

Long-Term Ureterostomy With Suprapubic Intravesical Drainage Used to Bypass Severe Schistosomal Obstructive Uropathy – Preliminary Report

H. Abu-Aisha, J. J. Reddy, S. Hussain and A. Balbeesi

Departments of Medicine, Surgery and Radiology, College of Medicine, King Saud University, Riyadh, Saudi Arabia

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Summary. Severe obstructive uropathy due to infection with *S. hematobium* often requires reconstructive surgery. Recent reports, have emphasized that many lesions will disappear after specific chemotherapy given the necessary time. Time for effective chemotherapy may be impossible to allow in severe obstruction. The necessary surgical procedures range from ureteric dilatation to ureteric resection with ileal loop replacement. We suggest that temporary long-term bypass of the diseased ureter using silastic tubes may offer an alternative to resection in many cases while the effect of specific chemotherapy is awaited. One case is described in which ureterostomy with suprapubic intravesical drainage adequately bypassed the diseased and obstructed lower two thirds of the left ureter. In the following six months specific chemotherapy had encouraging effects on the bypassed area.

Key words: *Schistosoma hematobium*, Ureter, Ureterostomy, Obstructive uropathy.

Introduction

Urinary schistosomiasis is known to cause vesical and distal ureteric fibrosis and calcification which eventually leads to obstructive uropathy [2, 4]. Medical treatment often relieves partial obstructive uropathy [6–8, 18] but advanced cases usually need surgical intervention [2]. When there is extensive ureteric involvement, reconstructive surgery to the lower end of the ureter [2] is usually not satisfactory and ileal loop conduit formation is often necessary [1, 10]. This is a preliminary report of a simple ureterostomy procedure that drains into the urinary bladder, thus bypassing the obstructed part of the ureter. The “bypassing process” can be

maintained for long periods allowing enough time for the effect of medical treatment on the diseased parts of the ureters.

Case History

A 29-year-old male was admitted to hospital for investigation of poorly functioning kidneys as shown by intravenous urography (IVU). The patient gave history of chronic urinary schistosomiasis which had not received full treatment. Urinalysis revealed *S. hematobium* ova. Biochemical and hematological tests were essentially normal. Ultrasonic examination showed bilateral hydronephrosis more marked on the left side. At cystoscopy there were typical appearances of urinary schistosomiasis involving the bladder wall. The right ureter was catheterized and retrograde pictures of moderate hydroureter and hydronephrosis were obtained. The left ureter was difficult to catheterize. Left antegrade pyelography, under ultrasonic guidance showed hydronephrosis and hydroureter with the obstruction at the lower third of the ureter (Fig. 1).

The patient was given antibilharzial therapy (praziquantel 40 mg/kg body weight). In view of the severe obstruction it was decided that surgical intervention was necessary. At operation it was possible to do a pull-through ureteroneocystostomy [2] on the right side. The left ureter, however, was found to be extensively affected by the disease. The lower half was edematous and the unaffected part was too short to reach the bladder. Usually an ileal loop conduit is constructed in such cases. However, we have previously observed another patient who had severe ureteric involvement by schistosomiasis affecting about half the ureter and causing obstruction on IVU (Fig. 2) and he responded well to medical treatment: the obstruction disappeared in 6 months (Fig. 3). We decided therefore to bypass the diseased part of the ureter by silastic tubes as described below, hoping that the medical treatment would lead to partial relief of the obstruction, given the necessary time.

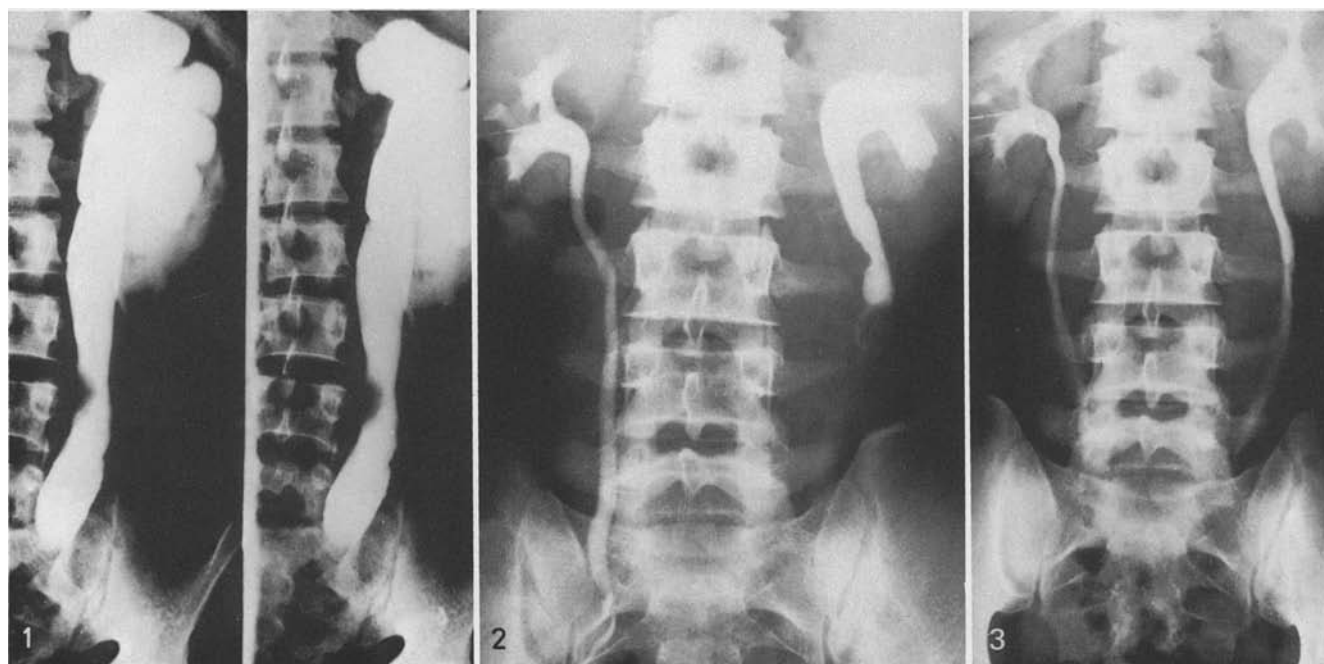


Fig. 1. Left antegrade pyelography showing gross hydronephrosis and hydroureter

Fig. 2 Obstructive uropathy due to extensive schistosomal disease of the left ureter, IVU before medical treatment

Fig. 3. IVU of the patient shown in Fig. 2 six months after medical treatment

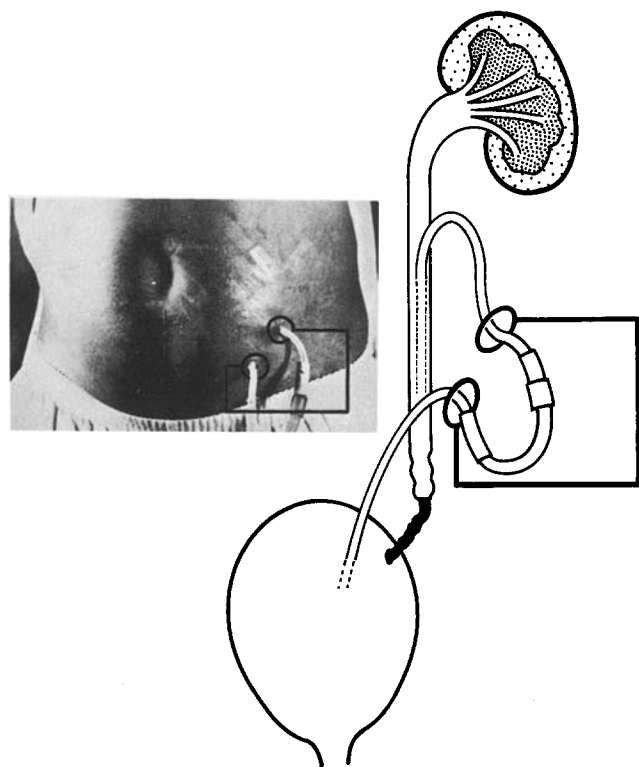


Fig. 4. Diagrammatic representation of the "bypass" procedure. The insert shows the external ends of the tubes as seen in the patient

Method

Figure 4 is a diagrammatic representation of the principle of our method. A Tenckhoff peritoneal dialysis catheter [5] was inserted in the upper third of the ureter and the perforated tip passed down the ureter as far as it would go, and fixed to the ureteric wall by catgut. The free end of the catheter was taken to the exterior and the Dacron cuff buried in a short subcutaneous tunnel, as is usually done when the catheter is inserted for peritoneal dialysis.

A similar catheter was inserted in the urinary bladder suprapubically, and the Dacron cuff buried subcutaneously. The external ends of both catheters were connected to urine bags for seven days to avoid any urinary leaks around the raw wounds. When the wounds healed, the two ends of the catheter were connected, and the left kidney was allowed to drain into the bladder (Fig. 4).

IVU was performed after two months and again after six months. During the six months follow-up period the patient was provided with a clamp to use on the external parts of the bypass tubes to prevent reflux during micturition.

Result

The operative procedure for the external bypass of the obstructed area was simple.

The drainage of both kidneys was effective. There was no reflux on the right side (Ureteroneocystostomy side), but there was free reflux on the bypass side unless the tubes were clamped during micturition. No episodes of symptomatic urinary tract infection were encountered in six months. An IVU at 6 months showed delayed excretion

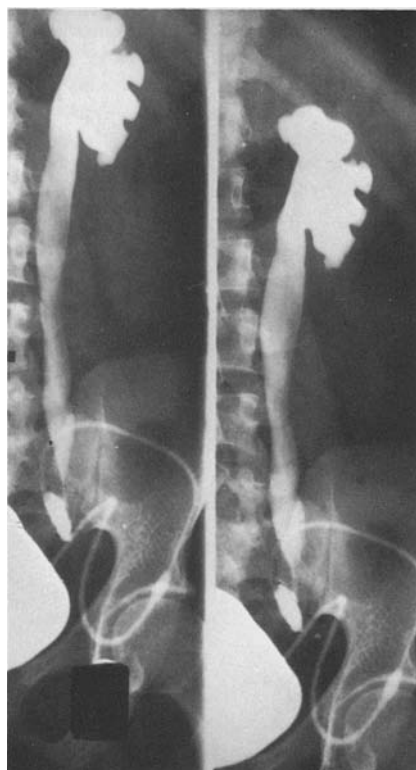


Fig. 5. IVU done six months after the procedure showing less marked hydronephrosis of the left side (compared to Fig. 1)

by the left kidney, but the hydronephrosis was less marked (Fig. 5). There was also slight patency of the obstructed left ureter indicating that the medical treatment helped in recanalization of the ureter to some extent.

It is hoped that after prolonged decompression the renal function on the left side will improve and the diseased ureter will recanalize sufficiently, one year after the anti-schistosomiasis medical treatment.

Discussion

Urinary schistosomiasis is highly prevalent in Yemen and Southern Saudi Arabia [3, 13, 17]. It has been shown that the impact on the health of the affected communities can be severe [2, 15]. In Tanzania, Rugemaliala found that 28% of a sample of a community had bilateral ureterorenal lesions, even though the intensity of schistosomal infection was low compared to another community [15].

The obstructive uropathy caused by schistosomiasis is due to focal destruction of the muscle of the distal parts of the ureters, followed by fibrosis and calcification [2, 4, 9]. It is reported that many of the severe lesions caused by *S. hematobium* in the bladder and ureter will disappear after chemotherapy [11–14]. Indeed Lucas and his co-workers demonstrated that nodular filling defects of the bladder leading to lower ureteric obstruction and hydronephrosis or even hydronephrosis can revert to normal after specific

drug therapy [11]. Furthermore, Pugh et al. [13] suggested that urological lesions may improve or disappear spontaneously after some years of their formation. For this reason conservative, rather than surgical, management is advocated by some urologists [16]. However, when there is severe obstruction endangering renal function, surgical intervention is often considered necessary and different methods depending on the type of the lesions are employed.

In our patient we wanted to avoid resection of a ureter. It was possible to do a pull-through ureteroneocystostomy [2] on one side with good results. On the other side (left) we decided to bypass the extensively diseased portion of the ureter to allow time for the medical treatment to take effect.

The Tenckhoff peritoneal dialysis catheter has proved to be a useful long-term access for the peritoneal cavity [5]. In our personal experience such catheters have remained functioning in dialysis patients for about 18 months without needing replacement. When there is gross hydronephrosis, the Tenckhoff catheter can easily be inserted in the ureter and the Dacron cuffs will anchor the catheter securely to the subcutaneous tissues. Drainage into the patient's own bladder, suprapubically, is preferable to external collecting devices.

The IVU done after six months showed evidence of patency of the left ureter, but not enough to allow us to remove the tubes. Because of the excellent tolerance by the patient we decided to continue the bypass process for some months longer, since it has been shown that the reversal of the schistosomal obstructive uropathy may take several years [13]. It will remain to be seen whether having a tube by the side of the abdomen for about a year was worth the trouble, in terms of saving the kidney parenchyma from the backpressure effects while awaiting for the reversal of the schistosomal disease.

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Dr. H. Abu-Aisha
 Department of Medicine (38)
 King Saud University
 P.O. Box 2925
 Riyadh, 11461
 Saudi Arabia