仁安醫院
UNION HOSPITAL

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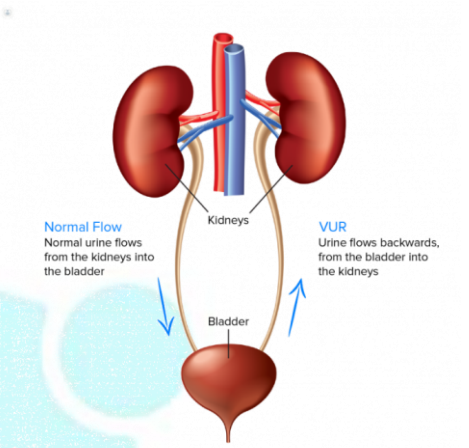
Operation Information

Vesicoureteral Reflux (VUR) in Children

Introduction

VUR is the abnormal retrograde flow of urine from the bladder back up into the upper urinary tract (ureter and kidney) during the filling or emptying of the bladder. When children have recurrent urinary tract infection (UTI), VUR may increase the risk of pyelonephritis or renal failure.



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VUR may be managed conservatively with prophylactic antibiotics up to the time of resolution or 5 years of age, whichever is earlier. The purpose of prophylaxis is not for the treatment of VUR itself but is given to decrease the likelihood of recurrent UTI. However, for failed conservative management, i.e. repeated UTI despite prophylaxis or progression of renal damage, surgical correction of VUR is recommended. Early surgical intervention may also be performed for parental concern over prolonged antibiotic use or repeated exposure to radiological imaging. Parents can select the Endoscopic Injection (Deflux) or Ureteric Reimplantation for their child.

Outcomes

Endoscopic Injection (Deflux) or Ureteric Reimplantation (Cohen's operation) is used to treat VUR. Most children who have a procedure to correct the problem have a reduction in reflux and therefore a reduced risk of kidney damage. However, they do need to be followed very closely for several years to check for any signs of kidney damage.

Procedures

1. **Endoscopic Injection (Deflux)**
   - The operation is performed under general anaesthesia.
   - A cystoscopy is performed by passing a scope transurethrally into the bladder.
   - The bulking agent is then injected into the bladder wall along or just below the ureteric orifice to create a prominent physical bulge to prevent VUR.

2. **Ureteric Reimplantation (Cohen's operation)**
   - The operation is performed under general anaesthesia.
   - An incision is made at the lower abdomen and the bladder is open (Traditional open approach) or three incisions are made at the lower abdomen (Laparoscopic minimally invasive approach).
   - The affected ureter is mobilized from the vesico-ureteric junction.
   - A submucosal tunnel is created for the mobilized ureter.
   - The neo-ureteric orifice is implanted at a cross-trigonal position.

Possible Risks and Complications

1. **Endoscopic Injection (Deflux)**
   - Bleeding: e.g. haematuria or blood from meatus, but generally stops naturally
   - Urinary tract infection: may be aggravated by the manipulation
   - Urethral injury: due to passage of cystoscope which may lead to scarring or stricturing
   - Urinary retention: unable to pass urine after the procedure; usually temporary, may be due to pain after manipulation
   - Occasionally, contra-lateral VUR may occur to a previously normal ureter. If it fails to resolve, surgical intervention may be required.
   - Incomplete resolution of VUR status

2. **Ureteric Reimplantation (Cohen's operation)**
   - Bleeding: e.g. haematuria or blood from meatus, but generally stops naturally. Surgical intervention may be indicated for massive bleeding.
   - Wound infection: may cause wound dehiscence or require laying open of wound
   - Urethral injury: from urethral catheterization and manipulation
   - Visceral injury: may occur during insertion of instruments or during the procedure and is usually dealt with as required during surgery
   - Ureteral obstruction: may occur post-operatively at sight of neo-ureteral orifice or subcutaneous tunnel and may require surgical intervention
   - Bladder spasm: may occur in the immediate post-operative period causing pain or urinary retention particularly if the open technique is required
   - Anastomotic leak (rare): usually resolves with urinary drainage, major anastomotic breakdown may require surgical intervention
   - Occasionally, contra-lateral VUR may occur to a previously normal ureter. If it fails to resolve, surgical intervention may be required.
   - Incomplete resolution of VUR status

** The risks listed above are in general terms and the possibility of complications is not exhaustive. Please understand that even though all operations are carried out with utmost professionalism and care, this does not rule out the possibility of complications arising. In the event of peripheral organ damage or post-operative haemorrhage or leakage, further operations may be required.

Pre-operative Preparations

1. Good hygiene can prevent surgical wound infection. Therefore, we advise your child to clean up him/herself on the day of operation.
2. The procedure and possible complications will be explained by the doctor and a consent form must be signed by the parents or guardian prior to the operation.
3. Please inform the doctor and nurse your child's past medical history, previous surgical operations, current medication and any complication with drug or anaesthesia. Please inform doctor if your child is taking medications that affect blood coagulation such as Aspirin, nonsteroidal anti-inflammatory drug (NSAID) such as Ibuprofen and Chinese medication.
4. An anaesthetist will visit you and your child to explain about the anaesthesia.
5. Routine tests such as ultrasound scans, a micturating cysto-urethrogram (MCUG) may require before operation.
6. Bowel preparation may be needed.
7. Antibiotic injection before the operation.
8. No food or drink six hours before operation.
9. Please help to change into a surgical gown for your child after removing all clothing including undergarments, dentures and jewellery.
10. Please remind your child to pass urine before the operation.

Post-operative Instructions

Endoscopic Injection(Deflux)

General

1. After general anaesthesia, your child may:
   - experience discomfort in the throat after tracheal intubation.
   - experience side effects of anaesthesia includes feeling tired, drowsy, nausea or vomiting. Inform the nurse if symptoms persist or worsen.
2. Usually, there is no need to insert the urinary catheter.
3. Your child is usually discharged after resuming normal diet and being able to pass urine.

Wound Care

There are no external wounds to care for after the operation.

Diet

A normal diet may be resumed as instructed after recovery from anaesthesia.

Ureteric Reimplantation

General

1. After general anaesthesia, your child may:
   - experience discomfort in the throat after tracheal intubation.
   - experience side effects of anaesthesia includes feeling tired, drowsy, nausea or vomiting. Inform the nurse if symptoms persist or worsen.
2. An anticholinergic medication may be prescribed in the event of bladder spasms.
3. For laparoscopic procedures, the child can usually be discharged after the removal of catheter and being able to pass urine (Usually 2-3 days after operation). For open procedures, the timing of discharge would depend on the child's condition and is usually 7-8 days after the operation.

Wound Care

1. Dressing will be applied to the abdominal wounds and should be kept clean and left intact until inspection by the nursing staff.
2. For laparoscopic procedures, a urethral catheter will be in place after surgery and removed 24-48 hours post-operatively. For open procedures, the urethral catheter may be kept in-situ for longer and there may be the need for other catheters or drains. The drains or catheters are usually kept for 5-7 days.

Diet

A normal diet may be resumed as instructed after recovery from anaesthesia.

Advice on Discharge

1. Please comply with the medication regime for your child as prescribed by your doctor.
2. For at least 2 weeks after surgery, please avoid games, sports, rough play, bike riding, and other strenuous activities.
3. Loose underwear and trousers should be worn for comfort. If your child is in nappies, frequent changing is needed. Please avoid using baby wipes.
4. Your child is required to continue with prophylactic antibiotics until confirmation of the resolution of VUR.
5. Post-operative investigations are usually repeated about 3 months after the procedure to determine the status of VUR after the operation.
6. Immediately bring your child to consult the doctor or return to hospital for medical attention in the event of frequency UTI / turbid urine with foul smell, severe wound pain associated with redness and swelling, secretion of pus, massive bleeding, hematuria, shivering, high fever over 38^{o}C or 100.4^{o}F, or any other unusual symptoms, etc.
7. Any follow-up consultations should be attended as scheduled.

Can vesico-ureteric reflux be prevented?

Avoiding urine infections is very vital in vesico-ureteric reflux. You should encourage your child to:

- Drink plenty of fluids (1.5 to 2 litres) except soft drinks
- Voiding regularly (every three to four hours)
- Eating plenty of wholegrain cereals, bread, and vegetables to avoid constipation

Should there be any enquiries or concerns, please consult the attending doctor.

Under the professional care of the doctor, your child will gradually recover. We wish your child all the best during the treatment and recovery.

If you have any questions after reading the entire leaflet, please write them down in the spaces provided in order for the doctor to further follow-up.

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Compiled by Union Hospital Operating Theatre (OT) Governance Committee

The above information is for reference only, please enquire your physician for details
Our Hospital reserves the RIGHT to amend any information in this leaflet without prior notification