Review Article

REVIEW ARTICLE ON PEPTICULCER

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A B S T R A C T

Millions of Americans suffer from peptic ulcer disease (PUD). With approximately 10% of the U.S. population experiencing this condition, it has significantly impacted our health care system. The prevalence within the United States has become equal for both men and women. Death rates over the last 50 years have declined for PUD, primarily due to decreases in men. Regardless of the overall reduction in mortality, death rates of elderly patients on nonsteroidal anti-inflammatory drugs (NSAIDs) have increased. PUD is the main cause for upper gastrointestinal (UGI) hemorrhage and other complications. This article is designed to provide background information regarding the disease process and appropriate management of PUD and the eradication of etiologic factors.

INTRODUCTION

Peptic ulcer disease (PUD), also known as a peptic ulcer or stomach ulcer, is a break in the lining of the stomach, first part of the small intestine, or occasionally the lower esophagus. An ulcer in the stomach is known as a gastric ulcer while that in the first part of the intestines is known as a duodenal ulcer. The most common symptoms are waking at night with upper abdominal pain or upper abdominal pain that improves with eating. The pain is often described as a burning or dull ache. Other symptoms include belching, vomiting, weight loss, or poor appetite. About a third of older people have no symptoms. Complications may include bleeding, perforation, and blockage of the stomach. Bleeding occurs in as many as 15% of people.(1)

Common causes include the bacteria Helicobacter pylori and non-steroidal anti-inflammatory drugs (NSAIDs). Other less common causes include tobacco smoking, stress due to serious illness, Behcet disease, Zollinger-Ellison syndrome, Crohn disease and liver cirrhosis, among others. Older people are more sensitive to the ulcer causing effects of NSAIDs. The diagnosis is typically suspected due to the presenting symptoms with confirmation by either endoscopy or barium swallow. H. pylori can be diagnosed by testing the blood for antibodies, a urea breath test, testing the stool for signs of the bacteria, or a biopsy of the stomach. Other conditions that produce similar symptoms include stomach cancer, coronary heart disease, and inflammation of the stomach lining or gallbladder.

Definition

A peptic ulcer (stomach or duodenal) is a break in the inner lining of the esophagus, stomach, or duodenum. A peptic ulcer of the stomach is called a gastric ulcer; of the duodenum, a duodenal ulcer; and of the esophagus, an esophageal ulcer. Peptic ulcers occur when the lining of these organs is corroded by the acidic digestive (peptic) juices which are secreted by the cells of the stomach. A peptic ulcer differs from an erosion because it extends deeper into the lining of the esophagus, stomach, or duodenum and incites more of an inflammatory reaction from the tissues that are involved. Peptic ulcer also is referred to as peptic ulcer disease.(2)

Gastric ulcer

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Cause

- H. Pylori, Nsaids-Another Major Cause Is The Use Of Nsaids, Such As Ibuprofen And Aspirin.
- Stress, Diet,   Smoke Drink Alcohol, Eat Spicy Foods.

Pathphysiology

Peptic ulcers are defects in the gastric or duodenal mucosa that extend through the muscularis mucosa. The epithelial cells of the stomach and duodenum secrete mucus in response to irritation of the epithelial lining and as a result of cholinergic stimulation. The superficial portion of the gastric and duodenal mucosa exists in the form of a gel layer, which is impermeable to acid and pepsin. Other gastric and duodenal cells secrete bicarbonate, which aids in buffering acid that lies near the mucosa. Prostaglandins of the E type (PGE) have an important protective role, because PGE increases the production of both bicarbonate and the mucous layer. (3)

In the event of acid and pepsin entering the epithelial cells, additional mechanisms are in place to reduce injury. Within the epithelial cells, ion pumps in the basolateral cell membrane help to regulate intracellular pH by removing excess hydrogen ions. Through the process of restitution, healthy cells migrate to the site of injury. Mucosal blood flow removes acid that diffuses through the injured mucosa and provides bicarbonate to the surface epithelial cells.

Under normal conditions, a physiologic balance exists between gastric acid secretion and gastroduodenal mucosal defense. Mucosal injury and, thus, peptic ulcer occur when the balance between the aggressive factors and the defensive mechanisms is disrupted. Aggressive factors, such as NSAIDs, *H pylori* infection, alcohol, bile salts, acid, and pepsin, can alter the mucosal defense by allowing back diffusion of hydrogen ions and subsequent epithelial cell injury. The defensive mechanisms include tight intercellular junctions, mucus, mucosal blood flow, cellular restitution, and epithelial renewal.

The gram-negative spirochete *H pylori* was first linked to gastritis in 1983. Since then, further study of *H pylori* has revealed that it is a major part of the triad, which includes acid and pepsin, that contributes to primary peptic ulcer disease. The unique microbiologic characteristics of this organism, such as urease production, allows it to alkalinize its microenvironment and survive for years in the hostile acidic environment of the stomach, where it causes mucosal inflammation and, in some individuals, worsens the severity of peptic ulcer disease.(4)

Signs and Symptoms

- abdominal pain, classically epigastric strongly correlated to mealtimes. In case of duodenal ulcers the pain appears about three hours after taking a meal;
- bloating and abdominal fullness, waterbrash ,nausea, and copious vomiting, loss of appetite and weight loss. hematemesis , melena (5)

Diagnosis

Confirmation of the diagnosis is made with the help of tests such as endoscopies or barium contrast x-rays. The tests are typically ordered if the symptoms do not resolve after a few weeks of treatment, or when they first appear in a person who is over age 45 or who has other symptoms such as weight loss, because stomach cancer can cause similar symptoms. Also, when severe ulcers resist treatment, particularly if a person has several ulcers or the ulcers are in unusual places, a doctor may suspect an underlying condition that causes the stomach to overproduce acid.(6)

An esophagogastroduodenoscopy (EGD), one of the reasons that blood tests are not reliable for accurate peptic ulcer diagnosis on their own is their inability to differentiate between past exposure to the bacteria and current infection. Additionally, a false negative result is possible with a blood test if the patient has recently been taking certain drugs, such as antibiotics or proton-pump inhibitors.

The diagnosis of Helicobacter pylori can be made by:

- Urea breath test (noninvasive and does not require EGD);
- Direct culture from an EGD biopsy specimen; this is difficult to do, and can be expensive. Most labs are not set up to perform H. pylori cultures;
- Direct detection of urease activity in a biopsy specimen by rapid urease test;
- Measurement of antibody levels in blood (does not require EGD). It is still somewhat controversial whether a positive antibody without EGD is enough to warrant eradication therapy;(7)
- Stool antigen test;
- Histological examination and staining of an EGD biopsy.

Treatment

Younger patients with ulcer-like symptoms are often treated with antacids or H2 antagonists before endoscopy is undertaken. People who are taking nonsteroidal anti-inflammatories (NSAIDs) may also be prescribed a prostaglandin analogue (misoprostol) in order to help prevent peptic ulcers.(8)

Medication

Acid reducing medication

H2 antagonists or proton-pump inhibitors decrease the amount of acid in the stomach, helping with healing of ulcers. H. pylori

When H. pylori infection is present, the most effective treatments are combinations of 2 antibiotics (e.g. clarithromycin, amoxicillin, tetracycline, metronidazole) and a proton-pump inhibitor (PPI), sometimes together with a bismuth compound. In complicated, treatment-resistant cases, 3 antibiotics (e.g. amoxicillin + clarithromycin + metronidazole) may be used together with a PPI and sometimes with bismuth compound. An effective first-line therapy for uncomplicated cases would be amoxicillin + metronidazole + pantoprazole (a PPI).

Surgery

Perforated peptic ulcer is a surgical emergency and requires surgical repair of the perforation. Most bleeding ulcers require endoscopy urgently to stop bleeding with cautery, injection, or clipping.

Complications

- Internal bleeding.
- Infection.
- Obstruction.(9)

Self-Management

You may find relief from the pain of a stomach ulcer if you:

- Choose a healthy diet. Choose a healthy diet full of fruits, especially with vitamins A and C, vegetables, and whole grains. Not eating vitamin-rich foods may make it difficult for your body to heal your ulcer.
- Consider foods containing probiotics. These include yogurt, aged cheeses, miso, and sauerkraut.
- Consider eliminating milk. Sometimes drinking milk will make your ulcer pain better, but then later cause excess acid, which increases pain. Talk to your doctor about drinking milk.
- Consider switching pain relievers. If you use pain relievers regularly, ask your doctor whether acetaminophen (Tylenol, others) may be an option for you.
- Control stress. Stress may worsen the signs and symptoms of a peptic ulcer. Consider the sources of your stress and do what you can to address the causes. Some stress is unavoidable, but you can learn to cope with stress with exercise, spending time with friends or writing in a journal.
- Don't smoke. Smoking may interfere with the protective lining of the stomach, making your stomach more susceptible to the development of an ulcer. Smoking also increases stomach acid.
- Limit or avoid alcohol. Excessive use of alcohol can irritate and erode the mucous lining in your stomach and intestines, causing inflammation and bleeding.
- Try to get enough sleep. Sleep can help your immune system, and therefore counter stress. Also, avoid eating shortly before bedtime.(10)

Prevention

You may reduce your risk of peptic ulcer if you follow the same strategies recommended as home remedies to treat ulcers. It may also be helpful to:

- Protect yourself from infections. It's not clear just how H. pylori spreads, but there's some evidence that it could be transmitted from person to person or through food and water.

- You can take steps to protect yourself from infections, such as H. pylori, by frequently washing your hands with soap and water and by eating foods that have been cooked completely.
- Use caution with pain relievers. If you regularly use pain relievers that increase your risk of peptic ulcer, take steps to reduce your risk of stomach problems. For instance, take your medication with meals.

Work with your doctor to find the lowest dose possible that still gives you pain relief. Avoid drinking alcohol when taking your medication, since the two can combine to increase your risk of stomach upset.

If you need to take a pain medication associated with ulcers, you may need to also take additional medications such as an antacid, a PPI, an acid blocker or cytoprotective agent.

CONCLUSIONS

The identification of H. pylori as the causative agent in the majority of peptic ulcer disease has revolutionized the understanding and management of the disease. Medical conditions and surgical procedures associated with end-stage peptic ulcer disease have significantly decreased according to analysis of selected index categories.

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