GASTROINTESTINAL DYSFUNCTION

(CHAPTER 42)

QUESTION 1

Describe some manifestations of GI dysfunction.

- **abdominal pain**
- **anorexia** – loss of appetite
- **vomiting/emesis**
- **altered bowel habits** – constipation/diarrhea

QUESTION 2

Compare small- and large-volume diarrhea. List some causes.

Small-volume diarrhea is caused by increased intestinal **motility**.

Intestinal contents are moving through too fast and the large intestine doesn't have enough time to absorb fluids.

Large-volume diarrhea is due to water being **lost** into the intestines, or a failure to **absorb** water.

Can be due to body's attempt to flush out bacteria/viruses, or malabsorption.

QUESTION 3

Define hematemesis, melena, hematochezia, and occult blood. Where are the sources of this blood?

hematemesis – bloody vomit (emesis)

hematochezia – bright red, bloody stool

melena – dark, "tarry" blood in stool

occult blood – invisible **trace** amounts of blood in stool

One common cause of **hematemesis** is **gastroesophageal varices**, which are related to liver failure—we'll talk about this in the next unit.

Can also be caused by **peptic ulcers** in the stomach or damage to the esophageal mucosa.

Hematochezia is caused by "late" bleeding in the lower GI tract, primarily in the large intestine.

The blood is still fresh when it exits the body, thus retaining its bright red appearance.

Melena is caused by "early" bleeding in the upper GI tract, such as the stomach, esophagus, or duodenum.

Partial digestion of hemoglobin in the blood results in its dark, "tarry" appearance.

Occult blood can be from anywhere in the digestive tract, and occurs in small amounts only detectable by testing.

There are a wide range of explanations, from peptic ulcers or hemorrhoids to colorectal cancer.

QUESTION 4

Define dysphagia, odynophagia, and achalasia.

dus- (bad, difficult)

-phagía (eating)

DYSPHAGIA

"**difficulty** swallowing"

(Don't confuse with **dysphasia**—difficulty speaking or understanding language)

odúnē (pain)

-phagía (eating)

ODYNOPHAGIA

"**pain** with swallowing"

a- (not)

khálasis (relaxation)

ACHALASIA

"an inability of the gastroesophageal sphincter to relax, causing food to become stuck in the esophagus"

QUESTION 5

Describe gastroesophageal reflux disease (GERD.)

Commonly referred to as "heartburn."

Results from acidic stomach contents spilling up through the gastroesophageal sphincter, burning the esophageal mucosa.

Avoid lying down shortly after eating. Can be treated with medications that reduce acid (antacids, proton pump inhibitors.)

QUESTION 6

Describe a hiatal hernia.

Normally, the esophagus enters the abdominal cavity through the "esophageal perforation," a hole in the muscle of the diaphragm.

The stomach can get pulled up through this hole, resulting in herniation.

Gets worse with pressure on abdomen, e.g. lying down or wearing tight clothing.

QUESTION 7

What is the cardinal sign of gastritis? What is atrophic gastritis?

gastritis – inflammation of the stomach mucosa

#1 sign is stomach bleeding (hemorrhage) which can lead to hematemesis, sometimes melena.

Atrophic gastritis is a chronic disease in which continual inflammation causes the parietal cells of the stomach lining to be destroyed.

Parietal cells are responsible for producing stomach acid, so this can result in long-term digestive problems.

Can be autoimmune or caused by chronic H. pylori infection.

QUESTION 8

What is a peptic ulcer? What are the symptoms? Where do these ulcers occur?

Peptic ulcers can occur in either the stomach (**gastric ulcers**) or the first part of the small intestine (**duodenal ulcers**.)

They can occur due to an infection, such as H. pylori, or sometimes as an adverse effect of chronic NSAID use.

Symptoms include a burning, aching epigastric pain, which may get better or worse after eating, as well as vomiting and changes in appetite.

QUESTION 9

Describe gastric dumping.

Gastric dumping, a potential complication of gastric bypass surgery, occurs when food passes through the stomach and into the small intestine too quickly.

Common symptoms are nausea, abdominal cramping, and diarrhea.

Extreme diarrhea can even result in hypovolemia (low blood pressure due to fluid loss.)

QUESTION 10

What is *H. pylori*? How can we be infected? What does it cause?

Heliobacter pylori (*H. pylori*) is a bacterium that is a common source of chronic gut infection.

Highly linked to development of gastric ulcers, and in some cases even gastric cancer.

Spreads through food or water contamination. Chronic infection is often contracted a young age.

QUESTION 11

Compare mechanical and functional obstruction.

mechanical obstruction – **physical blockage** of the intestinal lumen

(fecal impaction, hernia, adhesion, etc.)

functional obstruction – impairment of intestinal **motility**, reducing ability to clear intestinal contents

(paralytic ileus, multiple sclerosis, etc.)

QUESTION 12

Compare malabsorption and maldigestion.

malabsorption – failure to **absorb** nutrients in the intestines

maldigestion – failure to **digest** (break down) food in the upper GI tract

QUESTION 13

Why would alkaline reflux gastritis lead to anemia?

In **alkaline reflux gastritis** (biliary reflux,) contents from the small intestine reflux through the pyloric sphincter back into the stomach.

Damage to the parietal cells results in decreased intrinsic factor production, leading to **pernicious** anemia.

(No longer able to absorb folate/iron as effectively, impairing hemoglobin prouction.)

QUESTION 14

What would cause pancreatic insufficiency? What is the cardinal sign of pancreatic insufficiency?

Pancreatic insufficiency can be caused by chronic pancreatitis, pancreatic cancer, cystic fibrosis, etc.

The #1 sign of pancreatic insufficiency is **steatorrhea**, or excess unabsorbed fat in the stool (causing a pale, oily diarrhea.)

Note that this is not **unique** to pancreatic problems, by any means. It can also be related to cholestasis, liver damage, or some malabsorptive disorders.

QUESTION 15

Describe the consequences of lactase deficiency.

lactase deficiency → **lactose** intolerance

Lactose is not adequately broken down due to lack of associated enzyme, and passes into the large intestine undigested rather than being absorbed.

Results in unpleasant GI symptoms: gas, bloating, diarrhea, etc.

QUESTION 16

What is celiac disease? What is the consequence of celiac disease? What grains need to be avoided?

Autoimmune disorder triggered by a reaction to **gluten**, a protein found in many grains.

Continued exposure to gluten can damage the villi of the small intestine, leading to malabsorptive problems including anemia.

Need to avoid any grains that include gluten: wheat, barley, rye, etc.

QUESTION 17

Describe the two major types of inflammatory bowel disease. How are these different from irritable bowel syndrome?

The two types of IBD are **ulcerative colitis** (UC) and **Crohn's disease**.

ulcerative colitis – inflammation of mucosa of large intestine (colitis,) especially the rectum

Results in abcesses and hemorrhage of the colon, presenting as hematochezia

Crohn's disease – inflammation of mucosa anywhere in the GI tract, but often "rectal-sparing"

Unlike UC, usually does not involve blood in the stool

Irritable bowel syndrome, on the other hand, is **not** inflammatory—there is no actual damage to the intestines.

Rather, it is a **functional** change in the physiology of the intestines.

QUESTION 18

What is the classification scheme for IBS based on?

Classification is based on the predominant **symptoms**:

- **IBS-C**: dominated by chronic constipation
- **IBS-D**: dominated by chronic diarrhea
- **IBS-M/IBS-A**: **mixed** or **alternating** pattern

QUESTION 19

Compare diverticulosis with diverticulitis.

Diverticula are "pouches" formed in the intestinal mucosa (usually the sigmoid colon) by the mucosa bulging outward.

Diverticulosis refers to the **presence** of diverticula, which are not a normal occurrence.

When diverticula become **infected**, the condition is knows as **diverticulitis**.

QUESTION 20

Physical exam of a patient with appendicitis would reveal which clinical manifestation?

Appendicitis is often associated with the observation of **rebound tenderness**. (Generally a sign of peritonitis.)

Quickly releasing pressure over the abdomen elicits **more** pain than the pressure itself.

(Also referred to as a positive **Blumberg sign**)