PROCEDURE

Anti-reflux surgery - children

Anti-reflux surgery strengthens the valve between a child's stomach and food pipe

PURPOSE
Reduce severe reflux and protect the food pipe or lungs

PROCEDURE TYPE
Therapeutic surgery, usually minimally invasive

WHERE IT IS DONE
Operating theatre

ANAESTHESIA
General

HOW LONG IT TAKES
About one to three hours

PREPARATION
Fasting and medicine review; follow the hospital's instructions

RECOVERY
Usually one to three nights; no driving after anaesthesia

MAIN RISKS
Swallowing difficulty, gas-bloat, retching, wrap failure

RESULTS
Reflux control becomes clearer during recovery over days to weeks

Overview

Anti-reflux surgery reduces gastro-oesophageal reflux, which happens when stomach contents move back into the oesophagus.

The usual operation is a fundoplication . The surgeon wraps the upper stomach around the lower oesophagus to support the valve and make upward flow harder. A complete wrap is called a Nissen fundoplication . Some children have a partial wrap, depending on their condition, swallowing function and the surgeon's assessment.

Surgery is usually laparoscopic, using a camera and instruments through several small cuts. Open surgery may sometimes be necessary.

A fundoplication may be performed with placement of a gastrostomy tube, or G-tube, for feeding. The tube and anti-reflux operation have different purposes.

Why the procedure is performed

Most children with reflux do not need surgery. Fundoplication may be considered when confirmed reflux causes serious or continuing problems despite appropriate non-surgical care, including:

Aspiration means material enters the airway or lungs. Surgery may reduce aspiration caused by reflux, but it cannot prevent aspiration of saliva or material entering the airway because of swallowing problems.

- Severe oesophageal inflammation or damage
- Poor growth because reflux interferes with feeding
- Repeated breathing problems linked to reflux or aspiration
- Complications that continue despite medical treatment
- Severe reflux associated with a long-term neurological or medical condition

Who should and should not have it

Fundoplication may suit a child with confirmed gastro-oesophageal reflux disease when the expected benefits outweigh the risks. Assessment should consider swallowing, feeding, growth, lung health and underlying conditions.

Surgery may not help if symptoms are mainly caused by swallowing dysfunction, delayed stomach emptying, rumination, oesophageal movement disorders or eosinophilic oesophagitis.

Surgery may be avoided or delayed when:

Weak oesophageal movement may favour a partial wrap. Frequent retching, especially in children with neurological conditions, can increase the risk of wrap failure. These issues should be discussed during consent.

- The reflux diagnosis is uncertain
- Less invasive treatment has not been adequately tried
- Infection or an unstable condition makes anaesthesia unsafe
- Nutrition or breathing problems need stabilising first
- Another condition appears to be the main cause
- The likely benefit is limited compared with the surgical burden

How to prepare

Tests may be arranged to confirm reflux and assess anatomy, swallowing or stomach emptying. These can include endoscopy, reflux monitoring, contrast X-rays and swallowing studies.

Tell the team about all medicines, supplements, allergies and previous reactions to anaesthesia. Ask which medicines to take, change or pause. Do not stop prescribed medicine unless the treating team instructs you to.

Your child must stop eating and drinking before general anaesthesia. Timing differs for food, formula, breast milk and clear liquids. The treating facility's own preparation instructions take priority , including instructions about fasting and medicines.

Plan transport home and time in hospital. Bring any feeding equipment or communication aids your child normally uses.

What happens during the procedure

Your child receives general anaesthesia and is fully unconscious. The team monitors breathing, heart rate, blood pressure and oxygen levels.

During laparoscopic surgery, the surgeon inserts a camera and instruments through small abdominal cuts. The upper stomach is moved around the lower oesophagus and secured with stitches, forming a complete or partial wrap. An enlarged opening in the diaphragm may also be tightened.

A G-tube may be inserted for feeding, fluids, medicines or releasing trapped gas. If keyhole surgery cannot be completed safely, the surgeon may change to an open operation.

Recovery and what to expect afterward

Pain: Abdominal soreness and discomfort from gas used during keyhole surgery are expected. Pain medicine is provided. Pain should gradually improve, not worsen.

Eating: Fluids and feeds restart according to the team's plan. Swelling may make swallowing feel tight, so liquid or soft food may be needed initially. Tube feeds may restart slowly. Follow all diet and feeding instructions.

Activity: Gentle movement is encouraged. Avoid strenuous activity, heavy lifting and rough play until the team says these are safe.

Driving: An older teenager must not drive after anaesthesia or while taking sedating medicine. An adult must drive the child home.

School or work: Return depends on comfort, energy, feeding and activity. Ask for an individual plan, especially if school provides tube feeding or physical support.

Temporary swallowing difficulty, bloating and reduced appetite can occur. Some children cannot burp or vomit easily. Persistent problems need review.

Risks and possible complications

General risks include bleeding, infection, blood clots, anaesthetic complications and injury to nearby structures.

Fundoplication-specific risks include:

Some children still need reflux medicine or feeding support. Surgery may not stop coughing, chest infections or feeding distress when these have several causes.

- A tight wrap causing persistent swallowing difficulty
- Gas-bloat and abdominal discomfort
- Retching or difficulty vomiting
- The wrap slipping, loosening or moving into the chest
- Reflux returning
- A diaphragmatic hernia
- A need for stretching, tube feeding or another operation

Results and follow up

The surgeon can usually confirm that the wrap was completed as planned. Its effect becomes clearer as feeding restarts and swelling settles.

Follow-up assesses wound healing, swallowing, comfort, nutrition and reflux symptoms. Children with a G-tube also need tube-care and feeding guidance.

Contact the team if reflux returns or feeding becomes progressively harder. Further tests may be needed. Long-term testing is tailored to the child's condition.

Alternatives

Alternatives depend on why surgery was proposed:

Without surgery, medicines, feeding support and monitoring may continue. Ask what is likely without the operation and which goals surgery can realistically achieve.

- Observation and feeding changes: Smaller feeds, avoiding overfeeding or medically supervised thickening may help but may not control severe reflux.
- Dietary treatment: A supervised cow's milk protein allergy trial may help selected infants.
- Acid-reducing medicine like omeprazole or lansoprazole : This reduces acid irritation but does not stop stomach contents moving upward.
- Jejunal or transpyloric feeding: Nutrition is delivered beyond the stomach, but prolonged pump feeding and tube replacement may be needed.
- Gastrostomy without fundoplication: A G-tube supports nutrition and medicine delivery but does not prevent reflux.
- Treatment of another condition: Swallowing therapy or treatment for delayed stomach emptying or airway problems may be more useful when reflux is not the main cause.

When to call your healthcare team

Contact the surgical team promptly for worsening swallowing difficulty, repeated retching or vomiting, poor fluid intake, increasing pain, abdominal swelling, feeding intolerance, or a wound that becomes red, hot, swollen or starts draining. Follow the hospital's fever instructions.

Seek urgent or emergency care for:

Routine questions about diet, activity, medicines, school or G-tube care can usually wait for normal hours.

- Trouble breathing, blue or grey colouring, or unusual difficulty waking
- Severe or rapidly increasing chest or abdominal pain
- A hard, markedly swollen abdomen
- Vomit containing blood or bright green fluid
- Severe dehydration, such as very little urine with unusual sleepiness
- Collapse or another sudden, serious change

Common questions

Will my child be asleep?

Yes. General anaesthesia keeps your child unconscious and unable to feel the operation.

Can my teenager drive home?

No. An adult must provide transport. Driving can resume only after recovery from anaesthesia, when sedating medicine is no longer needed and the team says it is safe.

How painful is it?

Pain around the cuts is expected, especially during the first few days. Severe, worsening or uncontrolled pain needs review.

When will we know whether it worked?

The wrap is formed during surgery, but swelling can temporarily affect feeding and swallowing. Reflux control becomes clearer over the following days and weeks.

Will my child still be able to burp or vomit?

Burping or vomiting may be difficult, particularly after a complete wrap. This can cause gas, bloating or retching.

Is fundoplication a permanent cure?

It aims to provide lasting reflux control, but the wrap can loosen, slip or fail. Some children need medicine, feeding support or further treatment.

Sources

- Rosen R, Vandenplas Y, Singendonk M, et al. Pediatric Gastroesophageal Reflux Clinical Practice Guidelines . Journal of Pediatric Gastroenterology and Nutrition . 2018;66(3):516-554.
- National Institute for Health and Care Excellence. Gastro-oesophageal reflux disease in children and young people: diagnosis and management . NICE guideline NG1.
- National Institute of Diabetes and Digestive and Kidney Diseases. Treatment for GER and GERD in Children .
- Great Ormond Street Hospital for Children. Fundoplication .
- Slater BJ, Rothenberg SS. Gastroesophageal reflux . Seminars in Pediatric Surgery . 2017;26(2):56-60.