1. All of the following are complications of choledochal cyst disease except which one?
   a) Cholangitis
   b) Cholangiocarcinoma
   c) Pancreatitis
   d) Pancreatic adenocarcinoma
   e) Biliary cirrhosis

2. Which of the following is the best therapy for Type 1 choledochal cyst?
   a) Irrigation of the cyst with 5-fluorouracil
   b) Resection of the extrahepatic biliary duct with hepaticojejunostomy
   c) Conformal radiation therapy
   d) Endoscopic retrograde cholangiopancreatography (ERCP) with papillotomy
   e) Anastomosis of the choledochal cyst to a Roux-en-Y loop of jejunum

3. Each of the following statements about gallbladder polyps is true except which one?
   a) All gallbladder polyps are premalignant
   b) Cholesterol polyps make up the majority of gallbladder polyps
   c) Inflammatory polyps account for 10% of gallbladder polyps
   d) The lowest risk of malignancy is seen in gallbladder polyps < 5 mm in diameter
   e) Gallbladder polyps are not caused by gallstone disease

4. Which of the following statements is true about gallbladder polyps?
   a) Most gallbladder cancers arise from gallbladder polyps
   b) Inflammatory polyps are the most common type of gallbladder polyp
   c) Malignancy risk rises for polyps more than 2 mm in diameter
   d) 85% of gallbladder polyps are non-neoplastic
   e) Gallbladder polyps are complications of gallstone disease

5. Which of the following statements is true about Caroli disease?
   a) The condition is characterized by isolated dilation of one intrahepatic duct
   b) The condition is a common cause of pancreatitis
   c) The condition is characterized by multiple intrahepatic cystic dilations of the bile ducts
   d) The condition is associated with gallstones
   e) A majority of patients develop pancreatic cancer

6. A 64-year-old male undergoes laparoscopic cholecystectomy for symptoms of gallstone disease. Histologic examination of the gallbladder discloses adenocarcinoma of the gallbladder that extends through the muscularis layer of the gallbladder. Which of the following is appropriate therapy?
   a) No further therapy is required
   b) Close followup with sequential ultrasound examinations
   c) External beam radiation to the gallbladder bed
   d) Right hepatic lobectomy
   e) Reoperation with resection of the hepatic gallbladder bed and local lymphadenectomy
7. Which of the following statements is true about cholangiocarcinoma?
   a) Cholangiocarcinoma associated with primary sclerosing cholangitis is uniformly fatal and treatment is contraindicated
   b) Intrahepatic cholangiocarcinoma will frequently require hepatic resection
   c) Distal duct cholangiocarcinoma is best treated with stenting of the duct
   d) The Klatskin tumor is the least common cholangiocarcinoma
   e) Hepatic transplantation is not an effective treatment for cholangiocarcinoma

8. A 56-year-old man presents with obstructive jaundice secondary to a hepatic hilar cholangiocarcinoma. Imaging suggests extension of the tumor into the right hepatic duct. The operation with the best chance of R0 resection (negative resection margins) is?
   a) Orthotopic liver transplantation
   b) Common bile duct resection with stenting of the right hepatic duct
   c) Excision of the tumor with right hepatic lobectomy
   d) Tumor debulking
   e) Stenting of the bile duct

9. Which of the following statements is true about primary sclerosing cholangitis
   a) Association with inflammatory bowel disease is common
   b) There is no evidence of a genetic component to primary sclerosing cholangitis
   c) The incidence of primary sclerosing cholangitis in the United States is 22/100,000
   d) Cholangiocarcinoma will develop in 80% of patients with primary sclerosing cholangitis
   e) Resection of the involved bile duct is contraindicated in patients with primary sclerosing cholangitis

10. Which of the following is not a complication of chronic pancreatitis?
    a) Pain
    b) Weight loss due to anorexia
    c) Weight loss due to malabsorption
    d) Cholangiocarcinoma
    e) Diabetes mellitus

11. All of the following are useful means of localization of pancreatic insulinoma except which one?
    a) ERCP
    b) Portal vein insulin assay with calcium injection into the pancreatic arteries
    c) CT imaging
    d) Intraoperative ultrasound
    e) Endoscopic ultrasound

12. Gastrinoma is diagnosed when which of the following circumstances are discovered?
    a) Hypergastrinemia and achlorhydria
    b) Hypergastrinemia and hyperglycemia
    c) Hypergastrinemia with hyperhidrosis
    d) Hypergastrinemia with a gastric pH < 2.1
    e) Hypergastrinemia with weight loss

13. A 50-year-old man has chronic pain due to chronic pancreatitis. A dense inflammatory mass has been located in the head of the pancreas and there is dilation of the pancreatic duct to the left of the mass. Which of the following statements is true about management of this patient?
    a) Pancreaticoduodenectomy is associated with pain control in more than 95% of patients
    b) Compared to duodenum-preserving, pancreatic head resection, pancreaticoduodenectomy is associated with superior quality of life
    c) Mortality is higher for the duodenum-preserving, pancreatic head resection compared to pancreaticoduodenectomy
    d) Pain control at five years postoperatively is better with duodenum-preserving, pancreatic head resection
    e) Pancreatic endocrine insufficiency is seen more often following duodenum-preserving, pancreatic head resection
14. Which of the following statements is true about endoscopic stenting for pain associated with pancreatic duct stricture?
   a) Pain relief is superior compared with operative management of pancreatic ductal obstruction
   b) Best long-term pain relief was associated with stent change “on demand”
   c) Pain relief at two years is observed in less than 20% of patients
   d) Endoscopic management of biliary obstruction is associated with complete long-term relief in all patients
   e) Once pain relief has occurred, there is no recurrence after stent removal

15. A pancreatic pseudocyst in a patient with chronic pancreatitis is diagnosed by CT imaging. Ductal anatomy studies show that the duct is normal with no connection to the pseudocyst. Which anatomic type is this?
   a) Type IV
   b) Type IIB
   c) Type IA
   d) Type IB
   e) Type IIIb

16. A 66-year-old woman with a history of chronic pancreatitis, developing after several episodes of acute biliary pancreatitis, presents with a large pleural effusion. Thoracentesis discloses fluid with high amylase content. CT imaging shows a small pseudocyst at the junction of the neck and body of the pancreas. Which of the following is the best choice for therapy?
   a) Repeat thoracentesis
   b) Percutaneous tube drainage of the site of the pseudocyst
   c) Pancreaticoduodenectomy
   d) Tube thoracostomy, nutritional support, and possible octreotide therapy
   e) Open drainage of the pseudocyst

17. After three weeks of tube thoracostomy drainage, the patient described in the previous question has persistent drainage of 300–400 mL/day of fluid. Magnetic resonance imaging has localized the pancreatic ductal leak to the junction of the neck and body of the pancreas. Which is the next best step?
   a) Pancreaticoduodenectomy
   b) Open external drainage of the ductal leak
   c) ERCP with pancreatic ductal stenting
   d) Distal pancreatectomy with splenectomy
   e) Puestow procedure

18. Which of the following is associated with an increased risk of pancreatic cancer?
   a) Obesity
   b) Asian ancestry
   c) Hypertension
   d) Diabetes mellitus
   e) Cigarette smoking

19. Which of the following is associated with the best two-year survival for pancreatic adenocarcinoma located in the head of the pancreas with a diameter of 2.5 cm?
   a) Laparoscopic enucleation of the tumor
   b) Biliary bypass with gastrojejunostomy
   c) ERCP with stenting
   d) Pancreaticoduodenectomy with postoperative chemoradiation
   e) Pancreaticoduodenectomy

20. A 24-year-old woman has a solid tumor of the tail of the pancreas that is 4.5 cm in diameter. CT imaging discloses splenic vein thrombosis. There are gastric and esophageal varices visible on imaging. The best approach for management of this patient would be?
   a) TIPS procedure
   b) Laparoscopic enucleation of the mass
   c) Distal pancreatectomy with splenectomy
   d) Reconstruction of the portal vein using saphenous vein interposition graft
   e) Angiographic embolization of the splenic artery

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1. Choledochal cyst disease is characterized by an abnormal location of the junction of the pancreatic duct and the bile duct in the duodenal wall. The definition requires that the junction be at which distance from the ampulla of Vater?
   a) 15 mm
   b) 2 mm
   c) 3 cm
   d) 8 mm
   e) 20 mm

2. What is the preferred therapeutic approach for a patient with a Type III choledochal cyst presenting with chronic pain and evidence of sphincter of Oddi dysfunction?
   a) Pancreatoduodenectomy
   b) Celiac ganglion neurolysis
   c) Frey procedure
   d) Endoscopic sphincterotomy
   e) Distal pancreatectomy and splenectomy

3. According to data presented by Diao and coauthors, which of the following increases with increasing time between prenatal diagnosis of choledochal cyst and cyst excision with biliary reconstruction?
   a) Risk of cholangiocarcinoma
   b) Risk of pancreatitis
   c) Severity of liver fibrosis
   d) Severity of renal damage
   e) Risk of cerebral palsy

4. What proportion of choledochal cyst disease is diagnosed in adults?
   a) 33%
   b) 20%
   c) 50%
   d) 75%
   e) 5%

5. Data from the clinical series presented by Saluja and coauthors showed the most common complication of choledochal cyst in adults was which of the following?
   a) Chronic renal insufficiency
   b) Cholangitis
   c) Pancreatitis
   d) Gallbladder cancer
   e) Intracystic stone formation

6. According to Jang and coauthors, the most common malignancy associated with choledochal cyst disease is which of the following?
   a) Hepatocellular carcinoma
   b) Cholangiocarcinoma
   c) Gallbladder carcinoma
   d) Pancreatic carcinoma
   e) Duodenal carcinoma
7. Caroli syndrome is defined as which of the following?
   a) Intrahepatic biliary cysts with concomitant gallbladder cancer
   b) Intrahepatic biliary cysts with concomitant pancreatitis
   c) Intrahepatic biliary cysts with intracystic stone formation
   d) Intrahepatic biliary cysts with concomitant renal cysts
   e) Intrahepatic biliary cysts with concomitant duodenal ulcer disease

8. Data presented by Fuks and coauthors suggest that a tumor marker detectable in cyst fluid that would accurately diagnose mucinous cystic disease of the liver is which of the following?
   a) CEA
   b) TNF-alpha
   c) C-reactive protein
   d) CA 19-9
   e) Tumor-associated glycoprotein

9. Which of the following is the most common type of gallbladder polyp?
   a) Inflammatory polyp
   b) Adenomatous polyp
   c) Adenomyomatosis
   d) Cholesterol polyps
   e) Adenocarcinoma of the gallbladder

10. Data presented in the article by Pilgrim and coauthors indicate that the most dependable imaging finding that suggests the diagnosis of gallbladder cancer is which of the following?
    a) Presence of mural nodules
    b) Presence of gallbladder polyps
    c) Thickening and enhancement of the inner layers of the gallbladder wall
    d) Thickening of the outer layer of the gallbladder wall
    e) Presence of gallstones

11. After laparoscopic cholecystectomy for symptomatic cholelithiasis, adenocarcinoma is discovered in the mucosa of the excised gallbladder. Tumor cells are not observed beyond the lamina propria of the mucosal layer. What is the appropriate next step?
    a) Right hepatic lobectomy
    b) Resection of the gallbladder bed with regional lymphadenectomy
    c) Resection of the gallbladder bed with regional lymphadenectomy and bile duct resection
    d) Adjuvant radiation therapy to the gallbladder bed
    e) No further surgical therapy

12. Data presented by Hyder and coauthors suggest that all of the following reduce the chance for long-term survival in patients with cholangiocarcinoma except which one?
    a) Older patient age
    b) Presence of cirrhosis
    c) Decreasing serum level of CA 19-9
    d) Larger tumor size
    e) Presence of vascular invasion

13. Data reported by Duignan and coauthors indicate that the four-year survival following neoadjuvant chemoradiation and liver transplantation for patients with cholangiocarcinoma is which of the following?
    a) 5%
    b) 61%
    c) 33%
    d) 88%
    e) 18%
14. Which cells contribute to the process of pancreatic fibrosis in patients with chronic pancreatitis?
   a) Stellate cells
   b) Macrophages
   c) Beta cells
   d) Ductal epithelial cells
   e) T-lymphocytes

15. Risk factors for development of pancreatic cancer in patients with chronic pancreatitis include all of the following except which one?
   a) Tobacco use
   b) African-American ethnicity
   c) History of childhood irradiation
   d) Non-O blood type
   e) Male gender

16. A 43-year-old woman is found to have a 2.8-cm mass in the head of the pancreas. Ductal brushings obtained at ERCP and endoscopic ultrasound-guided needle biopsy of the mass do not confirm the diagnosis of pancreatic cancer, but suggest the diagnosis of autoimmune pancreatitis. The next step in treatment should be which of the following?
   a) Neoadjuvant chemoradiation therapy followed by pancreatoduodenectomy
   b) Prolonged biliary drainage
   c) Pancreatoduodenectomy
   d) A short course of corticosteroid therapy
   e) Sequential imaging followup to document lesion growth

17. Type 1 autoimmune pancreatitis can be differentiated from Type 2 disease on finding which of the following on tissue biopsy?
   a) Periductal neutrophil infiltration
   b) Infiltration of IG-4 cells
   c) Serum amylase levels that are at least three times normal
   d) Patient age less than 15 years
   e) Presence of hyperbilirubinemia

18. Overall accuracy of PET scanning for the diagnosis of pancreatic neuroendocrine tumors is which of the following?
   a) 21%
   b) 38%
   c) 90%
   d) 64%
   e) 8%

19. International consensus guidelines suggest that resection of main-duct intraductal pancreatic mucinous neoplasms (IPMN) be considered for ductal dilation greater than which of the following?
   a) 15 mm
   b) 1.0 cm
   c) 2.0 cm
   d) 5 mm
   e) 2 mm

20. Data from the article by Ollinger and coauthors indicate that long-term patient survival in patients undergoing simultaneous kidney-pancreas transplantation is which of the following?
   a) 26%
   b) 50%
   c) 63%
   d) 78%
   e) 94%
The following four questions are required by the American College of Surgeons for accreditation purposes. You must complete these four questions before submitting your answers.

21. This issue met the stated learning objectives.
   a) Strongly agree
   b) Agree
   c) Neutral
   d) Disagree
   e) Strongly disagree

22. The content was relevant to my educational needs and practice environment.
   a) Strongly agree
   b) Agree
   c) Neutral
   d) Disagree
   e) Strongly disagree

23. There are potential barriers to incorporating what I have learned from this issue into my practice.
   a) Strongly agree
   b) Agree
   c) Neutral
   d) Disagree
   e) Strongly disagree

24. The content was fair, objective, and unbiased.
   a) Strongly agree
   b) Agree
   c) Neutral
   d) Disagree
   e) Strongly disagree

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