

Kidney Health Information

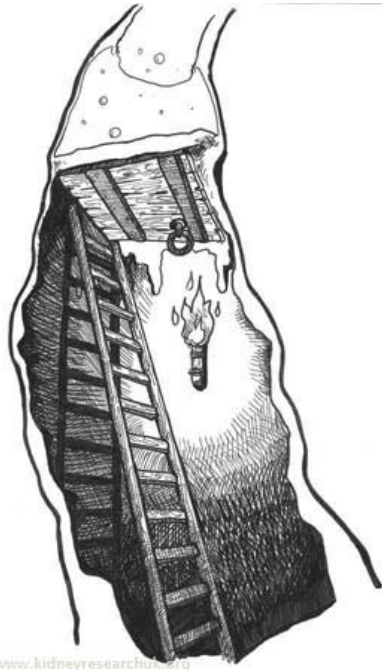
Vesico-Ureteral Reflux (VUR)

What is it and what are the causes?

VUR is a congenital condition; about 1% of people are born with it. It is not always found soon after birth and may be found in children or discovered in adults. It may never cause trouble for some people.

- reflux occurs when urine travels up the ureter from the bladder towards the kidney while the bladder is empty
- it is due to an awkwardly shaped entrance to the bladder from the ureter
- normally the entrance works like a trapdoor that swings shut when urine is passed, this prevents higher pressures in the bladder from affecting the kidneys. In those with VUR, the entrance stays open and reflux results
- continuing problems with reflux can lead to further scarring and infections
- the disease and scarring are known as reflux nephropathy
- reflux nephropathy is also known as chronic pyelonephritis
- reflux has been estimated to cause up to 10% of renal failure in the UK
- brothers and sisters of affected children have a higher chance (up to 50%) of having VUR. Children with a parent affected by VUR are also more likely to have reflux
- children with VUR may get worse kidney damage before five years of age, due to frequent kidney infections
- kidney damage can cause high blood pressure later on, and even kidney failure

- in around 80% of cases the reflux stops by the age of ten years, but any kidney scarring will remain



Normally the bladder entrance works like a trapdoor

How is reflux suspected?

- children or adults may have frequent or severe urine infections - though these are common
- VUR can be found during investigations for protein in the urine (proteinuria), kidney stones or renal failure
- VUR is sometimes symptom-free, only being discovered because another family member has been diagnosed

Diagnosis of VUR is made by any of the following:

Ultra sound - VUR is sometimes found before birth using this means.

A bladder x-ray - also known as micturating cysturethrogram (MCUG). A dye is passed into the bladder through a fine tube. The flow of dye is then x-rayed. VUR is graded on a scale of 1 to 5 according to the results, where one is very mild and five the most severe.

Radionuclide tests - DMSA scan - a tiny amount of a radioactive substance is injected into a vein; a special camera shows any scarring of the kidneys. Reflux can sometimes also be shown using these tests without putting a tube into the bladder.

Intravenous Urogram (IVU) - a dye is injected into a vein. The outline of the bladder and the kidneys are shown. It is used in cases where a clear diagnosis has not been obtained from other tests.

Magnetic Resonance Imaging (MRI) - MRI generates cross section pictures like a CT scan. An advantage is that no dyes (contrast media) or x-rays are involved. It is not a particularly good way of demonstrating reflux yet.

Computerised Tomography (CT) - x-rays of the body are taken - a computer then generates an image in cross section. This method is not very often used for reflux.

Treatments aim to prevent damage and control symptoms:

- prevent infections. In young children this may reduce new scarring
- protect the kidneys to prevent damage from getting worse:
 - blood pressure
 - if there is proteinuria, ACE inhibitors
- rarely, a kidney may be removed if it is working badly, and causing high

blood pressure and other problems

- preventing reflux by operations on the bladder or the 'STING' procedure - this may reduce frequent kidney infections but probably makes no difference to kidney function
- people with mild scarring may need no treatment. However, women may be more likely to develop high blood pressure or proteinuria during pregnancy



Reflux can cause toughening and scarring in the kidneys.

Finding out more:

Reflux nephropathy from EDREN -

<http://renux.dmed.ed.ac.uk/EdREN/EdRenINFObits/reflux.html>

Information on reflux from the National Kidney Federation (UK) -

<http://www.kidney.org.uk/Medical-Info/reflux/index.html>

Some of our recent research projects into VUR:

VUR DNA collection 2002

VUR is inherited and occurs in around 1% of the population. The inheritance is not well understood, so in 2002 Kidney Research UK together with the Wellcome Trust, launched an initiative to study the genetics that influence the condition in families. For further information please go to

www.vur.org.uk

Please be aware that we have made every effort to ensure this information is accurate, however we cannot guarantee that there are no mistakes. Also, the best management plans for individual patients may vary from those outlined here. Only the doctors caring for the patient will be able to advise on this. Please consult your own doctor.

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**THIS IS AN INFORMATION LEAFLET ONLY, AND AS WITH ALL MEDICAL CONDITIONS,
YOU MUST CONSULT YOUR OWN DOCTOR**

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