PROCEDURE

Pyloroplasty

Pyloroplasty is surgery that widens the stomach outlet to help food pass into the small intestine.

PURPOSE
Improve stomach emptying through the pylorus

PROCEDURE TYPE
Therapeutic surgery, usually minimally invasive

WHERE IT IS DONE
Operating theatre

ANAESTHESIA
General

HOW LONG IT TAKES
Usually 60 to 120 minutes

PREPARATION
Fasting and medication adjustments, especially blood thinners and diabetes medicines

RECOVERY
Usually one to several nights; no driving while taking opioids

MAIN RISKS
Leakage, bleeding, infection, dumping syndrome

RESULTS
Symptom response becomes clearer over several weeks

Overview

Pyloroplasty is an operation that widens the opening between your stomach and small intestine. This opening is called the pylorus. A ring of muscle around it acts like a valve, controlling how food leaves the stomach.

During pyloroplasty, the surgeon cuts through part of the pyloric muscle and closes the opening in a different direction. This makes the passage wider and helps stomach contents move forward more easily.

The operation may be performed through several small cuts using laparoscopic or robotic instruments. Sometimes an open operation through a larger abdominal cut is necessary. Pyloroplasty may be done alone or as part of another stomach or esophageal operation.

Pyloroplasty is different from pyloromyotomy, although both affect the pyloric muscle. Pyloromyotomy, in which the muscle is divided but not reshaped in the same way, is commonly used for pyloric stenosis in infants.

Why the procedure is performed

Your healthcare team may recommend pyloroplasty when the pylorus is too narrow or does not relax enough to let food leave your stomach.

Possible reasons include:

Gastroparesis means the stomach empties more slowly than expected without a physical blockage. Pyloroplasty may help when poor pyloric opening appears to be an important part of the problem. It does not guarantee that nausea, vomiting, pain, or fullness will completely resolve because these symptoms may have more than one cause.

- Gastroparesis that has not improved enough with diet and medicines
- Scarring from a previous peptic ulcer
- A narrowed pylorus after an earlier operation
- The need to improve stomach drainage during another operation
- Selected cases of gastric outlet obstruction, meaning blockage at the stomach exit

Who should and should not have it

Pyloroplasty may be considered if testing shows delayed stomach emptying or narrowing at the pylorus and less invasive treatment has not worked. The expected benefit should be weighed against the risks of abdominal surgery.

It is not the right procedure for every cause of poor stomach emptying. It may be avoided or delayed when:

If you have gastroparesis, your team may review stomach-emptying tests, endoscopy findings, nutrition, diabetes control, and previous treatment before recommending surgery. The likely benefit is less certain when symptoms and test results do not point to pyloric dysfunction.

- A blockage is located somewhere other than the pylorus
- Cancer is suspected and requires biopsy, staging, or a different operation
- Symptoms are likely to come from another digestive condition

- A serious infection or unstable medical condition makes surgery unsafe
- A bleeding or clotting problem has not been corrected
- General anaesthesia would carry an unacceptable risk
- Pregnancy or another temporary condition makes postponement safer

How to prepare

Your treating facility's own instructions take priority because preparation may differ with the surgical approach and your health.

You will usually need to stop eating and drinking for a set period before surgery. Follow the exact fasting times you receive. Food remaining in the stomach can increase the risk of vomiting or breathing stomach contents into the lungs during anaesthesia.

Give the surgical team a current list of prescription medicines, over-the-counter products, vitamins, supplements, and allergies. Ask specifically about blood thinners like warfarin or apixaban , aspirin, anti-inflammatory medicines, insulin, and other diabetes medicines. Do not stop a prescribed blood thinner unless the treating team tells you to do so.

Preoperative preparation may include blood tests, an electrocardiogram, imaging, endoscopy, or a stomach-emptying study. You may be asked to stop smoking because smoking can slow healing.

Arrange transportation and help at home. Bring loose clothing and leave valuables behind. Tell the team if you develop a fever, respiratory illness, worsening vomiting, or another significant change before the operation.

What happens during the procedure

You will receive general anaesthesia, so you will be unconscious and will not feel the operation. A breathing tube is normally used while you are asleep.

For minimally invasive surgery, the surgeon makes several small abdominal cuts. A camera and narrow surgical instruments are passed through them. Carbon dioxide gas creates working space inside the abdomen.

The surgeon locates the pylorus and makes a lengthwise cut through its muscle and wall. The opening is then closed across the other direction, making the channel wider. This common technique is called a Heineke-Mikulicz pyloroplasty. Other techniques may be used when the anatomy or reason for surgery is different.

The surgeon checks the repair for leakage and bleeding. The instruments are removed, and the skin cuts are closed. A drain or a tube through the nose into the stomach is sometimes used, but it is not needed in every case.

An open operation may be necessary because of scar tissue, unusual anatomy, another planned procedure, or a problem found during surgery.

Recovery and what to expect afterward

Pain: Abdominal soreness and discomfort around the cuts are expected. Gas used during minimally invasive surgery can also cause temporary shoulder or upper abdominal pain. Pain should gradually improve. You may receive acetaminophen, other pain medicines, or a short course of an opioid like oxycodone or morphine .

Eating: Fluids may be given through a vein at first. Your team will tell you when to begin drinking and when to progress to soft or solid food. Smaller meals may be easier while swelling settles and your stomach adjusts. Follow any diet plan provided by the surgical team.

Activity: Early, gentle walking helps circulation and bowel function. Avoid heavy lifting and strenuous exercise until your surgeon says the repair has healed sufficiently. Keep the incisions clean and follow the instructions for bathing and dressings.

Driving: Do not drive after general anaesthesia until you are alert, can move comfortably, and can make an emergency stop. Do not drive while taking opioid pain medicine. Your facility may give a minimum waiting period.

Work: Return depends on whether surgery was minimally invasive or open and whether your job involves lifting. People with desk-based work may return sooner than those with physically demanding jobs. Recovery from open surgery usually takes longer.

Risks and possible complications

Pyloroplasty has risks even when it is carefully planned. These include:

Dumping syndrome occurs when food moves into the small intestine too quickly. It can cause cramping, diarrhea, nausea, lightheadedness, a fast heartbeat, or weakness after eating. Dietary changes may help, but persistent symptoms need medical review.

The chance and importance of each risk are affected by why you need surgery, the surgical approach, previous abdominal operations, and your general health.

- Bleeding or infection

- Leakage from the repaired stomach or pylorus
- Injury to nearby organs
- Blood clots or breathing problems
- Reactions to anaesthesia
- Scar tissue, hernia, or narrowing at the surgical site
- Continued or returning problems with stomach emptying
- Bile reflux into the stomach
- Dumping syndrome

Results and follow up

The surgeon can usually confirm during the operation that the pylorus has been widened. Whether this improves your symptoms becomes clearer as swelling settles and you return to eating, often over several weeks.

Routine follow-up includes checking your incisions, nutrition, hydration, weight, and symptoms. Your team may adjust medicines and advise how quickly to expand your diet. If pyloroplasty was performed for gastroparesis, some medicines or dietary changes may still be needed.

Further testing is not automatic. Endoscopy, imaging, or another stomach-emptying study may be considered if symptoms continue or return. Pyloroplasty usually does not produce a pathology result unless tissue was removed or biopsied during the operation.

Alternatives

The practical alternatives depend on whether the problem is slow stomach movement, a fixed narrowing, or another type of blockage.

Choosing among these options involves balancing symptom relief, durability, recovery time, surgical risk, and the underlying problem.

- Diet changes and medicines: Smaller, lower-fat or lower-fibre meals and medicines that improve stomach movement or control nausea avoid surgery. They may not provide enough relief when narrowing or severe pyloric dysfunction remains.

- Endoscopic balloon dilation: A balloon passed through an endoscope stretches a narrowed pylorus without abdominal cuts. Recovery is quicker, but the effect may be temporary and repeat treatment may be needed.
- Botulinum toxin injection: An injection into the pylorus aims to relax the muscle. Benefit is often temporary, and routine use for gastroparesis is not supported by current evidence.
- G-POEM: Gastric peroral endoscopic myotomy cuts the pyloric muscle through an endoscope passed through the mouth. It avoids abdominal incisions but still carries bleeding and leakage risks, and availability and long-term experience differ between centres.
- Feeding tube support: A tube delivering nutrition into the small intestine can maintain nutrition without correcting the pylorus. It requires tube care and may be used temporarily or long term.
- Gastric electrical stimulation: An implanted device may reduce nausea and vomiting in selected people with gastroparesis. It does not widen a fixed narrowing and requires surgery to place and maintain the device.
- Bypass, stent, or resection: These may be more appropriate for certain fixed obstructions or cancers. They are generally more extensive or may require later procedures.

When to call your healthcare team

Contact your surgical team promptly for a fever, increasing redness or drainage from an incision, worsening pain, repeated vomiting, persistent diarrhea, difficulty eating or drinking, or symptoms that are not improving as expected.

Seek urgent medical assessment if you cannot keep fluids down, have signs of dehydration such as very little urine or marked dizziness, or develop new abdominal swelling with worsening pain.

Call emergency services or go to an emergency department for trouble breathing, chest pain, fainting, vomiting blood, black or bloody stool, severe or rapidly worsening abdominal pain, or a hard and very swollen abdomen.

Routine questions about diet, wound care, work, and planned medicine changes can usually wait for office hours or your scheduled follow-up.

Common questions

Will I be asleep?

Yes. Pyloroplasty is normally performed under general anaesthesia, so you will be unconscious throughout the operation.

Can I drive home?

No. Arrange for another adult to take you home when you are discharged. Do not drive while taking opioid pain medicine or until you can move and brake safely.

How painful is pyloroplasty?

Soreness is expected, especially around the cuts. Minimally invasive surgery usually causes less incision pain than open surgery. Pain should improve rather than steadily worsen.

When will I know whether it worked?

The opening is widened during surgery, but symptom improvement may take several weeks to judge. Recovery, swelling, diet progression, and the original cause all affect timing.

Will I be able to eat normally afterward?

You will usually progress from liquids to soft foods and then a broader diet. Some people continue to do better with smaller meals, especially when gastroparesis was the reason for surgery.

Can the problem come back?

Symptoms can continue or return if scarring develops or if stomach movement remains poor for reasons beyond the pylorus. Persistent symptoms do not automatically mean the operation has failed and should be assessed by your team.

Sources

- Camilleri M, Chedid V, Ford AC, et al. "ACG Clinical Guideline: Gastroparesis." The American Journal of Gastroenterology . 2022;117(8):1197-1220.
- National Institute of Diabetes and Digestive and Kidney Diseases. "Treatment for Gastroparesis." U.S. Department of Health and Human Services.
- Shada AL, Dunst CM, Pescarus R, et al. "Laparoscopic Pyloroplasty Is a Safe and Effective First-Line Surgical Therapy for Refractory Gastroparesis." Surgical Endoscopy . 2016;30(4):1326-1332.
- American Society for Gastrointestinal Endoscopy. "The Role of Endoscopy in the Management of Gastroparesis." Gastrointestinal Endoscopy . 2020;91(2):243-250.

- Townsend CM Jr, Beauchamp RD, Evers BM, Mattox KL, editors. Sabiston Textbook of Surgery: The Biological Basis of Modern Surgical Practice . 21st ed. Elsevier; 2022.