

Liver and Gallbladder Surgery: Review Questions

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QUESTIONS

Choose the single best answer for each question.

- 1. A 25-year-old Hispanic woman who is 4 months postpartum has pain in the right upper quadrant. Her laboratory values are as follows: leukocyte count, $9.0 \times 10^3/\text{mm}^3$; total serum bilirubin, 0.9 mg/dL; serum alkaline phosphatase, 100 U/L; and serum amylase, 300 U/L. Which of the following statements regarding her condition is INCORRECT?**
 - A) If she undergoes a laparoscopic cholecystectomy, there is an approximately 5% chance that conversion to an open cholecystectomy will be necessary
 - B) If she undergoes laparoscopic cholecystectomy, she will have a 1.0% to 1.5% chance of having a surgically attributable injury to the common bile duct
 - C) She is likely to have gallstones, which are common in Hispanic women and frequently discovered during or following pregnancy
 - D) She most likely has experienced biliary colic and has passed a gallstone that resulted in mild pancreatitis, rather than having biliary obstruction at this time
 - E) Unless she has cholecystitis, cholelithiasis with symptomatic biliary colic is unlikely
- 2. Which of the following statements regarding hepatic infections is INCORRECT?**
 - A) Cholangitis always results from biliary manipulation or bile contamination from an extra-hepatic source
 - B) Cholangitis, which can result from the use of surgical instruments on the bile duct or from benign or malignant obstruction, requires immediate medical treatment
 - C) After the resection of a hydatid cyst, the preferred treatment is systemic albendazole
 - D) Hydatid cysts are caused by infection with *Echinococcus* species, usually transmitted by a canine vector or by consumption of contaminated food containing the parasite
 - E) Percutaneous drainage and use of intravenous antibiotics are appropriate to treat a parenchymal bacterial hepatic abscess
- 3. Which of the following statements regarding hepatic mass lesions is INCORRECT?**
 - A) Adenomas are benign liver tumors associated with oral contraceptive use in young women and should always be resected because of their high frequency of malignant transformation into hepatocellular cancer
 - B) Focal nodular hyperplasia, which is characterized on imaging studies by the finding of a central scar, rarely requires surgical resection
 - C) Resection of a hemangioma is indicated in patients who have pain or demonstrated platelet dysfunction
 - D) Simple cysts are a common finding, and surgical intervention is unnecessary in most patients
- 4. Following a motor vehicle accident, a patient has an abdominal CT scan, which shows a subcapsular hematoma and a partial fracture of the right lobe of the liver; there also is free air under the diaphragm. The patient's temperature is 34°C, and he is hemodynamically stable. Which of the following statements regarding his condition is correct?**
 - A) A diagnostic peritoneal lavage also may be useful in determining the presence of hepatic injury
 - B) The CT scan should be repeated to ascertain if the subcapsular hematoma is still contained prior to surgery
 - C) The patient requires an urgent laparotomy, with packing of the liver if further hemorrhaging occurs
 - D) The patient should be taken immediately to the operating room for a right hepatic resection

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- E) Serial hematocrit levels should be obtained in order to identify possible ongoing hemorrhaging prior to surgery

EXPLANATION OF ANSWERS

1. **(E) Unless she has cholecystitis, cholelithiasis with symptomatic biliary colic is unlikely.** Symptomatic and asymptomatic cholelithiasis commonly occur in the absence of cholecystitis, an infection of the gallbladder. Cholecystitis can develop from bacteria alone or as a consequence of cystic duct obstruction by a stone. Hispanic women have a high prevalence of biliary disease, including cholelithiasis, which often occurs during and after pregnancy. The laparoscopic approach has become the standard technique for cholecystectomy. The frequency of common bile duct injury is reported to range from 1.0% to 1.5%, or approximately twice that of the open procedure. The reported need to convert to an open cholecystectomy is 5%; to proceed safely, the surgeon should not hesitate to convert to an open technique. The patient is unlikely to have a bile duct obstruction, given her normal serum bilirubin and alkaline phosphatase levels. The elevated serum amylase level suggests that she has experienced biliary colic while passing a stone that resulted in mild pancreatitis.
2. **(A) Cholangitis always results from biliary manipulation or bile contamination from an extrahepatic source.** Cholangitis is an infection of the bile and is associated with bactobilia that occurs following instrumentation or biliary obstruction. However, extrahepatic contamination is not necessary for cholangitis to occur. Intrahepatic ductal obstruction from idiopathic, iatrogenic, or malignant sources is a common cause of cholangitis. Bacterial hepatic abscess should be treated with percutaneous drainage and intravenous antibiotics. In patients in whom the abscess is inadequately drained or this approach fails, operative drainage may be required. Hydatid cysts are caused by infection with *Echinococcus* species, a parasite of sheep and wild foxes. The parasite requires a vector to infect humans. Active hydatid infections require surgical resection. The procedure of choice is pericystectomy; however, partial hepatectomy may be required. The preferred systemic therapeutic agent for hydatid disease is albendazole.
3. **(A) Adenomas are benign liver tumors associated with oral contraceptive use in young women and should always be resected because of their high frequency of malignant transformation into hepatocellular cancer.** Hepatic adenomas are benign liver tumors, most commonly reported in young women taking oral contraceptives. However, the malignant transformation rate is less than 5%. In selected cases when patients experience pain or other symptoms (eg, duodenal obstruction, development of platelet-associated bleeding dysfunction), resection of the hemangioma is indicated. Focal nodular hyperplasia has the radiographic finding of a central scar. Only with very large lesions, when the patient is symptomatic or the diagnosis cannot be assured, is surgery indicated. Simple hepatic cysts are common and rarely require surgical intervention, except in symptomatic patients.
4. **(C) The patient requires an urgent laparotomy, with packing of the liver if further hemorrhaging occurs.** The liver has low perfusion pressure; tight packing with laparotomy sponges will compress bleeding. In this hypothermic patient, a lengthy operation will further decrease the temperature. Laparotomy with packing, closing, and correction of coagulopathy is the safest course. Currently, diagnostic peritoneal lavage, abdominal ultrasonography, or computed tomography (CT) scan are used to assess intra-abdominal injury after blunt abdominal trauma. The CT scan showed the presence of free intra-abdominal air, indicating a perforated hollow viscus and requiring laparotomy. Serial laboratory or imaging studies are not indicated in this patient, because the presence of free air is a clear indication for surgery. In this patient, the hepatic injury is contained. Because the patient is hypothermic and thus coagulopathic, hepatic resection is not indicated. Results of a diagnostic peritoneal lavage would not alter this patient's management, given the findings of the CT scan.

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