PROCEDURE

Ureteral reimplantation surgery - children

Surgery that reconnects one or both ureters to the bladder to improve urine flow.

PURPOSE
Improve bladder drainage and prevent urine flowing backward

PROCEDURE TYPE
Therapeutic surgery through open or minimally invasive incisions

WHERE IT IS DONE
Operating theatre

ANAESTHESIA
General anaesthesia

HOW LONG IT TAKES
About two to four hours, based on approach and complexity

PREPARATION
Fasting, urine testing, and medication review

RECOVERY
Overnight to several days; no driving while taking opioid pain medicine

MAIN RISKS
Bleeding, infection, urinary blockage, persistent reflux

RESULTS
Operative result immediately; healing confirmed during follow-up

Overview

Ureteral reimplantation is surgery to change where a ureter enters the bladder. Ureters are the tubes that carry urine from the kidneys to the bladder. The operation may involve one or both ureters.

The surgeon places the ureter through a new tunnel in the bladder wall. This can stop urine from flowing backward toward the kidney, a condition called vesicoureteral reflux. Reimplantation can also correct a narrowed or poorly positioned connection that blocks normal urine drainage.

The operation may be performed through one lower-abdominal incision or with several smaller incisions using laparoscopic or robot-assisted instruments. The best approach depends on your child's anatomy, the reason for surgery, previous operations, and the surgical team's experience.

Why the procedure is performed

A child may be offered ureteral reimplantation to protect kidney function, improve urine drainage, or reduce repeated urinary tract infections.

Reasons can include:

The decision is based on more than an imaging result. Your child's age, infection history, kidney function, bladder habits, and changes over time all matter.

- Vesicoureteral reflux that persists or is unlikely to resolve on its own
- Repeated urinary tract infections, especially infections involving the kidneys
- New or worsening kidney scarring
- A ureter that is narrowed, enlarged, or connected abnormally
- Blocked urine flow between the ureter and bladder
- Reflux or obstruction that has not improved with other treatment

Who should and should not have it

Reimplantation may be suitable when the expected benefit of correcting reflux or obstruction is greater than the risks of surgery. It may be considered after observation, antibiotics like amoxicillin or doxycycline , or a less invasive procedure has not provided enough protection.

Not every child with reflux or an enlarged ureter needs an operation. Some conditions improve as the urinary system grows. Observation may be reasonable when kidney function is stable and infections are controlled.

Surgery may be delayed if your child has:

Severe bladder or nerve problems can affect whether standard reimplantation will work. These children may need bladder treatment or a different operation.

- An active urinary tract infection or another significant infection
- A medical condition that makes general anaesthesia temporarily unsafe
- Constipation, difficulty emptying the bladder, or abnormal bladder pressure that needs treatment first
- Test results that need clarification before the surgical plan is confirmed

How to prepare

The treating facility's own instructions take priority over the general information here.

Your child may have a urine test or urine culture before surgery. Blood tests, kidney imaging, or a bladder test may also be needed. Tell the team if your child develops fever, cough, vomiting, diarrhoea, painful urination, or another illness before the operation.

Give the team a complete list of medicines, vitamins, and supplements. Mention aspirin, ibuprofen, anticoagulants like warfarin or apixaban , and medicines that affect diabetes. Do not stop a prescribed medicine unless the treating team tells you to.

Follow the facility's fasting instructions carefully. These explain when your child must stop eating, drinking milk, and having clear fluids. Fasting rules differ by age and anaesthesia plan.

Arrange transport home and help during early recovery. Bring comfort items and any medicines or equipment your child normally uses.

What happens during the procedure

Your child receives general anaesthesia and is asleep throughout the operation. The anaesthesia team monitors breathing, heart rate, blood pressure, and oxygen levels.

The surgeon reaches the bladder through a lower-abdominal incision or several small incisions. Depending on the technique, the operation is performed through the bladder or around its outer surface.

The surgeon creates a new passage through the bladder wall and secures the ureter in its new position. This longer tunnel helps the bladder wall compress the ureter during urination, reducing backward flow. If the ureter is blocked or unusually wide, the surgeon may remove a narrowed section or reshape the ureter before reconnecting it.

A urinary catheter usually drains the bladder after surgery. Some children also have a temporary ureteral stent, which is a thin tube that keeps urine flowing while the connection heals. A surgical drain is occasionally used.

Recovery and what to expect afterward

Pain is expected around the incisions. Bladder spasms can cause cramping, urgency, or discomfort around the catheter. Pain relief may include acetaminophen and other medicines chosen for your child. A small amount of blood-tinged urine can occur early in recovery.

Fluids are usually started when your child is awake and not too nauseated. Food is added as

tolerated. Temporary nausea, constipation, or a reduced appetite can follow anaesthesia and pain medicine.

Gentle walking is encouraged, but your child should avoid rough play, sports, swimming, heavy lifting, and activities that strain the abdomen until the surgical team allows them. Follow the team's instructions for bathing and incision care.

A parent or another responsible adult must drive your child home. An older teenager should not drive while taking opioid pain medicine, while movement is uncomfortable, or until the surgical team has cleared driving.

Return to school is often possible after pain is controlled, energy has improved, and bathroom needs are manageable. The exact timing differs between open and minimally invasive surgery. Caregivers may also need time away from work while the child needs close help at home.

Hospital stay can range from overnight to several days. Catheters are removed according to the surgical plan. A ureteral stent may require removal at a later visit or during a short additional procedure.

Risks and possible complications

The team will explain how these risks apply to your child. Possible complications include:

Minimally invasive surgery may mean smaller scars, but it still involves general anaesthesia and internal surgery. It is not appropriate for every child or every urinary abnormality.

- Bleeding or infection
- Reactions related to anaesthesia
- Urine leaking from the new connection
- Temporary difficulty urinating after catheter removal
- Narrowing or blockage where the ureter was reconnected
- Reflux that continues or develops on the other side
- Injury to the ureter, bladder, bowel, blood vessels, or nearby nerves
- Ongoing bladder spasms or urinary symptoms
- Need for another procedure or operation

Results and follow up

The surgeon can usually tell you after the operation whether the planned reconstruction was completed. The longer-term result becomes clearer as swelling settles and urine drainage is reassessed.

Follow-up may include a wound check, urine testing, and kidney or bladder ultrasound. Some children need a voiding cystourethrogram, an X-ray test that checks for backward urine flow while the bladder empties. This test is not required after every operation.

Ask whether your child should continue preventive antibiotics and when any catheter or stent will be removed. Do not stop prescribed antibiotics without instructions.

Routine follow-up is important even when your child feels well. It allows the team to monitor healing, infections, kidney growth, and urine drainage.

Alternatives

The alternatives depend on whether the main concern is reflux, blockage, infection, or kidney function.

Choosing an alternative can trade the risks of surgery for continued monitoring, medicine, repeat procedures, or the possibility that kidney drainage will not improve.

- Observation with scheduled testing: Avoids surgery and may allow time for improvement with growth. It requires ongoing urine and imaging checks, and reflux or obstruction remains present.
- Preventive antibiotics: May reduce urinary infections while waiting for reflux to improve. They do not correct the abnormal urine flow and must be taken as prescribed.
- Treatment of constipation or bladder-emptying problems: Can reduce infections and improve bladder pressure. It may not be enough when reflux or obstruction is severe.
- Endoscopic injection for reflux: A material is injected near the ureter opening through a small camera passed into the bladder. Recovery is easier, but reflux may continue or return, and repeat treatment may be needed.
- Temporary stent, drainage tube, or endoscopic treatment: Can relieve some blockages without immediate reconstruction. These approaches may be temporary or unsuitable for certain anatomy.
- A different reconstructive operation: Children with complex bladder, kidney, or ureter problems may need another procedure tailored to the underlying anatomy.

When to call your healthcare team

Contact the surgical team promptly for fever, worsening pain, repeated vomiting, increasing redness or drainage from an incision, foul-smelling urine, or pain when urinating. Also call if a catheter stops draining, falls out, or leaks heavily around its insertion site.

Seek urgent medical advice if your child cannot urinate, cannot keep fluids down, has worsening abdominal swelling, passes large blood clots, or becomes unusually sleepy or difficult to wake.

Call emergency services for trouble breathing, collapse, severe uncontrolled bleeding, or another rapidly worsening emergency.

Questions about activity, school, medicines, stent removal, or a scheduled test can usually wait for routine office hours.

Common questions

Will my child be asleep?

Yes. Ureteral reimplantation is performed under general anaesthesia. Your child will be asleep and will not feel the operation.

Can I drive my child home?

Yes, but another adult should help supervise if possible. Your child cannot travel home alone. An older teenager should not drive until the team says it is safe.

How painful is it?

Incision pain and bladder cramping are common at first. The hospital provides pain medicine, and discomfort should gradually improve. Pain that is severe, worsening, or not controlled by the recommended medicine needs medical advice.

When will we know if it worked?

The surgeon will discuss the operation soon afterward. Healing and urine drainage are assessed during follow-up, often with ultrasound and sometimes with additional bladder imaging.

Will there be a catheter or stent?

Most children have a bladder catheter for a period after surgery. Some also have a ureteral stent. The team should explain how each tube is cared for and when it will be removed.

Will my child still need antibiotics?

Some children continue antibiotics until follow-up testing or stent removal. Follow the

discharge prescription rather than stopping antibiotics because your child feels better.

Sources

- American Urological Association. Management and Screening of Primary Vesicoureteral Reflux in Children: Guideline . Published 2010; amended 2017.
- European Association of Urology. EAU Guidelines on Paediatric Urology . 2025 edition.
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- Children's Hospital of Philadelphia. Ureteral Reimplantation Surgery .
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