

VESICoureTERIC REFLUX — A MODERN APPROACH*

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Anatomy

Much remains uncertain about the effects of reflux but we do now appreciate that the main defect that allows reflux is the length, and angle of entry of the distal ureter into the bladder. If the tunnel length does not have a ratio of at least 1 diameter to 4 times the length of the intramural ureter, reflux is likely.

Clinical types

From a practical point of view it is worth classifying reflux into several categories. First, there is the massive neonatal reflux that is associated with poor renal function and often with dysplastic kidneys. Second, there is the more usual type of reflux that is seen in older children; it is usually graded in three grades: just into the lower ureter, reaching the kidney, and distending the kidney. Third, there is reflux that is secondary to outflow obstruction such as posterior urethral valves or a neuropathic bladder.

Anatomically the reflux may be associated with overdistension of the renal pelvis suggestive of pelviureteric obstruction. It may be associated with a diverticulum at the lower end of the ureter which may not necessarily be seen on an intravenous urogram. Reflux may be associated with duplication of the urinary tract and also with ureterovesical obstruction; this latter situation is one that dictates an operation in all circumstances.

Scarring in association with reflux

For many years it was not clear why the kidneys of some children became scarred in the presence of reflux and infection and others did not. The work of Hodson and Edwards¹ and Ransley and Risdon² has clarified many of the previous uncertainties. We now believe that it is the intrarenal reflux plus infection that leads to the scarring and this is well documented and discussed elsewhere².

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Investigations for reflux

We are fortunate that in recent years we have had the help of departments of nuclear medicine and they allow us to perform D.M.S.A. (dimerceptosuccinate) scans. With these scans it is possible to document the degree of scarring in each kidney with considerable clarity and with much more accuracy than on an intravenous urogram (IVU). Other functional scans such as I¹³¹ Hippuran® allow estimation of the absolute and differential function and can estimate improvement or lack of it after operation.

Plan of action

In order to make a rational decision on a clinical basis it is necessary to ask and answer some or all of the following questions: 1. Is intrarenal reflux present? 2. Is sterile reflux dangerous? 3. Is the reflux likely to stop spontaneously? 4. Is the operation for reimplantation successful? 5. Is scarring of kidneys important? 6. Is there a risk to the kidney after reflux has stopped? 7. Are children improved generally after reflux prevention?

After due consideration of these questions we have made a policy for the indications for reimplantation in the refluxing ureter and our main indications are now as follows: 1. The presence of intrarenal reflux, 2. A poor response to adequate medical treatment, 3. Inability to tolerate or obtain antibiotics, 4. Ballooning of the renal pelvis, 5. Association with certain duplications, bladder diverticula and certain cystoscopic appearances, 6. Persistent reflux into puberty, 7. Social pressures.

We believe that the main contraindications are chronic renal failure, hypertension and very poor ureters.

Screening for reflux

On the basis that new scars are so rarely seen after the age of 5 years we believe that screening investigations can now be modified³ so that over the age of 5 years a child with a first infection needs only an ultrasound and a plain X-ray of the abdomen. Naturally if abnormalities are found on these studies then further X-rays are needed.

Between the ages of 1 year and 5 years we believe all children should have a micturating cystogram together with an IVU so that no intrarenal reflux is missed. Under the age of 1 year an ultrasound, plain X-ray and micturating cystogram are needed to pick up all cases of intrarenal reflux and obstruction. We nearly always manage to avoid the use of intravenous urography in small children now that we have good nuclear medicine facilities.

REFERENCES

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DISCUSSION

Hassan: — Mr. Whitaker, you said that you have to face social pressure from the parents. How long would you suggest that you should carry on with the medical treatment if the parents are pressing for surgery?

Whitaker: — Well, I think actually that's changed now, because if you believe the theory, that the ureteral reflux, causes the damage first time round then one may as well stop giving antibiotics for the reflux, and only give them to stop the child actually missing school and being ill with an infection, and not to stop scarring, because you know that the scarring is not going to occur any more; so therefore, why in fact give antibiotics unless the patient can actually be shown to have an infection. I think many people now are not giving antibiotics continuously for reflux but just giving them like they would to any other child who has a urinary tract infection. We're certainly doing that. In the case of a child who does not have a major problem with infections, we stop antibiotics and wait and see what happens; and many of them are just waiting for their reflux to stop, and taking no antibiotics. Years go by and the better they are the fewer times we do a cystogram to see how things are getting on.

Hassan: — How frequently do you see them?

Whitaker: — Oh, I see them about once a year if they are really well like that.

Has anyone ever had an experience of having to try to do a ureterogram in someone who has ever had a ureter reimplantation for reflux?

Chisholm: — Yes, but it's a rare event.

Whitaker: — What were you trying to achieve by doing the ureterogram?

Blandy: — I can't remember, but I do remember having had difficulty trying to do it.

Whitaker: — Yes. But it would be rather an unusual event wouldn't it, really.

Şimşek: — Under various conditions in unilateral reflux cases, we are advised, for various reasons, to perform the procedure bilaterally. What is your experience in this matter and what would you advise?

Tellaloğlu: — We've had an experience of this kind. It was a unilateral case and we operated on the side in question. Six months later we discovered a reflux on the other side; there was no infection but there was reflux. It seems it very often does appear on the other side.

Whitaker: — It's actually very, very common. Can I give the historical aspects, or would you like to comment first?

Remzi: — We don't usually do both sides at the same time unless there are strong grounds for doing so.

Akdaş: — At the Edinburgh Urological Festival, in 1978, it was suggested that we did bilateral operations for the scarring on the contralateral kidney. What are your suggestions? As Professor Remzi says, we are not doing this. What do you feel about it?

Whitaker: — Well, I'll tell you what I think; first of all, scarring wouldn't enter into it with me because scarring, as you know, didn't appear on my list of indications; it really bears no relationship to whether I re-implant or not. There's quite a lot of data on this from the States where they've done a lot of work on this line. A lot of people have followed up, very carefully, a considerable quantity of unilateral cases, and there was enormous excitement some eight or more years ago, when they kept finding, at 6 months or less, that there was reflux on the opposite side where there hadn't been before. The excitement led to a policy of re-implanting both and indeed it became fashionable to do so. However, one center at least, fortunately, watched the children longer, and it was found that at a year to two years afterwards the vast majority of the ones that had started to reflux after the original operation subsequently stopped, and so therefore my policy certainly is, I would not re-implant a non-refluxing ureter, unless it had refluxed at some stage in the past and had stopped. That's the only time that I would do it.

Wickham: — Nobody's mentioned Teflon injection yet.

Whitaker: — It's a bit new. I have no experience of it but I can tell you what I know. In a British medical journal recently, there was an article by Barry Donald, on his new operation called STING. Basically, what he does is inject, endoscopically, a chunk of Teflon just underneath the ureteric orifice, and he seems to show that this changes the shape of the orifice inside, and that it seems to stop the reflux in a very successful way, at least in the animals and the few humans it has so far been used in. But this is still rather new and untried.