

Duodenal Ulcer

A duodenal ulcer is usually caused by an infection with a germ (bacterium) called *Helicobacter pylori* (*H. pylori*). A 4- to 8-week course of acid-suppressing medication will allow the ulcer to heal. In addition, a one-week course of two antibiotics plus an acid-suppressing medicine will usually clear the *H. pylori* infection. This usually prevents the ulcer from coming back. Anti-inflammatory medicines used to treat conditions such as arthritis sometimes cause duodenal ulcers. If you need to continue with the anti-inflammatory medicine then you may need to take long-term acid-suppressing medication.

Understanding your gut and digestion

Food passes down the gullet (oesophagus) into the stomach. The stomach makes acid which is not essential, but helps to digest food. After being mixed in the stomach, food passes into the first part of the small intestine (the duodenum). In the duodenum and the rest of the small intestine, food mixes with chemicals called enzymes. The enzymes come from the pancreas and from cells lining the intestine. The enzymes break down (digest) the food which is taken up (absorbed) into the body.

Some terms explained

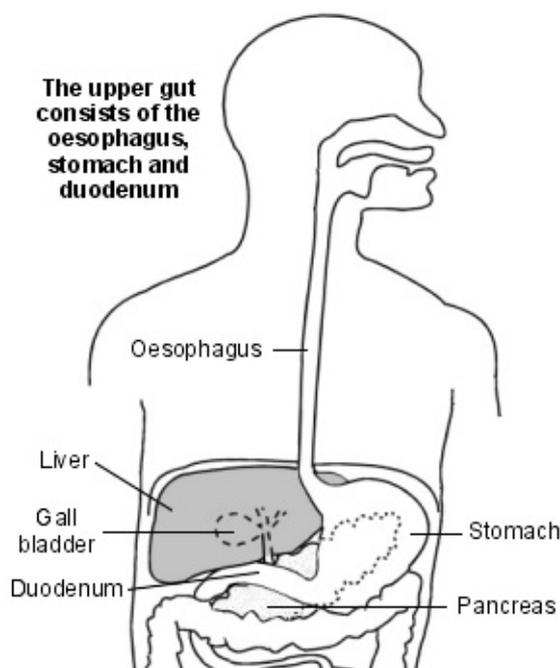
- **Peptic inflammation** is inflammation caused by stomach acid. Inflammation may be in the stomach; in the first part of the small intestine (the duodenum), as acid flows in with food; or in the lower gullet (oesophagus), if acid splashes up to cause reflux oesophagitis.
- **Apeptic ulcer** is an ulcer caused by stomach acid. An ulcer occurs where the lining of the gut is damaged and the underlying tissue is exposed. If you could see inside your gut, an ulcer looks like a small, red crater on the inside lining of the gut.
- **The duodenum** is the most common site for a peptic ulcer. This leaflet deals only with duodenal ulcers.

There are separate leaflets called [Stomach \(Gastric\) Ulcer](#) and [Acid Reflux and Oesophagitis](#).

What causes duodenal ulcers?

Your stomach normally produces acid to help with the digestion of food and to kill germs (bacteria). This acid is corrosive so some cells on the inside lining of the stomach and the first part of the small intestine (the duodenum) produce a natural mucous barrier. This protects the lining of the stomach and duodenum. There is normally a balance between the amount of acid that you make and the mucous defence barrier. An ulcer may develop if there is an alteration in this balance, allowing the acid to damage the lining of the stomach or duodenum. Causes of this include the following:

Infection with *Helicobacter pylori* (*H. pylori*)



Infection with *H. pylori* is the cause in about 19 in 20 cases of duodenal ulcer. More than a quarter of people in the UK become infected with *H. pylori* at some stage in their lives. Once you are infected, unless treated, the infection usually stays for the rest of your life. In many people it causes no problems and a number of these bacteria just live harmlessly in the lining of the stomach and duodenum. However, in some people this bacterium causes an inflammation in the lining of the stomach or duodenum. This causes the defence mucous barrier to be disrupted (and in some cases the amount of acid to be increased) which allows the acid to cause inflammation and ulcers.

Anti-inflammatory medicines - including aspirin

Anti-inflammatory medicines are sometimes called non-steroidal anti inflammatory drugs (NSAIDs). There are various types and brands. For example, aspirin, ibuprofen, diclofenac, etc. Many people take an anti-inflammatory medicine for arthritis, muscular pains, etc. Aspirin is also used by many people to protect against blood clots forming. However, these medicines sometimes affect the mucous barrier of the duodenum and allow acid to cause an ulcer. About 1 in 20 duodenal ulcers are caused by anti-inflammatory medicines.

Other causes and factors

Other causes are rare. For example, the Zollinger-Ellison syndrome. In this rare condition, much more acid than usual is made by the stomach. Other factors such as smoking, stress, and drinking heavily may possibly increase the risk of having a duodenal ulcer. However, these are not usually the underlying cause of duodenal ulcers.

What are the symptoms of a duodenal ulcer?

- **Pain** in the upper tummy (abdomen) just below the breastbone (sternum) is the common symptom. It usually comes and goes. It may occur most before meals, or when you are hungry. It may be eased if you eat food, or take antacid tablets. The pain may wake you from sleep.
- **Other symptoms** which may occur include bloating, retching, and feeling sick. You may feel particularly full after a meal. Sometimes food makes the pain worse.
- **Complications** occur in some cases, and can be serious. These include:
 - Bleeding ulcer. This can range from a trickle to a life-threatening bleed.
 - Perforation. This is where the ulcer goes right through (perforates) the wall of the first part of the small intestine (duodenum). Food and acid in the duodenum then leak into the abdominal cavity. This usually causes severe pain and is a medical emergency.

What tests may be done?

- **Gastroscopy (endoscopy)** is the test that can confirm a duodenal ulcer. In this test a doctor or nurse looks inside your stomach and the first part of your small intestine (duodenum). They do this by passing a thin, flexible telescope down your gullet (oesophagus). They can see any inflammation or ulcers.
- **A test to detect the *H. pylori* germ (bacterium)** is usually done if you have a duodenal ulcer. If *H. pylori* is found then it is likely to be the cause of the ulcer. Briefly, it can be detected in a sample of stools (faeces), or in a breath test, or from a blood test, or from a biopsy sample taken during an endoscopy. See separate leaflet called **Helicobacter Pylori and Stomach Pain** for more details.

What are the treatments for a duodenal ulcer?

Acid-suppressing medication

A 4- to 8-week course of a medicine that greatly reduces the amount of acid your stomach makes is usually advised. The most commonly used medicine is a proton pump inhibitor (PPI). These are a group (class) of medicines that work on the cells that line the stomach, reducing the production of acid. They include esomeprazole, lansoprazole, omeprazole, pantoprazole and rabeprazole, and come in various brand names. Sometimes another class of medicines called H2 blockers is used. They are also called histamine H2-receptor antagonists but are commonly called H2 blockers. H2 blockers work in a different way on the cells that line the stomach, reducing the production of acid. They include cimetidine, famotidine, nizatidine and ranitidine, and come in various brand names. As the amount of acid is greatly reduced, the ulcer usually heals. However, this is not the end of the story.

If your ulcer was caused by *H. pylori*

Nearly all duodenal ulcers are caused by infection with *H. pylori*. Therefore, a main part of the treatment is to clear this infection. If this infection is not cleared, the ulcer is likely to return once you stop taking acid-suppressing medication. **Two antibiotics are needed.** In addition, you need to take an acid-suppressing medicine to reduce the acid in the stomach. This is needed to allow the antibiotics to work well. You need to take this combination therapy (sometimes called triple therapy) for a week.

One course of combination therapy clears *H. pylori* infection in up to 9 in 10 cases. If *H. pylori* is cleared, the chance of a duodenal ulcer returning is greatly reduced. However, in a small number of people, *H. pylori* infection returns at some stage in the future.

After treatment, a test to check that *H. pylori* has gone may be advised. If it is done, it needs to be done at least four weeks after the course of combination therapy has finished. In most cases, the test is negative meaning that the infection has gone. If it has not gone then a repeat course of combination therapy with a different set of antibiotics may be advised. Some doctors say that for people with a duodenal ulcer, this confirmation test is not necessary if symptoms have gone. The fact that symptoms have gone usually indicates that the ulcer and the cause (*H. pylori*) have gone. But, some doctors say it is needed to play safe. Your own doctor will advise if you should have it. (**Note:** a test to confirm that *H. pylori* has gone is usually always recommended if you have a stomach ulcer.)

If your ulcer was caused by an anti-inflammatory medicine

If possible, you should stop the anti-inflammatory medicine. This allows the ulcer to heal. You will also normally be prescribed an acid-suppressing medicine for several weeks (as mentioned above). This stops the stomach from making acid and allows the ulcer to heal.

However, in many cases the anti-inflammatory medicine is needed to ease symptoms of arthritis or other painful conditions, or aspirin is needed to protect against blood clots. In these situations, one option is to take an acid-suppressing medicine each day indefinitely. This reduces the amount of acid made by the stomach, and greatly reduces the chance of an ulcer forming again.

Surgery

In the past, surgery was commonly needed to treat a duodenal ulcer. This was before it was discovered that *H. pylori* was the cause of most duodenal ulcers, and before modern acid-suppressing medicines became available. Surgery is now usually only needed if a complication of a duodenal ulcer develops such as severe bleeding or a hole (perforation).

Further reading & references

- **Dyspepsia and gastro**oesophageal reflux disease: Investigation and management of dyspepsia - symptoms suggestive of gastrooesophageal reflux disease - or both; NICE Clinical Guideline (Sept 2014)
- Niv Y; *H. pylori*/NSAID--negative peptic ulcer--the mucin theory. *Med Hypotheses*. 2010 Nov;75(5):433-5. Epub 2010 May 4.
- Holster IL, Kuipers EJ; Update on the endoscopic management of peptic ulcer bleeding. *Curr Gastroenterol Rep*. 2011 Dec;13(6):525-31.

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