



## Peptic Ulcer

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### ABSTRACT

The incidence of peptic ulceration disease (PUD) peaked in the late 19th century while transiting into the 20th century. With entry within the new millennium a significant decrease of PUD has occurred. However, demographic changes with an increasing elderly population related to multiple comorbidities and polypharmacy became responsible for a persistent high rate of peptic ulcer complications. The acid driven concept of PUD has directed the event of surgical procedures and drugs with an increasing potency in acid suppression. High speed of symptom resolution and rapid ulcer healing was obtained with the introduction of proton pump inhibitors, but cure of PUD has failed. The arrival of *Helicobacter pylori* has revolutionized the history of PUD which has become a curable disease by successful cure of the infection. However, new challenges have emerged with a rise of treatment failures due to increasing antibiotic resistance of *H. pylori*. The changing pattern within the prevalence of etiologies other than *H. pylori* demands for accurate identification of the ulcerogenic cause within the individual patient to allow for proper selection of therapy. Management of peptic ulceration bleeding remains a critical clinical challenge. The chapter of PUD is reduced in size and has become more heterogeneous – but isn't closed!

### I. Introduction

Peptic ulcer disease represents a serious medical problem. Approximately 500,000 new cases are reported annually, with 5 million people affected within the United States alone. Interestingly, those at the very best risk of contracting peptic ulcer disease are those generations born round the middle of the 20th century. Ulcer disease has become a disease predominantly affecting the older population, with the height incidence occurring between 55 and 65 years of age. In men, duodenal ulcers were more common than gastric ulcers; in women, the converse was found to be true. Thirty-five percent of patients diagnosed with gastric ulcers will suffer serious complications. Although mortality rates from peptic ulceration disease are low, the high prevalence and therefore the resulting pain, suffering, and expense are very costly. Ulcers can develop within the esophagus, stomach or duodenum, at the margin of a gastroenterostomy, within the jejunum, in Zollinger-Ellison syndrome, and in association with a Meckel's diverticulum containing ectopic gastric mucosa. peptic ulceration disease is one of several disorders of the upper alimentary canal that is caused, a minimum of partially, by gastric acid. Patients with peptic ulceration disease may present with a variety of symptoms, from mild abdominal discomfort to catastrophic perforation and bleeding.

### 2. Symptoms

Burning stomach pain, Feeling of fullness, bloating or belching, Intolerance to fatty foods, Heartburn, Nausea. The most common peptic ulcer symptom is burning stomach pain. Stomach acid makes the pain worse, as does having an empty stomach. The pain can often be relieved by eating certain foods that buffer stomach acid or by taking an acid-reducing medication; on the other hand it may come back. The pain could also be worse between meals and at night.

Many people with peptic ulcers don't even have symptoms. Less often, ulcers may cause severe signs or symptoms such as: Vomiting or vomiting blood — which can appear red or black, Dark blood in stools, or stools that are black or tarry, Trouble breathing, Feeling faint, Nausea or vomiting, Unexplained weight loss, Appetite changes.

### 3. What causes a peptic ulcer?

Long-term use of non-steroidal anti-inflammatory drug drugs (NSAIDs), like aspirin and ibuprofen, An infection with the bacteria *Helicobacter pylori* (*H. pylori*), Rare cancerous and noncancerous tumors within the stomach, duodenum, or pancreas, Sometimes peptic ulcers are caused by both NSAIDs and *H. pylori*, Mental stress, Smoking, Alcohol consumptions, Genetic etc.

### 4. How do NSAIDs cause a peptic ulcer?

To understand how NSAIDs cause stomach ulcers, it is important to understand how NSAIDs work. Non-steroidal anti-inflammatory drugs reduce pain, fever, and inflammation or swelling. Each has two enzymes that produce chemicals in your body's cells that promote pain, inflammation, and fever. NSAIDs work by blocking or reducing the amount of these enzymes your body produces. However, one of the enzymes also produces another type of

chemical that protects the lining of the stomach from stomach acid and helps control bleeding. When NSAIDs block or reduce the amount of this enzyme in your body, they also increase your chances of developing a stomach ulcer.

#### ***How do H. pylori cause peptic ulcer disease?***

H. pylori are spiral-shaped bacteria that can cause stomach ulcers by damaging the lining that protects the lining of the stomach and duodenum. Once H. pylori has damaged the lining, strong stomach acid can reach the sensitive lining. Together, stomach acid and H. pylori irritate the lining of the stomach or duodenum, causing a stomach ulcer.

#### **Mental stress:**

Numerous studies have reached conflicting conclusions regarding the role of psychological factors in the pathogenesis and natural history of peptic ulcer disease. The role of psychological factors is far from clear. Acute stress leads to increases in heart rate, blood pressure, and anxiety, but only in patients with duodenal ulcers, acute stress actually resulted in a significant increase in basal acid secretion. There is no clearly established "ulcer type" personality. Ulcer patients tend to have the same psychological makeup as the general population but appear to perceive higher levels of stress. Beyond that there is no evidence that different occupational factors influence the incidence of ulcer diseases.

#### **Alcohol consumptions:**

Although alcohol has been shown to damage gastric mucosa in animals, this appears to be related to the absolute ethanol administered (200 evidence). Pure Ethanol is fat-soluble and leads to open, acute mucosal damage. Since most people do not drink absolute ethanol, mucosal injury is unlikely to occur. Ethanol less than 10% (20 proof). Ethanol at low concentrations (5%) can slightly stimulate gastric acid secretion; higher concentrations decrease Acid secretion. Although physiologically interesting, this has no direct relation to ulcer genesis or therapy.

#### **Genetic:**

Genetic elements play roles in the etiology of peptic ulcer sickness and the acquisition of Helicobacter pylori infection. Genetic influences are of average significance for legal responsibility to peptic ulcer disease. Genetic influences for peptic ulcer are impartial of genetic influences necessary for acquiring H. pylori infection.

### ***5. Diagnostic and treatment***

**Diagnosis -** To detect an ulcer, your doctor may first take a medical record and perform a physical exam. You then may have to undergo diagnostic tests, such as:

**Laboratory tests for H. pylori.** Your doctor may recommend test to work out whether the bacterium H. pylori is present in your body. He or she may search for H. pylori employing a blood, stool or breath test. The breath test is that the most accurate. For the breath test, you drink or eat something that contains radioactive carbon. H. pylori break down the substance in your stomach. Later, you blow into a bag, which is then sealed. If you're infected with H. pylori, your breath sample will contain the radioactive carbon within the form of carbon dioxide. If you're taking an antacid prior to the testing for H. pylori, ensure to let your doctor know. counting on which test is used, you'll need to discontinue the medication for a period of time because antacids can lead to false-negative results.

**Endoscopy** Your doctor may use a scope to look at your upper digestive system (endoscopy). During endoscopy, your doctor passes a hollow tube equipped with a lens (endoscope) down your throat and into your esophagus, stomach and little intestine. Using the endoscope, your doctor looks for ulcers. If your doctor detects an ulcer, a little tissue sample (biopsy) may be removed for examination in a lab. A biopsy also can identify whether H. pylori is in your stomach lining. Your doctor is more likely to recommend endoscopy if you're older, have signs of bleeding, or have experienced recent weight loss or difficulty eating and swallowing. If the endoscopy shows an ulcer in your stomach, a follow-up endoscopy should be performed after treatment to point out that it has healed, whether or not your symptoms improve.

**Upper gastrointestinal series** Sometimes called a barium swallow, this series of X-rays of your upper gastrointestinal system creates images of your esophagus, stomach and little intestine. During the X-ray, you swallow a white liquid (containing barium) that coats your alimentary canal and makes an ulcer more visible.

#### **Treatment:**

Treatment for peptic ulcers depends on the cause. Usually treatment will involve killing the H. pylori bacterium if present, eliminating or reducing use of NSAIDs if possible, and helping your ulcer to heal with medication.

#### **Medications can include:**

Antibiotic medications to kill H. pylori. If H. pylori are found in your alimentary canal, your doctor may recommend a mixture of antibiotics to kill the bacterium. These may include amoxicillin (Amoxil), clarithromycin (Biaxin), metronidazole (Flagyl), tinidazole (Tindamax), tetracycline and levofloxacin. The antibiotics used will be determined by where you live and current antibiotic resistance rates. You'll likely need to take antibiotics for two weeks, as well as additional medications to reduce stomach acid, including a proton pump inhibitor and possibly bismuth subsalicylate (Pepto-Bismol).

**Medications that block acid production and promote healing Proton pump inhibitors** — also called PPIs — reduce stomach acid by blocking the action of the parts of cells that produce acid. These drugs include the prescription and over-the-counter medications omeprazole, lansoprazole, rabeprazole. Long-term use of proton pump inhibitors, particularly at high doses, may increase your risk of hip, wrist and spine fracture. Ask your doctor whether a calcium supplement may reduce this risk.

**Medications to scale back acid production Acid blockers** — also called histamine (H-2) blockers — reduce the amount of stomach acid released into your digestive tract, which relieves ulcer pain and encourages healing. Available by prescription or over the counter, acid blockers include the medications famotidine (Pepcid AC).

**Antacids that neutralize stomach acid.** Your doctor may include an antacid in your drug regimen. Antacids neutralize existing stomach acid and may provide rapid pain relief. Side effects can include constipation or diarrhea, counting on the main ingredients. Antacids can provide symptom relief but generally aren't wont to heal your ulcer.

**Medications that protect the liner of your stomach and small intestine:** In some cases, your doctor may prescribe medications called cytoprotective agents that help protect the tissues that line your stomach and little intestine. Options include the prescription medications sucralfate (Carafate) and misoprostol (Cytotec).

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## 6. Best Food for Stomach Ulcer

Apples, pears, oatmeal, and other foods that are high in fiber are good for ulcers in two ways. Fiber can lower the quantity of acid in your stomach while easing bloating and pain. Research has also shown that a diet rich in fiber may help prevent ulcers.

Foods like yogurt, miso, kimchi, sauerkraut, kombucha, and tempeh are rich in “good” bacteria called probiotics. they'll help ulcers by fighting an H. pylori infection or by helping treatments work better.

It's high in vitamin A , and there's evidence that this nutrient can help shrink stomach ulcers and should also play a role in preventing them. Other foods with an honest dose of vitamin A include spinach, carrots, cantaloupe, and beef liver.

It's rich in vitamin C , which may help protect you from ulcers in a number of ways. For one, vitamin C plays an important role in wound healing. people that don't get enough are also more likely to get ulcers. Get this nutrient in citrus fruits, strawberries, kiwis, and broccoli, too.

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## 7. Worst Food for Stomach Ulcer

If you're susceptible to ulcers or have one now, it's best to limit alcohol or avoid it altogether. Research has shown that booze irritates and may even damage your digestive tract. It can make ulcers worse.

They take longer to digest, which may lead to belly pain and bloating – bad news if you have an ulcer. If they create your stomach feel worse, take an opportunity from them.

For an extended time, doctors thought spicy food was a serious cause of ulcers. We now know this isn't true. Still, some people find that it makes their symptoms worse. Avoid it if it causes you pain.

At first, it might seem to make sense that acidic foods like citrus and tomatoes would aggravate ulcers. But there's no strong evidence that they need any effect on them. Still, we all have unique reactions to foods, so if acidic ones make your ulcer feel worse, skip them. Chocolate has plenty of potential health benefits. But it often causes discomfort for a few people who have ulcers. If eating chocolate causes you to feel worse, wait to indulge until your ulcer has healed.

The research is mixed on whether caffeine – coffee particularly – makes ulcers feel worse. Yet it's still common advice to chop it out if you have one. Ask your doctor, but you'll not have to give up coffee as long as your symptoms don't get worse.

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## 8. Conclusion

If the natural banks of a river are broken, the breach could also be filled with concrete along with reinforcement of the riverbed using concrete and construction of a dam upstream to control the flow of water. Bacterial eradication and the administration of proton pump inhibitors and other drugs in the treatment of ulcer are analogous to engineering for river management. In conventional medical treatment for ulcer, unhealthy lifestyle factors (including smoking, drinking, and stress) are left unchanged. If disease may be a signal from the body and mind, even if the signal is removed, the underlying health problems have a high potential to offer rise to diabetes, cancer, and other diseases rather than peptic ulcer. A construction project designed to prevent a river from breaking its banks makes the river unable to function as a part of the ecosystem, and makes it hard for living things grow and survive in it. additionally , it causes pollution of the sea, and makes the land less fertile, while damaging the fields, forests, and mountains. Like engineering for rivers, the medical management of ulcer shouldn't be based on a simple cause-effect relationship. Treatment should be adjusted to individual patients and should be designed by taking the involvement of many

causative factors (including *H. pylori* and stress) into consideration. In other words, the bio-psycho-social approach is important for the treatment of peptic ulceration.

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