

Vesicoureteral Reflux (VUR) in children

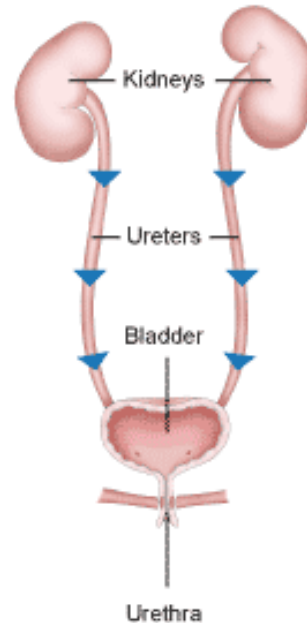
“To treat or not to treat, that is the question.”

presented by Nicholas Lehnertz, MS3

What is vesicoureteral reflux (VUR)?

Before we talk about VUR, let's first talk about what normally happens when your body makes urine. It all starts in your kidneys. They act as big filters, removing all the waste from your body and turning it into urine. The urine then travels from the kidneys down tubes (called *ureters*) and into the bladder, which is like a balloon that stores the urine until you feel the need to go to the bathroom. At this time, you empty your bladder, and the urine exits your body out another tube, called the *urethra*. This is shown in the picture to the right.

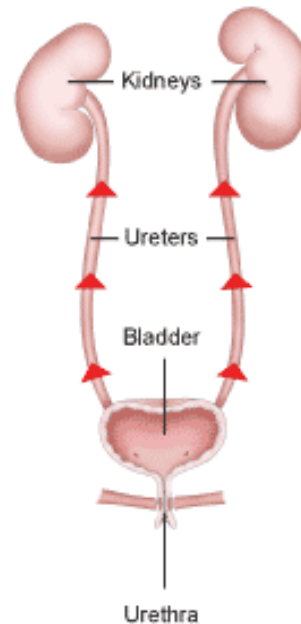
Normal flow of urine (blue arrows)



Now, vesicoureteral reflux, also known as “VUR”, is a fancy term that is used to describe when the body's urine goes the wrong way. Instead of all the urine going down and out the bladder, some of the urine goes back up the tubes (ureters) toward the kidneys. Kind of like when the kitchen sink backs up!

Depending on how serious the reflux is, the urine can either travel backwards just a little bit up the ureters, or it can travel a long way all the way up into the kidneys. This backwards flow is shown in the picture to the right.

Urine flowing the wrong way (red arrows) VUR



How can I tell if my child has VUR?

There is a test, called a VUCG¹, that can tell if your child has VUR, or backwards flow of the urine. This test is usually given after your child has had a urinary tract infection

¹ “voiding cystourethrogram”, another fancy name.

(UTI). In fact, The American Academy of Pediatrics recommends the VCUG test for any child aged 2 months to 2 years who has had a urinary tract infection (UTI) along with a fever.

If my child has VUR, what problems can it cause?

VUR can cause urinary tract infections (UTIs), including those that cause fever. If serious enough, VUR can even cause damage or scarring to the kidneys.

How is VUR treated?

There are 3 ways treating VUR:

1. Waiting and watching
 - a. this means that nothing is done for the child until there are signs of a urinary tract infection (UTI), at which time the child is given a normal course of antibiotics;
2. Antibiotic prophylaxis
 - a. this treatment is giving antibiotics for a long period of time, and a lower dose than usual, to try and prevent future urinary tract infections (UTIs) from ever happening;
3. Surgery
 - a. Surgery is generally only for children very severe VUR that goes all the way up to the kidneys, causing infection and fever.

Is one way of treating VUR better than others in preventing UTIs?

Interestingly, it has been shown that waiting and watching (doing nothing) *is as effective* as giving antibiotic prophylaxis in preventing UTIs. This even includes UTIs that cause fever.

How about preventing kidney damage? Is one treatment better than another?

Antibiotic prophylaxis, however, *has* been shown to reduce the chance of kidney damage.

I still have questions, where can I go for more information?

- National Kidney & Urologic Diseases Information Clearinghouse (NKUDIC)
<http://kidney.niddk.nih.gov/kudiseases/pubs/vesicoureteralreflux/>
- Mayo Clinic
<http://www.mayoclinic.com/health/vesicoureteral-reflux/DS00999>
- Cincinnati Children's Hospital
<http://www.cincinnatichildrens.org/health/v/vesicoureteral-reflux/>

Key Terms:

vesicoureteral reflux

VUR

urinary tract infection

kidney scarring/damage

long-term antibiotic prophylaxis

This document was created by a medical student enrolled in the Family Medicine Clerkship at the University of Minnesota Medical School as part of the course project. The aim of the project is to present information on a medical topic in the format of a patient education handout. It does not necessarily reflect the views of the University of Minnesota Medical School physicians and faculty. These materials are provided for informational purposes only and are in no way intended to take the place of the advice and recommendations of your personal health care provider. The information provided may no longer be up-to-date since it has not been reviewed since the date of creation. The information provided should not be used to diagnose a health problem or disease, or as a means of determining treatment. In the event of a medical emergency, immediately contact a doctor or call 911.