli is NOT associated with gastric cancer. Other risks: diet (nitrosamines, salt, smoked foods), smoking, atrophic gastritis, pernicious anemia, blood type A.

77. Continuous segment starting from the rectum

- Ulcerative colitis
- Crohn's disease
- Diverticulitis

Answer: Ulcerative colitis

Explanation: UC ALWAYS involves the rectum and extends proximally in a CONTINUOUS fashion, limited to the colon. Crohn's disease has SKIP LESIONS, can affect any part of the GI tract from mouth to anus, and spares the rectum in 50% of cases.

78. Most common cause of acute abdomen

- Appendicitis

- Cholecystitis
- Pancreatitis

Answer: Appendicitis

Explanation: Acute appendicitis is the most common cause of acute surgical abdomen worldwide, with a lifetime risk of approximately 7%. Peak incidence is in the second and third decades of life.

79. Epigastric pain radiating to the back

- Pancreatitis
- Peptic ulcer
- AAA

Answer: Pancreatitis

Explanation: Acute pancreatitis classically presents with severe constant epigastric pain radiating to the back, often partially relieved by leaning forward (the 'pancreatic posture'). The retroperitoneal location of the pancreas explains the back radiation. AAA rupture can also radiate to the back but typically with shock.

80. Diagnosis of acute diverticulitis

- CT scan
- Colonoscopy
- Ultrasound
- Barium enema

Answer: CT scan with IV contrast

Explanation: Contrast-enhanced CT of the abdomen and pelvis is the gold standard for diagnosing acute diverticulitis. It also detects complications (abscess, perforation, fistula, obstruction) and grades severity by the Hinchey classification.

81. Not associated with colon cancer

- Recurrent diverticulitis
- FAP
- Lynch syndrome
- Ulcerative colitis

Answer: Recurrent diverticulitis

Explanation: Diverticulitis (even recurrent) is NOT a risk factor for colon cancer. Established risks include FAP (100% lifetime risk if untreated), Lynch syndrome (HNPCC), IBD (especially long-standing UC), age >50, family history, red/processed meat, and obesity.

82. Prevalence of diverticulosis on autopsy

- 40%
- 20%
- 60%

Answer: 40% (in Western populations >60 years)

Explanation: Diverticulosis prevalence increases with age, reaching approximately 40-50% in Western populations over age 60. The vast majority of patients are asymptomatic — only about 10-25% will develop diverticulitis in their lifetime.

83. Not a risk factor for esophageal adenocarcinoma

- Caustic injury
- GERD
- Barrett's esophagus
- Obesity
- Smoking

Answer: Caustic injury

Explanation: Caustic injury is a risk factor for esophageal SQUAMOUS CELL carcinoma (along with smoking, alcohol, hot beverages, achalasia). Adenocarcinoma risk factors are different: GERD, Barrett's esophagus, obesity, and smoking.

84. Not a physiologic barrier preventing GERD

- Delayed gastric emptying
- LES tone
- Crural diaphragm
- Acute angle of His

Answer: Delayed gastric emptying

Explanation: Delayed gastric emptying actually PROMOTES GERD by increasing gastric volume and intragastric pressure, distending the stomach and causing transient LES relaxations. Protective anti-reflux barriers include: LES tone, crural diaphragm, angle of His, and adequate intra-abdominal esophagus length.

85. Does not create zone of high pressure in lower esophagus

- Primary peristalsis
- LES tone
- Crural diaphragm
- Sling fibers

Answer: Primary peristalsis

Explanation: Primary peristalsis is a PROPULSIVE wave of contraction triggered by swallowing — it is NOT a tonic high-pressure barrier. The LES high-pressure zone is created by: (1) tonic smooth muscle contraction, (2) crural diaphragm (extrinsic compression), and (3) sling fibers of the gastric cardia.

86. Wrong about linitis plastica

- Gastric bleeding (wrong)
- Diffuse infiltration
- Easily missed on endoscopy
- Signet-ring cells

Answer: Gastric bleeding (wrong)

Explanation: Linitis plastica does NOT typically cause GI bleeding because the tumor (signet-ring/diffuse type, often E-cadherin loss) infiltrates submucosally without ulcerating the mucosa. The stomach becomes diffusely thickened and rigid ('leather bottle' appearance). Patients present with early satiety and weight loss.

87. True about gastric cancer

- Endoscopic ultrasound used in all cases
- H. pylori not a risk factor
- Always presents with bleeding

Answer: Endoscopic ultrasound used (for staging)

Explanation: EUS is recommended for accurate local T and N staging in gastric cancer prior to definitive treatment planning, combined with CT for distant staging. The exam key states 'used in all cases.'

Reviewer note: In real practice EUS is used in most but not literally all cases (e.g., metastatic disease at presentation may skip it). The intent of the question key is that EUS is the standard of care for locoregional staging.

88. Patient with fatigue, weight loss, Hb 8.3, upper endoscopy reveals 2.5 cm ulcer with raised edges — best next step

- Biopsy
- PPI therapy
- Surgical resection

Answer: Biopsy

Explanation: Any gastric ulcer with suspicious features (raised/heaped-up edges, irregular base, age >55, weight loss, anemia) requires multiple biopsies (≥6 from the rim and base) to exclude malignancy. Treatment is then guided by histology.

89. All are signs of unresectability of gastric cancer except

- Left gastric artery lymph node involvement
- Para-aortic LN involvement
- Liver metastases
- Peritoneal metastases

Answer: Left gastric artery lymph node involvement (this is REGIONAL = resectable)

Explanation: Left gastric (perigastric) lymph nodes are REGIONAL (N1-N2 stations) and are routinely removed in D1/D2 gastrectomy — they do NOT indicate unresectability.

Unresectability is determined by distant nodes (para-aortic = M1), distant metastases, peritoneal disease, and invasion of unresectable structures.

90. Best bariatric intervention for a patient with BMI 45

- Gastric bypass (Roux-en-Y)
- Sleeve gastrectomy
- Gastric band

Answer: Gastric bypass (Roux-en-Y)

Explanation: Roux-en-Y gastric bypass is preferred for higher BMI (≥40) due to greater and more sustained weight loss (~70% excess weight loss at 5 years) and better resolution of metabolic comorbidities (especially T2DM) compared to sleeve. Sleeve is often chosen for lower BMI or higher surgical risk.

91. Not a risk factor for cholesterol stones

- Frail (thin)
- Female
- Forty (age)
- Fertile
- Fat (obesity)

Answer: Frail (thin)

Explanation: The classic '5 Fs' of cholesterol gallstone risk: Female, Forty, Fertile (multiparity), Fat (obesity), and Family history. Frailty/thinness is NOT a risk factor. In fact, rapid weight loss (in obese patients) is also a risk.

92. Obesity is associated with

- Supersaturation with cholesterol
- Decreased gallbladder motility
- Both

Answer: Supersaturation of bile with cholesterol

Explanation: Obesity increases hepatic cholesterol secretion into bile relative to bile acids and phospholipids, leading to supersaturation and cholesterol stone formation. Decreased gallbladder motility (e.g., during rapid weight loss or TPN) is a separate mechanism.

93. Best medical treatment for hydatid disease

- Albendazole
- Metronidazole
- Praziquantel

Answer: Albendazole

Explanation: Albendazole is the first-line medical therapy for hydatid disease (*Echinococcus granulosus*). It is used as: (1) primary therapy for inoperable cases, (2) pre-operative prophylaxis to reduce spillage risk, and (3) post-operative therapy for 3-6 months to prevent recurrence.

94. Major risk of ruptured hydatid liver cyst

- Anaphylactic shock
- Bleeding
- Sepsis

Answer: Anaphylactic shock

Explanation: Spillage of hydatid cyst contents (highly antigenic protoscolices and antigen-rich cyst fluid) can cause SEVERE ANAPHYLAXIS. This is why scolicidal agents (hypertonic saline, 0.5% silver nitrate, or ethanol) are injected to kill protoscolices before opening the cyst surgically.

95. True about hepatic hemangiomas

- Surgery if symptomatic or large (>5-6 cm)
- Most common malignant liver tumor
- Biopsy is recommended

Answer: Surgery if symptomatic or very large

Explanation: Hepatic hemangiomas are the MOST COMMON BENIGN liver tumor (prevalence ~5%). Most are asymptomatic and managed conservatively. Surgical resection is reserved for symptomatic lesions, very large hemangiomas (>5-10 cm), or diagnostic uncertainty. Biopsy is CONTRAINDICATED due to bleeding risk.

Reviewer note: *Size alone is not an absolute indication — symptoms matter more. Question wording per the key emphasizes size >5-6 cm.*

96. True regarding fibrolamellar variant of HCC

- More resectability
- Worse prognosis
- Associated with cirrhosis

Answer: More resectability (better resectability)

Explanation: Fibrolamellar HCC occurs in YOUNG patients (15-35 years) WITHOUT underlying cirrhosis or chronic viral hepatitis. This non-cirrhotic background allows for more aggressive hepatic resection and better overall outcomes compared to typical HCC.

97. Wrong about hepatoblastoma

- Primary surgery is rewarding (wrong)
- Most common liver tumor in children
- AFP elevated
- Responds to chemotherapy

Answer: Primary surgery is rewarding (wrong — most need neoadjuvant chemo first)

Explanation: Most hepatoblastomas are UNRESECTABLE at diagnosis. Neoadjuvant chemotherapy (cisplatin-based) is the standard of care to downstage the tumor before resection. Primary surgery alone is rarely curative — chemotherapy is essential.

98. Major symptom of anal fissure

- Pain on defecation
- Bleeding
- Pruritus

Answer: Pain on defecation

Explanation: The hallmark of anal fissure is SEVERE SHARP PAIN during and after defecation, often described as 'passing glass' or razor blades. The pain triggers internal sphincter spasm, which perpetuates the fissure. Bleeding is minimal (bright red on toilet paper).

99. Patient came to ED with fresh painless rectal bleeding and constipation

- Internal hemorrhoids
- Anal fissure
- Diverticulosis

Answer: Internal hemorrhoids

Explanation: Internal hemorrhoids classically present with PAINLESS bright red rectal bleeding (often coating the stool or seen on toilet paper) associated with straining/constipation. The PAINLESS nature distinguishes them from anal fissure (which is severely painful).

100. Most common fistula type from perianal abscess

- Intersphincteric

- Transsphincteric
- Suprasphincteric
- Extrasphincteric

Answer: Intersphincteric

Explanation: Per Parks' classification, intersphincteric fistulas are the MOST COMMON (~70%), tracking between the internal and external anal sphincters. Cryptoglandular infection (in the dentate line crypts) is the typical etiology. Goodsall's rule helps predict internal opening location.

101. Which indicates emergent laparotomy

- Hemodynamic instability with positive FAST
- Stable patient with free fluid
- Equivocal FAST

Answer: Hemodynamic instability with positive FAST

Explanation: A hemodynamically UNSTABLE trauma patient with a POSITIVE FAST (free intraperitoneal fluid) requires immediate exploratory laparotomy — there is no time for CT. Stable patients with free fluid can undergo CT to better characterize the injury.

102. True about FAST exam

- Detects intraperitoneal fluid
- Specifies the injured organ
- Replaces CT

Answer: Detects intraperitoneal fluid

Explanation: FAST identifies free fluid (presumed blood in trauma) in four windows: perihepatic (Morison's pouch), perisplenic, pelvic, and pericardial. It does NOT identify which organ is injured — that is the role of CT in stable patients.

103. Wrong about MPC (mucinous pancreatic cystadenoma)

- Communicates with the pancreatic duct (wrong)
- Mostly in body/tail
- Pre-malignant
- Mostly in women

Answer: Communicates with the pancreatic duct (wrong)

Explanation: Mucinous cystic neoplasms (MCN) do NOT communicate with the pancreatic duct — this is the key distinction from IPMN (which DOES communicate). MCN occurs almost exclusively in middle-aged women, mostly in the body/tail, and has malignant potential — resection is recommended.

104. Most common cause of small bowel obstruction

- Adhesions
- Hernias
- Tumors

Answer: Adhesions (post-operative)

Explanation: Post-operative adhesions cause approximately 60-75% of small bowel obstructions in adults. Hernias are the second most common cause, followed by tumors (primary or metastatic). In patients without prior surgery, hernias become the leading cause.

105. Brown stones — associated with

- Benign biliary stricture or choledochal cyst
- Cholesterol supersaturation
- Hemolysis

Answer: Benign biliary stricture or choledochal cyst (biliary stasis with infection)

Explanation: Brown pigment stones form within the BILE DUCTS (not gallbladder) due to bacterial infection (*E. coli* β -glucuronidase deconjugates bilirubin) and biliary stasis. They are associated with biliary strictures, choledochal cysts, parasitic infections (*Clonorchis*, *Ascaris*), and Asian populations.

106. Percentage of bile duct injury in the West

- 0.5%
- 1%
- 5%

Answer: 0.5% (approximately 0.3-0.5%)

Explanation: The incidence of bile duct injury during laparoscopic cholecystectomy is approximately 0.3-0.5% in Western series, which is HIGHER than during open cholecystectomy (~0.1-0.2%). Critical view of safety and routine cholangiography reduce the risk.

107. Kidney-bean appearance on abdominal films

- Sigmoid volvulus
- Cecal volvulus
- Small bowel obstruction

Answer: Sigmoid volvulus

Explanation: The 'coffee bean' or 'kidney bean' sign on plain X-ray is characteristic of sigmoid volvulus — a massively dilated sigmoid loop with its apex pointing toward the right upper quadrant. The cleft of the 'bean' represents the closely apposed walls of the twisted loop.

108. 64-year-old patient with dyspepsia and weight loss — next step

- Upper endoscopy
- CT scan
- Barium swallow
- Ultrasound

Answer: Upper endoscopy

Explanation: Dyspepsia with ALARM FEATURES (age >55, weight loss, anemia, dysphagia, vomiting, family history of GI cancer) requires PROMPT upper endoscopy to exclude malignancy — without an empirical PPI trial first.

109. Reynolds' Pentad is composed of Charcot's triad plus

- Shock and confusion (altered mental status)
- Vomiting and diarrhea
- Hypoglycemia and seizures

Answer: Shock and altered mental status (confusion)

Explanation: Reynolds' Pentad = Charcot's triad (fever, jaundice, RUQ pain) PLUS hypotension (shock) and altered mental status (confusion). It indicates SUPPURATIVE cholangitis with sepsis and requires emergent biliary decompression (ERCP or percutaneous transhepatic drainage).

110. 24-year-old with RLQ pain — most common etiology of appendicitis

- Fecalith
- Lymphoid hyperplasia
- Tumor

Answer: Fecalith (appendicolith)

Explanation: In ADULTS, fecalith (appendicolith) obstructing the appendiceal lumen is the most common cause of appendicitis. In CHILDREN, lymphoid hyperplasia is more common (peyer's patch hyperplasia following viral illness).

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111. Most common site for adenocarcinoma of the pancreas

- Head
- Tail
- Body

Answer: Head

Explanation: Approximately 65-75% of pancreatic adenocarcinomas arise in the HEAD of the pancreas. Head tumors present earlier with obstructive jaundice (compression of the CBD) and are more likely to be resectable. Body and tail tumors (~25%) present later (no biliary obstruction) and have worse prognosis.

112. Most common type of biliary stones

- Mixed
- Black pigment
- Brown pigment
- Pure cholesterol

Answer: Mixed

Explanation: Mixed stones (containing cholesterol + bile pigments + calcium + protein) are the MOST common type of gallstones in Western populations, accounting for ~80% of stones. Pure cholesterol stones (~10%) and pigment stones (~10%, black or brown) are less common.

113. Wrong about cholesterol stone formation

- Saturation
- Infection of bile (wrong)
- Nucleation

Answer: Infection of bile (wrong for cholesterol stones)

Explanation: Cholesterol stone formation requires Admirand's triangle: SUPERSATURATION of bile with cholesterol, NUCLEATION of crystals, and STASIS (gallbladder hypomotility). Bacterial INFECTION is associated with BROWN PIGMENT stones (bacterial β -glucuronidase deconjugates bilirubin), not cholesterol stones.

114. Not part of Ranson's criteria used at admission

- AST
- Amylase
- Glucose / hyperglycemia
- WBC count <4 or >12

Answer: Amylase

Explanation: Ranson's criteria ON ADMISSION (5 criteria): Age >55, WBC >16,000, Glucose >200, AST >250, LDH >350. Amylase confirms the DIAGNOSIS of pancreatitis but does NOT predict severity. (The other 6 Ranson criteria are assessed at 48 hours.)

Reviewer note: The question option 'WBC <4 or >12' fits qSOFA/SIRS criteria more than Ranson (which uses >16,000). Per the key, amylase is the correct 'not part of' answer.

115. Not a risk factor for gallbladder carcinoma

- Porcelain gallbladder
- Multiple small stones
- PSC
- Gallbladder cystic lesion (polyp)

Answer: Multiple small stones

Explanation: Risk factors for gallbladder cancer include large solitary stones (>3 cm), porcelain gallbladder (calcified wall), PSC, polyps >1 cm, choledochal cysts, and chronic typhoid carriage. Multiple small stones are NOT a recognized risk factor — what matters is stone SIZE, not number.

116. Not caused by diverticulitis

- Bleeding
- Fistula
- Stricture
- Carcinoma
- Paracolic abscess

Answer: Carcinoma (diverticulitis does not cause cancer)

Explanation: Diverticulitis does NOT cause colon cancer. Complications include bleeding, abscess, fistula (most commonly colovesical), stricture (after recurrent episodes), and perforation. However, diverticulitis can MIMIC colon cancer on imaging, which is why colonoscopy is done 6-8 weeks after resolution to exclude underlying malignancy.

117. Best modality for T staging of esophageal cancer

- CT
- EUS
- MRI
- Ultrasound

Answer: EUS (endoscopic ultrasound)

Explanation: EUS is the most accurate modality for T staging (depth of esophageal wall invasion) and regional N staging of esophageal cancer. CT and PET are used for M staging (distant metastases). EUS-FNA can also sample suspicious lymph nodes.

118. Risk factor for gastric cancer

- Blood type O
- Carbonated soda drink
- Pernicious anemia

Answer: Pernicious anemia

Explanation: Pernicious anemia (autoimmune atrophic gastritis with anti-parietal cell and anti-intrinsic factor antibodies) is an established risk factor for gastric cancer — chronic atrophic gastritis predisposes to intestinal metaplasia and dysplasia. Blood type A (not O) carries increased risk.

119. Most common complication of gallstones

- Acute cholecystitis
- Acute cholangitis

Answer: Acute cholecystitis

Explanation: Acute cholecystitis is the most common complication of symptomatic gallstones, resulting from impaction of a stone in the cystic duct or Hartmann's pouch. Cholangitis is less common and requires a stone (or stricture) in the CBD plus bacterial infection.

120. Most common benign liver tumor

- Hepatocellular adenoma
- Hemangioma
- Focal nodular hyperplasia
- Hemangioendothelioma

Answer: Hemangioma

Explanation: Cavernous hemangioma is the MOST COMMON benign liver tumor with a prevalence of ~5% in autopsy studies. Typically incidental, asymptomatic, no malignant potential, and managed conservatively. Biopsy is contraindicated due to bleeding risk.

121. Most common malignant liver tumor

- Metastasis
- Hepatocellular carcinoma
- Lymphoma

Answer: Metastasis

Explanation: In WESTERN populations, METASTATIC disease (most commonly from colon, breast, lung, pancreas, stomach) is the most common malignant liver tumor — far exceeding primary HCC. In regions with high HBV prevalence (Asia, Africa), HCC predominates.

122. Does not cause hyperkalemia

- Massive blood transfusion
- Diabetic ketoacidosis
- Gastric outlet obstruction
- Chronic renal failure

Answer: Gastric outlet obstruction

Explanation: Gastric outlet obstruction causes HYPOKALEMIA (from vomiting losses + aldosterone-mediated renal K⁺ wasting + paradoxical aciduria). Blood transfusion (K⁺ leak from

stored RBCs), DKA (extracellular shift from insulin deficiency and acidosis), and CKD all cause HYPERkalemia.

123. ABG: pH 7.3, CO₂ 31, HCO₃ 14

- Metabolic acidosis with respiratory compensation
- Respiratory acidosis
- Respiratory acidosis with metabolic compensation

Answer: Metabolic acidosis with respiratory compensation

Explanation: Step-by-step: pH 7.3 = acidemia. HCO₃ 14 (low) → metabolic acidosis. CO₂ 31 (low) → respiratory compensation (hyperventilation to blow off CO₂). Confirm appropriate compensation by Winter's formula: expected CO₂ = $1.5 \times \text{HCO}_3 + 8 \pm 2 = 1.5 \times 14 + 8 = 29 \pm 2$, so 31 fits.

124. Resectable esophageal cancer / all unresectable except

- T4N1M0
- Paraaortic metastasis
- Peritoneal metastases

Answer: T4N1M0 (if T4a — invading resectable structures like pleura, pericardium, diaphragm)

Explanation: T4 is subdivided: T4a invades RESECTABLE adjacent structures (pleura, pericardium, diaphragm) and can be resected after neoadjuvant therapy. T4b invades UNRESECTABLE structures (aorta, trachea, vertebral body) and is unresectable. Para-aortic nodes (distant M1) and peritoneal mets are unresectable.

Reviewer note: Resectability of T4 depends on which substructure is invaded (T4a vs T4b). N1 is regional and acceptable.

125. 50-year-old with fever and RUQ pain for 3 days, abnormal LFTs with increased bilirubin, US shows multiple small intracystic stones (no extracystic stones). Most possible diagnosis?

- Acute cholecystitis with Mirizzi syndrome
- Acute hepatitis
- Common bile duct stone
- Acute pancreatitis
- Pancreatic cancer

Answer: Acute cholecystitis with Mirizzi syndrome

Explanation: Multiple small intracystic (gallbladder) stones with NO CBD stones, in a patient with jaundice, fits Mirizzi syndrome — extrinsic compression of the common hepatic duct by an impacted gallbladder neck stone. This explains the obstructive jaundice without a visualized CBD stone.

126. Not used for gastric cancer staging

- CT scan
- PET scan
- Liver ultrasound
- Diagnostic laparoscopy

Answer: Liver ultrasound (not part of standard staging)

Explanation: Standard gastric cancer staging includes: CT abdomen/pelvis/chest (locoregional + distant), PET (occult metastases), EUS (T and N), and diagnostic laparoscopy with peritoneal washings (occult peritoneal disease). Liver US alone is not part of standard staging.

127. 70 kg man — intracellular volume

- 42 L
- 28 L
- 10 L

Answer: 28 L

Explanation: Total body water = 60% × body weight = $0.6 \times 70 = 42$ L. Of TBW: 2/3 is INTRACELLULAR (ICF) = 28 L, and 1/3 is EXTRACELLULAR (ECF) = 14 L. The ECF is further divided into interstitial (~10.5 L) and plasma (~3.5 L).

128. 30-year-old male with abdominal pain, vomiting, distention, obstipation — prior lap appendectomy at age 18. Most likely cause of obstruction?

- Hernia
- Stone ileus
- Adhesions

Answer: Adhesions

Explanation: Prior abdominal surgery (especially with peritoneal contamination, as occurs with appendectomy) is the leading risk factor for adhesive small bowel obstruction, accounting for 60-75% of SBO in adults. Adhesions develop in nearly all post-laparotomy patients to some degree.

129. Same patient (post-appendectomy with SBO picture) — what is WRONG

- Most likely adhesive
- Management is emergency surgery (wrong)
- Obstruction could be in the ileum

Answer: Management is emergency surgery (wrong)

Explanation: Initial management of adhesive SBO is CONSERVATIVE: NPO, NG decompression, IV fluids, electrolyte correction, and serial exams. Surgery is reserved for: (1) failure of conservative management (usually 48-72 hours), (2) peritonitis, (3) signs of strangulation (fever, tachycardia, leukocytosis, lactic acidosis), or (4) closed-loop obstruction.

130. Anorectal prolapse — which is NOT a feature

- Tenesmus
- Bleeding
- Pain
- Constipation
- Fecal incontinence

Answer: Pain

Explanation: Rectal prolapse typically presents with a protruding mass, mucus discharge, bleeding, tenesmus, constipation or fecal incontinence (from chronic sphincter stretch). PAIN is uncommon unless there is strangulation, ulceration, or incarceration.

131. Obliterated umbilical vein

- Ligamentum teres
- Ligamentum falciforme
- Ligamentum umbilicus
- Lateral umbilical ligament
- Medial umbilical ligament

Answer: Ligamentum teres hepatis

Explanation: The LIGAMENTUM TERES HEPATIS is the obliterated remnant of the LEFT UMBILICAL VEIN, running in the free edge of the falciform ligament. (The MEDIAL umbilical ligaments are obliterated umbilical arteries; the median umbilical ligament is the urachal remnant.)

132. Wrong about intestinal obstruction

- Sigmoid volvulus must rotate 560 degrees counterclockwise (wrong)
- Cecum is the most common site to strangulate

Answer: Sigmoid volvulus must rotate 560 degrees counterclockwise (wrong)

Explanation: Sigmoid volvulus typically rotates 180-360 degrees (counterclockwise), not 560. The cecum is the most common site of strangulation in closed-loop obstruction with a competent ileocecal valve (Laplace's law — the cecum is the widest part and has the highest wall tension).

133. Echinococcus — mode of transmission to humans

- Contact with infected dogs
- Eating infected sheep meat
- Human to human
- Oral contamination (fecal-oral ingestion of eggs)

Answer: Oral contamination (fecal-oral ingestion of eggs)

Explanation: Humans are ACCIDENTAL intermediate hosts. Transmission is by FECAL-ORAL ingestion of Echinococcus eggs shed in DEFINITIVE HOST (dog) feces — via contaminated food, water, or hand-to-mouth contact (especially after handling infected dogs or contaminated environments). Eating sheep meat does NOT transmit the disease (sheep are intermediate hosts; humans need to ingest eggs, not larvae).

Reviewer note: Both 'contact with infected dogs' (via egg-contaminated fur/environment) and 'oral contamination' describe the same fecal-oral route. Answer per key is oral contamination.

134. Direct hernia — what is wrong

- Quite uncommon in females
- Sac could be not removed in some cases
- Higher complication rate than indirect (wrong)
- Defect in the posterior wall (transversalis fascia) in the inguinal canal
- Medial to the inferior epigastric vessels

Answer: Higher complication rate than indirect (wrong)

Explanation: Direct hernias have a WIDE NECK and are therefore at LOWER risk of strangulation/incarceration than INDIRECT hernias (which have a narrow neck at the deep

inguinal ring). Direct hernias are uncommon in females (because females have less posterior wall weakness).

135. True about small intestine cancer

- FAP gives 100% risk of small bowel cancer
- The more distal the lesion, the higher the malignancy risk
- Carcinoid tumors are usually multicentric at onset
- Adenoma incidental finding
- Pain is the most common symptom of small bowel malignancy

Answer: Pain is the most common symptom of small bowel malignancy

Explanation: Abdominal pain (often colicky from obstruction) is the most common presenting symptom of small bowel malignancy, followed by weight loss and GI bleeding. FAP increases DUODENAL cancer risk but not 100% (lifetime risk ~5%). Most small bowel cancers occur PROXIMALLY (duodenum/jejunum), not distally.

136. Young male, constipation, severe pain with defecation, perianal swelling, fresh bleeding with defecation

- Hemorrhoids
- Perianal abscess
- Anal fissure
- Anal fistula

Answer: Perianal abscess

Explanation: Severe perianal PAIN with a palpable TENDER PERIANAL SWELLING is most consistent with a perianal abscess. The bleeding may be from associated fissuring. Surgical drainage is required.

Reviewer note: Anal fissure also fits the clinical picture (pain on defecation, fresh bleeding, sentinel skin tag = perianal swelling). Per the past paper key the answer is perianal abscess based on the 'swelling' descriptor.

137. Wrong about anal fissure

- Skin tag is called sentinel pile
- Most fissures are posterior midline, equally in both sexes
- Pruritus
- Hypertonic external anal sphincter (wrong)

Answer: Hypertonic external anal sphincter (wrong — internal sphincter is hypertonic)

Explanation: Anal fissure pathophysiology involves HYPERTONIC INTERNAL anal sphincter (smooth muscle, involuntary), which causes ischemia of the posterior anoderm and prevents healing. Treatment relaxes the internal sphincter: GTN ointment, nifedipine, botulinum toxin, or lateral internal sphincterotomy. The external sphincter is NOT hypertonic.

138. Most liver abscesses are due to

- E. coli
- Klebsiella pneumoniae

Answer: E. coli (in Western populations)

Explanation: In WESTERN populations, E. coli and other Enterobacteriaceae are the most common organisms in pyogenic liver abscesses (often from biliary tract origin). In ASIAN

populations, *Klebsiella pneumoniae* is more common and may cause invasive syndromes (endophthalmitis, meningitis).

139. Calcified hydatid cyst means it's

- Ruptured
- Treated
- Old
- Dead (inactive)

Answer: Dead / inactive (CE4-CE5 on WHO classification)

Explanation: Calcification of the cyst wall (WHO classification CE4-CE5) indicates an INACTIVE / DEAD hydatid cyst. These typically do NOT require surgical intervention and can be observed. Active cysts (CE1-CE3a) require treatment.

140. Medial border of Calot's triangle

- Cystic artery
- Cystic duct
- Common hepatic duct
- Liver edge

Answer: Common hepatic duct

Explanation: Calot's (cystohepatic) triangle borders: MEDIAL = common hepatic duct, LATERAL = cystic duct, SUPERIOR = inferior edge of the liver (or cystic artery in some definitions). Contains the cystic artery and Calot's node — critical anatomy during cholecystectomy.

141. Artery at risk of injury during splenectomy with the short gastric arteries

- Splenic artery
- Left gastric
- Right gastroepiploic
- Celiac trunk
- Left gastroepiploic

Answer: Left gastroepiploic artery

Explanation: The LEFT GASTROEPIPLOIC ARTERY (a branch of the splenic artery) runs along the greater curvature of the stomach close to the short gastric vessels at the upper pole of the spleen. It is at risk during ligation of the short gastrics during splenectomy.

142. Early stage of gastric cancer (EGC) definition

- Mucosa and submucosa with negative nodes
- Mucosa only
- No lymph node involvement
- Mucosa and submucosa regardless of nodal state

Answer: Mucosa and submucosa regardless of nodal state

Explanation: Early gastric cancer (EGC) is defined by JAPANESE classification as cancer limited to the MUCOSA OR SUBMUCOSA, REGARDLESS of lymph node status. Endoscopic submucosal dissection (ESD) is curative for selected EGCs (mucosal, well-differentiated, small).

143. Long-term result after DVT — most significant long-term impact

- Stasis ulcer (post-thrombotic syndrome)
- PE

Answer: Stasis ulcer / post-thrombotic syndrome (long-term)

Explanation: The most LIFE-THREATENING ACUTE complication of DVT is pulmonary embolism. The most significant LONG-TERM complication is POST-THROMBOTIC SYNDROME (chronic venous insufficiency, edema, hyperpigmentation, lipodermatosclerosis, and stasis ulcers).

Reviewer note: Question asks about long-term impact specifically — post-thrombotic syndrome/stasis ulcer fits better than PE (which is acute).

144. Caudate lobe of the liver — blood supply

- Both right and left hepatic arteries
- Left hepatic artery only
- Right hepatic artery only
- Pancreaticoduodenal artery

Answer: Both right and left hepatic arteries

Explanation: The caudate lobe (segment I) has INDEPENDENT arterial supply from BOTH the right and left hepatic arteries, and drains directly into the IVC via short dorsal hepatic veins. This dual supply and drainage explains the caudate's hypertrophy in Budd-Chiari syndrome.

145. Not a branch of the celiac trunk or its branches

- Anterior inferior gastroduodenal (pancreaticoduodenal)
- Anterior superior gastroduodenal (pancreaticoduodenal)
- Left gastric
- Right gastric

Answer: Anterior INFERIOR pancreaticoduodenal (this is from the SMA)

Explanation: The INFERIOR pancreaticoduodenal arteries arise from the SMA, NOT the celiac trunk. The SUPERIOR pancreaticoduodenal arteries (anterior and posterior) arise from the GDA (a celiac branch). The anastomosis between superior and inferior pancreaticoduodenal arteries provides important collateral flow.

146. Ladd's bands

- Congenital, originating from a cecum in the URQ to the lateral of duodenum, crossing it (in abnormal rotation)
- Congenital, originating lateral to the duodenum, retroperitonealizing it

Answer: Congenital bands from the malrotated cecum (URQ) crossing the duodenum

Explanation: Ladd's bands are abnormal fibrous peritoneal bands that extend from the MALROTATED CECUM (located in the right upper quadrant) across the duodenum to the right retroperitoneum. They cause duodenal OBSTRUCTION in intestinal malrotation. Ladd's procedure: division of bands + counterclockwise detorsion + appendectomy + cecal placement in LLQ.

147. Needed thing for biliary-enteric bypass in biliary atresia to succeed

- Presence of viable intrahepatic biliary ducts

Answer: Presence of viable intrahepatic biliary ducts

Explanation: Kasai portoenterostomy (hepatic porto-jejunostomy) success depends on the presence of patent INTRAHEPATIC biliary ducts at the porta hepatis at the time of surgery. The operation is most successful when performed BEFORE 8 weeks of age (~80% bile flow). After 4 months, success drops dramatically and liver transplant becomes the only option.

Surgery 1 (2020)

148. 35-year-old male admitted with abdominal pain, distension, and excessive vomiting. Prior history of appendectomy at age 18. Most likely cause?

- Internal hernia
- Right colon cancer
- Volvulus
- Adhesions
- Acute mesenteric ischemia

Answer: Adhesions

Explanation: Prior abdominal surgery (appendectomy) is the leading risk factor for adhesive small bowel obstruction, which causes 60-75% of SBO in adults with surgical history. The clinical picture (pain, distension, vomiting) is classic for SBO.

149. True about adhesive mechanical small bowel obstruction

- Associated with colicky upper abdominal pain
- Sepsis can occur without frank ischemia
- Diffuse abdominal tenderness is a common finding

Answer: Sepsis can occur without frank ischemia

Explanation: Bacterial translocation across the dilated, edematous bowel wall in SBO can cause sepsis even WITHOUT overt ischemia. The pain in SBO is typically COLICKY and PERIUMBILICAL (not upper abdominal). Diffuse tenderness suggests complication (strangulation, perforation).

Reviewer note: Both B and C may be considered correct depending on the stage. Diffuse tenderness implies complicated SBO.

150. 60-year-old patient with dyspepsia and weight loss — best initial test

- CT scan
- Upper endoscopy
- Barium swallow
- Ultrasound

Answer: Upper endoscopy

Explanation: Dyspepsia with ALARM features (age >55, weight loss) requires prompt upper endoscopy as the first-line test to exclude upper GI malignancy (esophageal, gastric, duodenal). Endoscopy allows direct visualization and biopsy.

151. Most common location of acute diverticulitis in adults

- Sigmoid
- Left splenic flexure
- Cecum
- Hepatic flexure

- Rectum

Answer: Sigmoid

Explanation: The SIGMOID COLON is the most common site of diverticulosis (>90%) and diverticulitis in Western populations. This is due to highest intraluminal pressures (Laplace's law — narrowest segment) and a low-fiber diet. In Asian populations, right-sided (cecal) diverticulitis is more common.

152. Which does not cause HCC

- Hepatitis A (HAV)
- HBV
- HCV
- Liver cirrhosis
- Hemochromatosis

Answer: Hepatitis A (HAV)

Explanation: Hepatitis A is an ACUTE, SELF-LIMITED infection that does NOT cause chronic liver disease or HCC. Established HCC risk factors include chronic HBV, chronic HCV, cirrhosis (from any cause), hemochromatosis, alcohol, aflatoxin, and NAFLD/NASH.

153. Resection of hepatic metastasis is proven to benefit which cancer

- Lung
- Stomach
- Colon
- Breast
- Pancreas

Answer: Colon (colorectal cancer)

Explanation: Resection of colorectal liver metastases is associated with improved long-term survival in selected patients (5-year survival 40-50%). This is UNIQUE to colorectal cancer among GI malignancies. Liver metastases from other primaries (gastric, pancreatic) generally have poor outcomes with resection.

154. Tumor lysis syndrome — true statement

- Hypercalcemia
- Hyperuricemia
- Hyponatremia
- Hypokalemia

Answer: Hyperuricemia

Explanation: Tumor lysis syndrome (TLS) is characterized by: HYPERkalemia, HYPERphosphatemia, HYPERuricemia, and HYPOcalcemia (calcium is bound by phosphate). Allopurinol or rasburicase is given prophylactically to prevent urate nephropathy.

155. True about hepatic hemangiomas

- Asymptomatic mostly
- Best to obtain biopsy
- Has malignant transformation risk
- Most common symptom is jaundice

- Second most common benign liver tumor

Answer: Asymptomatic mostly

Explanation: Hepatic hemangiomas are the MOST COMMON benign liver tumor (not second). They are typically ASYMPTOMATIC incidental findings on imaging. Biopsy is CONTRAINDICATED (bleeding risk). No malignant potential. Jaundice is not a typical symptom.

156. Not found in Child-Pugh score for liver cirrhosis

- Bilirubin
- Prothrombin time
- ALT
- Ascites
- Hepatic encephalopathy

Answer: ALT

Explanation: Child-Pugh components — mnemonic 'A BEAP': Albumin, Bilirubin, Encephalopathy, Ascites, PT/INR. ALT is NOT a component of Child-Pugh because it reflects acute hepatocellular damage, not hepatic synthetic function or portal hypertension.

157. Regarding abdominal wall hernias

- Trial reduction of inguinal hernia in adults is recommended
- Most inguinal hernias are direct
- Defect in direct inguinal hernia is in the posterior wall (transversalis fascia) of the inguinal canal
- Not a risk for strangulation
- Direct more common than femoral in females

Answer: Defect in direct inguinal hernia is in the posterior wall (transversalis fascia) of the inguinal canal

Explanation: Direct inguinal hernias protrude through Hesselbach's triangle (a defect/weakness in the transversalis fascia of the POSTERIOR WALL of the inguinal canal). Most inguinal hernias are INDIRECT (not direct). Femoral hernias predominate over direct in females. All hernias carry strangulation risk.

158. Most important factor in development of gastric cancer

- H. pylori
- Obesity
- Alcohol
- Smoking

Answer: H. pylori

Explanation: H. PYLORI is classified as a Class I CARCINOGEN by WHO/IARC and is the MOST IMPORTANT known risk factor for gastric adenocarcinoma worldwide. Chronic infection leads to chronic atrophic gastritis → intestinal metaplasia → dysplasia → cancer.

159. True about cholangiocarcinoma

- Liver is the most common primary site
- If involves intrahepatic biliary tree, jaundice is the key symptom
- Resection is associated with good prognosis
- Confluence of the bile duct is the main site

- Liver isn't required to be resected to have R0 free margin

Answer: Confluence of the bile duct is the main site (Klatskin / perihilar cholangiocarcinoma)

Explanation: Klatskin (perihilar) cholangiocarcinoma at the hilar confluence (where right and left hepatic ducts join) is the MOST COMMON type (~60%). Intrahepatic disease often presents without jaundice (peripheral lesions). R0 resection often requires concomitant liver resection (extended hepatectomy).

160. Not a sign of unresectability of gastric cancer

- Liver metastases
- Malignant ascites
- Para-aortic LN involvement
- Left gastric artery LN involvement
- Peritoneal deposits in upper abdomen

Answer: Left gastric artery LN involvement (this is N2 — regional, resectable)

Explanation: Left gastric (perigastric) lymph nodes are REGIONAL (N1-N2) and are routinely removed in D1/D2 gastrectomy — they do NOT indicate unresectability. Unresectability is determined by distant nodes (para-aortic = M1), liver mets, peritoneal disease, or malignant ascites.

161. True diverticulum

- Zenker
- Jejunal
- Epiphrenic
- Traction esophageal (mid-esophageal)
- Sigmoidal

Answer: Traction (mid-esophageal) diverticulum

Explanation: TRUE diverticula contain ALL LAYERS of the bowel wall. Mid-esophageal traction diverticula (caused by external scarring from mediastinal lymphadenitis, e.g., TB) are TRUE diverticula. Zenker (pharyngoesophageal) and epiphrenic are PULSION (false) diverticula — only mucosa and submucosa herniate.

162. 56-year-old with acute upper abdominal pain relieved by leaning forward, lipase 1300. Most likely etiology?

- Cholelithiasis
- Alcohol ingestion
- Triglyceride level >1000
- Tumor in head of pancreas

Answer: Cholelithiasis (gallstones)

Explanation: Acute pancreatitis with lipase >3x normal. GALLSTONES are the most common cause of acute pancreatitis worldwide (~40-50% of cases), especially in women >40. Alcohol (~30%) is the second most common. The 'leaning forward' relief is characteristic of pancreatitis.

163. 18-year-old male with acute upper abdominal pain radiating to back, stable vitals, pain only epigastric

- Perforated peptic ulcer

- Acute pyelonephritis
- Acute diverticulitis
- Acute pancreatitis
- Viral hepatitis

Answer: Acute pancreatitis

Explanation: Epigastric pain radiating to the back is the CLASSIC presentation of acute pancreatitis. Perforated peptic ulcer would have peritonitis (rigidity, rebound). Pyelonephritis presents with flank pain and fever. Diverticulitis is unusual at age 18.

164. Not part of Charcot's triad

- Abdominal pain (RUQ)
- Jaundice
- Fever >24h
- Hypotension and confusion

Answer: Hypotension and confusion (these are added to make Reynolds' Pentad)

Explanation: Charcot's TRIAD = (1) Fever, (2) Jaundice, (3) RUQ pain — indicates ascending cholangitis. Reynolds' PENTAD adds (4) hypotension and (5) altered mental status, indicating suppurative cholangitis with sepsis (life-threatening, requires emergent biliary decompression).

165. Unconjugated bilirubin cause

- Hemolysis
- Rotor syndrome
- Pancreatic tumor
- Dubin-Johnson syndrome

Answer: Hemolysis

Explanation: Hemolysis raises UNCONJUGATED (indirect) bilirubin by overwhelming hepatic conjugation capacity. Rotor and Dubin-Johnson syndromes cause CONJUGATED hyperbilirubinemia (impaired hepatocyte excretion). Pancreatic head tumor causes OBSTRUCTIVE (conjugated) hyperbilirubinemia.

166. In contrast to ulcerative colitis, Crohn's disease

- Less incidence of perianal fistula
- May cause bowel obstruction
- Segmental rather than continuous (skip lesions)
- Causes heavy lower GI bleeding

Answer: Segmental rather than continuous (skip lesions)

Explanation: Crohn's: TRANSMURAL inflammation, SKIP LESIONS, any GI segment (mouth to anus), MORE perianal fistulas, MORE strictures and obstruction. UC: MUCOSAL inflammation, CONTINUOUS from rectum, limited to COLON, MORE bleeding.

167. Cause of conjugated hyperbilirubinemia

- Gilbert's syndrome
- Physiological jaundice (of newborn)
- Cholestasis
- Increased formation of bilirubin (hemolysis)

- Decreased absorption of bilirubin

Answer: Cholestasis (intra- or extra-hepatic biliary obstruction)

Explanation: Cholestasis (intrahepatic or extrahepatic biliary obstruction) causes CONJUGATED hyperbilirubinemia — the liver conjugates bilirubin normally but cannot excrete it. Gilbert's, physiological jaundice of the newborn, and hemolysis cause UNCONJUGATED hyperbilirubinemia.

168. Patient noticed painless left groin swelling 1 week after right inguinal hernia repair, no recurrence signs — next step

- US-guided drainage
- IV antibiotics
- Conservative management
- Surgical exploration

Answer: Surgical exploration (for suspected contralateral hernia)

Explanation: A NEW CONTRALATERAL groin swelling after unilateral hernia repair raises suspicion for a previously missed contralateral hernia. Examination ± imaging, then surgical exploration/repair is appropriate.

Reviewer note: Conservative management with re-examination is also reasonable if asymptomatic. Per the past paper key the answer is surgical exploration.

169. Patient with large bilious non-malodorous vomiting and minimal abdominal distention, gastric outlet obstruction. Most likely site?

- Proximal small intestine
- Distal small intestine
- Large intestine with competent ileocecal valve
- Large intestine with incompetent ileocecal valve

Answer: Proximal small intestine

Explanation: Proximal SBO presents with COPIOUS BILIOUS (non-malodorous) vomiting and MINIMAL distention (because most of the bowel distal to the obstruction is empty). Distal SBO has more distention and FECULENT (malodorous) vomiting (from bacterial overgrowth in the dilated proximal loop).

170. Diagnostic criteria for acute pancreatitis (2 of 3)

- Epigastric pain, radiologic evidence, lipase $\geq 2\times$ normal
- Epigastric pain, radiologic evidence, amylase $\geq 3\times$ normal
- Cholelithiasis, radiologic evidence, amylase $\geq 3\times$ normal
- Epigastric pain, cholelithiasis, lipase $\geq 2\times$ normal
- Cholelithiasis, radiologic evidence, lipase $\geq 2\times$ normal

Answer: Epigastric pain, radiologic evidence, amylase/lipase $\geq 3\times$ upper limit of normal

Explanation: ATLANTA CRITERIA — diagnosis requires 2 of 3: (1) characteristic abdominal pain (epigastric, radiating to back), (2) serum lipase OR amylase $\geq 3\times$ ULN, (3) characteristic imaging findings (CT, MRI, or US). Lipase is more specific than amylase.

171. Not a risk factor for esophageal adenocarcinoma

- Alcohol
- Smoking

- Obesity
- GERD
- Caustic injury

Answer: Caustic injury

Explanation: Caustic injury is a risk factor for esophageal SCC (along with smoking, alcohol, hot beverages, achalasia, tylosis). ADENOCARCINOMA risk factors are different: GERD, Barrett's esophagus, obesity, smoking. Alcohol is more strongly associated with SCC than adenocarcinoma.

172. Modality of choice to diagnose gastric cancer

- Flexible endoscopy with multiple biopsies
- Diagnostic laparoscopy
- Double-contrast barium swallow
- CT
- EUS

Answer: Flexible endoscopy with multiple biopsies

Explanation: Upper GI endoscopy with multiple biopsies ($\geq 6-8$ from suspicious lesions) is the DIAGNOSTIC modality of choice. EUS, CT, and diagnostic laparoscopy are used for STAGING after histologic diagnosis is established.

173. True about internal hemorrhoids

- Usually present with heavy bleeding
- Both internal and external hemorrhoids are composed of venous blood
- Usually not palpable
- Blood sometimes mixed with stool

Answer: Usually not palpable

Explanation: Internal hemorrhoids (above the dentate line) are USUALLY NOT PALPABLE on digital rectal exam because they are soft vascular cushions that collapse with pressure (anoscopy is needed to visualize them). They contain a mix of arterial and venous blood (vascular cushions, not just veins). Bleeding is bright red, NOT mixed with stool.

174. True about gallbladder stones

- 50% of stones are cholesterol stones
- 50% of stones are symptomatic
- Caucasian women are 2-fold more likely than men

Answer: Caucasian women are about 2x more likely than men to develop gallstones

Explanation: The female-to-male ratio for gallstones is approximately 2:1, due to estrogen's effect on increasing biliary cholesterol secretion (and progesterone reducing gallbladder motility). Only ~20% of gallstones become symptomatic over a lifetime. Mixed stones (~80%) are more common than pure cholesterol stones.

175. Not true about anal fissure

- Anterior midline fissures are most common (not true)
- Multiple lateral fissures are usually from Crohn's
- Most acute anal fissures heal conservatively
- Sphincterotomy is successful in 90% of anal fissures

Answer: Anterior midline fissures are most common (not true — POSTERIOR midline is most common)

Explanation: POSTERIOR midline fissures account for ~90% of anal fissures (due to relative ischemia of the posterior anoderm from the inferior rectal artery distribution). Anterior fissures are more common in women (~10-25%). LATERAL or MULTIPLE fissures are atypical and raise suspicion for Crohn's, TB, syphilis, HIV, or trauma.

176. Most common indication for surgery in Crohn's disease

- Ileal stricture
- Ileal perforation peritonitis
- Enterovesical fistula
- GI bleeding
- Enterocolonic fistula

Answer: Ileal stricture (causing obstruction)

Explanation: Stricture causing OBSTRUCTION is the most common indication for surgery in Crohn's disease (~50% of operations). Other indications: fistulas (especially enterovesical, enterocutaneous), abscess/perforation, failure of medical therapy, intractable disease, and dysplasia/cancer.

177. Polyp with highest malignant potential

- Tubular
- Tubulovillous
- Hyperplastic
- Hamartomatous
- Pseudopolyp

Answer: Tubulovillous (Villous > Tubulovillous > Tubular)

Explanation: Malignant potential of adenomatous polyps: VILLOUS (highest, ~40% risk) > TUBULOVILLOUS (~20%) > TUBULAR (lowest, ~5%). HYPERPLASTIC and PSEUDOPOLYPS have NO malignant potential. Hamartomatous polyps (Peutz-Jeghers, juvenile polyposis) have some increased risk.

178. Does not create zone of high pressure in lower esophagus

- Crus of diaphragm
- Tonic contraction of lower esophageal muscles
- Sling fibers of cardia
- Transmitted pressure from the abdomen
- Primary peristalsis

Answer: Primary peristalsis

Explanation: Primary peristalsis is a PROPULSIVE wave triggered by swallowing — it is NOT a tonic barrier. The LES high-pressure zone is created by: tonic smooth muscle contraction, crural diaphragm (extrinsic compression), sling fibers of the gastric cardia, and intra-abdominal pressure transmission to the intra-abdominal portion of the esophagus.

179. 35-year-old with fresh painless rectal bleeding and constipation, steady weight and normal appetite — most appropriate diagnosis

- Right colon cancer

- Hemorrhoids
- Anal fissure
- Diverticulosis
- Volvulus

Answer: Hemorrhoids

Explanation: PAINLESS bright red rectal bleeding with constipation in a YOUNG patient with NO systemic symptoms (steady weight, normal appetite) is most consistent with INTERNAL HEMORRHOIDS. Colon cancer would have age >50 or alarm features. Anal fissure is painful.

180. Correct about femoral hernia EXCEPT

- More common in women
- Higher strangulation risk than inguinal hernia
- Presents as swelling below and medial to pubic tubercle (incorrect)
- Sac may contain omentum
- Can cause SBO

Answer: Below and medial to pubic tubercle (incorrect — should be below and LATERAL)

Explanation: Femoral hernia presents BELOW and LATERAL to the pubic tubercle (in the femoral canal, medial to the femoral vein). Inguinal hernia is ABOVE and MEDIAL to the pubic tubercle. This anatomic distinction is critical for clinical diagnosis.

181. Abdominal anatomy — all true except

- Pancreas is related to medial side of duodenum
- Liver and gallbladder lie anteriorly to 2nd part of duodenum
- Portal vein created by splenic vein and IMV (incorrect)
- Gastroduodenal artery originates from common hepatic artery
- Portal vein wall appears hyperechoic on US

Answer: Portal vein created by splenic vein and IMV (incorrect)

Explanation: The portal vein is formed by the union of the SUPERIOR MESENTERIC VEIN (SMV) and the SPLENIC VEIN posterior to the neck of the pancreas. The IMV typically drains into the splenic vein (or into the SMV/junction in variants), NOT directly into the portal vein.

182. Best scolical agent for hepatic hydatid cyst

- Hydrogen peroxide 10%
- Hypertonic saline 3%
- Chlorhexidine
- Chlorhexidine 0.15% with cetrimide 1.5%

Answer: Hydrogen peroxide 10% (or Chlorhexidine 0.15% + cetrimide 1.5%)

Explanation: Several scolical agents are accepted for hydatid cyst surgery, including: 15-20% hypertonic saline, 0.5% silver nitrate, 70-95% ethanol, hydrogen peroxide, and chlorhexidine/cetrimide combinations. Local protocols vary.

Reviewer note: Multiple acceptable answers exist. Per the GI dossier referenced in the past paper key: hydrogen peroxide 10%.

183. Not associated with increased cholesterol gallstone formation

- Obesity
- Rapid weight loss
- OCPs
- Female gender
- Crohn's disease

Answer: Crohn's disease

Explanation: Crohn's disease (with ileal involvement) is associated with PIGMENT stones (from bile salt malabsorption → enterohepatic recycling disrupted → increased bilirubin in bile), NOT cholesterol stones. Obesity, rapid weight loss, OCPs (estrogen), and female gender all INCREASE cholesterol stone formation.

— *End of GI Section* —