Small Group Discussion

1. Case of Peptic Ulcer Disease:

A 46-year old woman known to have chronic arthritis, presents to the emergency room with vomiting of blood "hematemesis ". Prior to that, she was complaining of upper abdominal pain, aggravated by hunger and relieved by antacids for several years. She takes pain killers for her joint pain only. Endoscopy was performed the same day she was admitted to the hospital, and was found to have a 1 cm clean-based ulcer in the duodenal bulb, without stigmata of active bleeding.

Questions:

1. Discuss mechanism of HCl secretion by the stomach.
2. What is hematemesis? What is hemoptysis?
3. What are the causes of PUD?
4. How does patient with PUD present?
5. What are the complications of PUD?
6. How to diagnose PUD?
7. What is role of H.pylori in the pathogenesis of PUD?
8. How to diagnose H.pylori infection?
9. What is the role of NSAIDs in the pathogenesis of PUD?
10. How to treat H.pylori infection?
11. How to treat and prevent NSAIDs –related?

2. Case of Liver Cirrhosis:

A 65 year old man presents with fatigue and increased sleeplessness started 2 years ago. 25 years ago he was involved in a road traffic accident and was hospitalized for 10 days, during which he received 3 units of blood transfusion. He is currently on no medication, and denies any alcohol consumption, drug abuse or sexual misconduct. On examination, he is overweight but looks lethargic with mild swelling of the ankles and feet. Abdominal exam revealed splenomegaly, and positive for ascites.
His laboratory tests showed: Hemoglobin 9 g% (N=12-14 g%), Platelets count =79000/µl (N:150000-300000/µl, albumin=28 gm/L (N: 38-40 gm/L), bilirubin = 2.5 mg% (N=0.5-1 mg%), ALT=98 U/L (N: up to 30 U/L), AST=77 U/L (N- up to 33 U/L), Prothrombin time 45 second, INP (international normal ratio) = 1.7 (N=1). Abdominal ultrasonagraphy showed coarse liver texture and nodularity with some ascites.

Questions:

1. Discuss the gross anatomy of the liver.
2. Discuss microscopic anatomy of the liver.
3. Discuss the blood supply and venous drainage of the liver.
4. What is the mostly likely cause of the liver disease in this patient?
5. What is the definition of cirrhosis?
6. What are the causes of the liver cirrhosis?
7. What are the complications of liver cirrhosis?
8. What is ascites? How does it develop?
9. What is esophageal varices?
10. What is hepatic encephalopathy?
11. What is the treatment of decompensated liver cirrhosis?

3. Case of Perforated Gastric Ulcer

History:

A 42 year old female was admitted to the hospital after visiting the emergency room complaining of severe epigastric pain and pain over her right shoulder. She had a history of gastric ulcer which had been treated previously with medication, but on questioning, she admitted that she had been so busy recently that she had forgotten to refill her prescription and had not taken her medication in some time. As a result of the history and physical findings, the physician suspected that she was suffering from a perforated gastric ulcer and she was referred to surgical department. When the surgeon examined the patient's stomach during the surgery, she found a small perforation on the posterior aspect of the body of the stomach near the lesser curvature. The perforation was repaired and, in addition, a vagotomy was performed. During the vagotomy, the surgeon found it necessary to cut the left gastric artery and ligate it.

Questions to consider:

1. What structures are at risk for damage by gastric juices if a perforation like the one described above occurs?
2. Why did the patient experience pain over her shoulder as well as in her abdomen?
3. What is a vagotomy and why was it performed?
4. Since the left gastric artery had to be ligated during the surgery, how will the stomach obtain an adequate blood supply?
5. Variations in the arteries of the celiac trunk are quite common, and thus are of particular interest to surgeons working in this area. Suppose the common hepatic artery originated from the left gastric artery in this case (an uncommon, but possible, variation) and the surgeon had to ligate the left gastric artery proximal to the bifurcation. How would this affect blood flow to the stomach? to other organs?

4. Case of Alcohol Misuse (alcohol and the digestive tract)
History:
Chief Complaint: 62-year-old man with esophageal bleeding

History: Amjad Ali, a 62-year-old accountant, has had a "drinking problem" throughout most of his adult life. He drinks about a half-case of beer each day. He has lost several jobs over the years for drinking at the workplace or showing up for work drunk. He lost his driver's license for drunk-driving, and his drinking has placed a considerable strain on his marriage. He has been hospitalized on several occasions over the years. Amjad has a severe tremor in his hands (probably a result of excessive alcohol intake), which makes it very difficult for him to use a spoon, fork, and knife to eat.

His past medical records showed theses notes:

First Hospitalization:
You note that Amjad was hospitalized at age 32 with a complaint of vomiting up blood after a drinking binge that lasted seven days and was marked by excessive and repeated vomiting episodes. The vomitus was bright red.
The hospital chart lists a diagnosis of "Upper GI bleed" due to a Mallory-Weiss tear. You look up "Mallory-Weiss tear" in an internal medicine textbook and see that it is defined as "a longitudinal tear in the mucosa at the gastroesophageal junction -- i.e. in the area of the lower esophageal sphincter -- caused by repeated vomiting."
Questions:

1. Why was the blood bright red, rather than the color of "coffee grounds"?
2. Based upon your knowledge of the vomiting reflex, why might severe vomiting tear the mucosa?

Second Hospitalization:
At age 36, Amjad was hospitalized again, this time with complaints of abdominal pain in the upper epigastric region (i.e. just below the xiphoid process of the sternum) and "coffee- grounds" emesis. He also complained of "heartburn" (a burning sensation in the area of the sternum) which was partially relieved with antacids. A diagnosis of "upper GI bleed due to gastritis and reflux esophagitis" is noted in the chart.
Questions:

1. What is causing the pain in the upper epigastric region ? What barrier(s) normally protect the stomach lining from its own acid?

2. What is reflux esophagitis?

3. Can you think of any treatments for Amjad's problems? Explain the mechanisms for those treatments, based upon your knowledge of the regulation of gastric secretions.

Third Hospitalization:
At age 41, Amjad entered the hospital with complaints of a high fever, nausea, loss of appetite, and a dull, continual pain in the left side of the back. In addition, he had diarrhea of a particularly foul odor and yellow color . He had also lost 15 pounds over the last month and a half. Unfortunately, the page in the chart is torn, so you cannot read the diagnosis! But your memory of an anatomy and physiology course you took in college helps you figure out the possible causes of Amjad's problem.
Questions:

1. Excessive exposure to alcohol can cause inflammation of certain digestive organs, such as the stomach. Inflammation of which organ(s) might be causing Amjad's back pain?
2. Based upon the function of the organ in question, what is causing the "steatorrhea" and weight loss?

Fourth Hospitalization:

As you read on, you note that Amjad was hospitalized again at age 49 with dull pain in the right, upper quadrant of the abdomen, intermittent fever of 3 weeks duration, and a yellowing of the skin and the whites of the eyes. A diagnosis of "alcohol-induced hepatitis" is listed in the chart.

Questions:

1. Is the diagnosis consistent with the location of the abdominal pain? Explain your answer.
2. 2- How are the liver and gallbladder connected to each other and to the duodenum?
3. If Amjad's liver disorder resulted in the production of a "gallstone," what danger might that present for his pancreas?
4. Why are Amjad's skin and eyes tinged yellow? What is this condition called?

Fifth Hospitalization:

At age 58, Amjad was rushed to the emergency room with severe vomiting of bright red blood. On examination, he had a blood pressure of 60 mmHg / 30 mmHg. The bleeding and vomiting started abruptly while Amjad was eating some hard, dry French bread. An endoscope (i.e. a flexible tube equipped with a camera) was placed down Amjad's esophagus, and a diagnosis of esophageal varices was quickly made.

Questions:

1. What are esophageal varices?
2. Where are esophageal varices typically located? (Be specific.)
3. On the hospital chart you see two other "secondary diagnoses" listed: (1) cirrhosis of the liver, and (2) portal hypertension.
4. Does this additional information help explain why Amjad developed esophageal varices? Explain your answer.
5. Why is bleeding particularly dangerous for Amjad?