Peptic ulcer disease

Introduction

A peptic ulcer is an erosion in part of the mucosal lining of the stomach (gastric ulcer) or the first few centimetres of the duodenum (duodenal ulcer).

The epithelial cells of the stomach and duodenum protect the gastrointestinal (GI) mucosa from stomach acid and digestive enzymes by secreting a protective mucous layer. Other cells secrete bicarbonate, which neutralises acid near the GI mucosa. In the event of acid and pepsin entering the epithelial layer, there are additional mechanisms in place to reduce mucosal damage.

Under normal conditions, a balance exists between gastric acid secretion and mucosal protection of the stomach and duodenum. However, if the mucosal protection breaks down, the digestive juices and stomach acid can erode the GI mucosa and an ulcer may form.

Causes

The two most common causes of peptic ulcer are an infection of the stomach with Helicobacter pylori bacteria, and the use of nonsteroidal anti-inflammatory drugs (NSAIDs)

Helicobacter pylori

H. pylori causes changes to the normal environment of the stomach and duodenum. It disrupts the mucous layer and causes release of certain enzymes and toxins that damage the cells of the stomach and duodenum. This results in the underlying tissues becoming inflamed, and an ulcer may develop.

Nonsteroidal anti-inflammatory drugs

NSAIDs disrupt the protective mucosal layer, leaving the underlying tissues vulnerable to damage from digestive enzymes and stomach acid.

Symptoms

The characteristic symptom of peptic ulcer is pain that is described as burning, gnawing, aching or hunger-like in character, felt in the upper abdomen below the sternum. Pain occurring soon after eating is more commonly associated with gastric ulcer, whereas pain occurring two to five hours after a meal is usually associated with a duodenal ulcer. However, patients with peptic ulcers may also be asymptomatic.

Other symptoms include:
- Bloating
- An early sense of fullness
- Loss of appetite
- Nausea
- Vomiting
- Blood in the stools.

Complications of a peptic ulcer may develop in some cases. The most common complications are bleeding and perforation. Perforation occurs when the ulcer extends through the wall of the stomach or duodenum. These complications may be life threatening.

In elderly patients, pain may be non-specific or absent. Elderly patients with peptic ulcer disease experience epigastric discomfort with bloating, nausea or an early sense of fullness more commonly than younger patients. Elderly patients are also more likely to experience GI bleeding. They may develop anaemia as a result of unrecognised blood loss.

Patients with symptoms suggestive of peptic ulcer disease should be referred to the doctor.

Treatment

Treatment of peptic ulcers depends on the cause.

Helicobacter eradication

In peptic ulcers caused by H. pylori, eradication of the bacteria results in long-term healing of the ulcer. First-line treatment involves triple therapy for at least seven days with:
- A proton-pump inhibitor (PPI) such as omeprazole, esomeprazole, lansoprazole, pantoprazole or rabeprazole
- Antibiotics, usually clarithromycin combined with amoxicillin. Metronidazole may be used in patients who are allergic to amoxicillin.

Acid suppressants

For the treatment of NSAID-induced ulcers, medicines that reduce the amount of stomach acid may be used to facilitate healing of the ulcer.

This includes:
- PPIs such as omeprazole, esomeprazole, lansoprazole, pantoprazole or rabeprazole
- Histamine-2 (H2)-receptor antagonists such as cimetidine and ranitidine
- Antacids such as aluminium hydroxide, magnesium trisilicate, magnesium hydroxide, magnesium carbonate and antacid-alginate combinations.

Sucralfate and bismuth subcitrate may also be used in the treatment of peptic ulcers, as they protect the GI mucosa by forming a coating over the ulcer.

Prevention

To prevent NSAID-induced ulcers, it is best to avoid NSAID use where possible. Some patients, however, are unable to stop NSAID or low-dose aspirin therapy. In these patients, the lowest effective dose of NSAID should be used. Peptic ulcer
preventative therapy with a PPI may be added.

**General advice**

The pharmacist’s assistant may educate patients about peptic ulcer disease and counsel patients to:
- Stop smoking
- Reduce or avoid alcohol, as large amounts of alcohol may damage the gastric mucosa
- Avoid foods that cause worsening of symptoms, e.g. acidic or spicy foods
- Take their medicines as prescribed by the doctor.

**Conclusion**

Patients describing symptoms such as recurring pain below the breast bone, which may or may not be relieved by food or antacids, bloating, an early sense of fullness, decreased appetite, nausea, vomiting or blood in the stools should be referred to the doctor for evaluation. Peptic ulcer disease should be diagnosed by a doctor and treated according to the cause. Most patients are treated successfully with eradication of *H. pylori* infection, avoidance of NSAIDs and appropriate use of acid suppressants. Patients should be advised to stop smoking, avoid alcohol and take their medicines as prescribed to encourage ulcer healing.

**Bibliography**