

ORIGINAL ARTICLE

# Augmentation enterocystoplasty without reimplantation for patients with neurogenic bladder and vesicoureteral reflux



Han-Chao Zhang <sup>a,\*</sup>, Jin Yang <sup>a</sup>, Xin Ye <sup>b</sup>, Hai-Feng Hu <sup>a</sup>

<sup>a</sup> Department of Urology, Affiliated Hospital of Chengdu University, Chengdu, PR China

<sup>b</sup> Department of Urology, West China Hospital, Sichuan University, Chengdu, PR China

Received 10 March 2016; accepted 18 April 2016

Available online 27 June 2016

## KEYWORDS

Augmentation  
enterocystoplasty;  
Low-compliant  
bladder;  
Neurogenic bladder;  
Ureteral  
reimplantation;  
Vesicoureteral reflux

**Abstract** The objective of this study was to assess the clinical outcome of vesicoureteral reflux (VUR) after augmentation cystoplasty alone in patients with a hypocompliant neurogenic bladder. Between January 2009 and December 2014, 29 patients with a hypocompliant bladder associated with VUR confirmed by videourodynamics (VUD) preoperatively were recruited in this study. All patients had undergone bladder augmentation with a generous detubularized segment of bowel at our institution. No effort had been made to correct the existing reflux. Preoperative assessment included urinalysis, kidney function tests, ultrasonography, and videourodynamic evaluation. All patients had various degrees of VUR. The status of VUR and bladder function were studied by VUD. The mean follow-up period was 2.2 years (range 0.5–5.5 years). The VUD manifested a significant improvement of bladder capacity, diminution of intravesical pressure, and resolution of reflux after bladder augmentation. After the surgery, 24/29 (83%) no longer had reflux, 3/29 (10%) showed improvement in reflux, and 2/29 (7%) demonstrated no change in reflux. In addition, 16/21 (76%) patients had reflux Grades I–III; 100% patients with reflux Grades IV and V had complete cessation of reflux. Only one patient had symptomatic urinary infection after the surgery. Augmentation enterocystoplasty without ureteral reimplantation is thus effective and adequate for patients with high-pressure and hypocompliant neurogenic bladder. Therefore, ureteral reimplantation is not necessary when augmentation enterocystoplasty is recommended for patients with high-pressure, low-compliant bladder and VUR.

Copyright © 2016, Kaohsiung Medical University. Published by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Conflicts of interest: All authors declare no conflicts of interest.

\* Corresponding author. Department of Urology, Affiliated Hospital of Chengdu University, No. 82, North Section 2, 2nd Ring Road, Chengdu 610081, Sichuan, PR China.

E-mail address: [zhcandjay@126.com](mailto:zhcandjay@126.com) (H.-C. Zhang).

<http://dx.doi.org/10.1016/j.kjms.2016.05.003>

1607-551X/Copyright © 2016, Kaohsiung Medical University. Published by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## Introduction

Vesicoureteral reflux (VUR) occurs in more than 20% of patients with neurogenic bladder. High detrusor pressure and reflux are responsible for renal damage and renal failure. The best treatment option for reflux is to normalize the detrusor pressure [1]. In this regard, an important question arises: "How should we normalize the detrusor pressure?" Our initial attempts to lower the detrusor pressure and protect the upper urinary tract included the following: clean intermittent catheterization (CIC) and administration of parasympatholytic drugs or botulinum toxin injection. When these conservative programs failed to achieve an adequate bladder volume with lower pressure during storage, surgical treatment is usually considered [2]. Bladder augmentation with a detubularized intestinal segment and ureteral reimplantation performed simultaneously had been shown to be successful in increasing bladder capacity and reducing intravesical pressure due to the final spherical configuration [3]. Nevertheless, a low-compliant neurogenic bladder is characterized by high-pressure urine storage and in these cases VUR more commonly occurs due to increased intravesical pressure than due to a congenital malformation of the vesicoureteral junction [4–6]. Theoretically, by eliminating the high detrusor pressure, the reflux should be improved or resolved; consequently, the upper tract deterioration would be postponed or avoided. However, the simultaneous ureteral reimplantation and bladder augmentation procedure remains controversial. Following the experience of Nasrallah and Aliabadi [7], in this study, we decided not to correct VUR surgically in our 29 patients with a poor-compliant, high-pressure bladder who underwent bladder augmentation alone.

## Materials and methods

In this retrospective study, 29 patients with low-compliant neurogenic bladders underwent augmentation enterocystoplasty alone as their lower urinary tract reconstruction surgery at our institution between January 2009 and December 2014. We reviewed 20 male and 9 female patients with an average follow-up of 2.2 years following the initial augmentation surgery. The mean age of patients at the time of surgery was 30.1 years (range 14–58 years). The etiology of low-compliant bladder dysfunction was as follows: a history of traumatic spinal cord injury ( $n = 22$  patients), a history of myelomeningocele ( $n = 5$  patients), and unexplained causes ( $n = 2$  patients). The video-urodynamics (VUD) procedure was performed according to the criteria of the International Continence Society. All patients received conservative treatments over a period of 6 months before the surgery. All 29 patients received augmentation enterocystoplasty without antireflux technique at our institution (Figure 1). The clinical examination consisted of a targeted neurological examination, ultrasound of the bladder and the upper urinary tract, urinary

and blood laboratory studies, and preoperative and post-operative VUD.

## Statistical analysis

All values are presented as mean  $\pm$  standard deviation. Statistical analysis was performed using the Student *t* test. All *p* values less than 0.01 were considered significant.

## Results

The mean follow-up period of the 29 patients was 2.2 years (range 0.5–5.5 years). All patients had a detrusor leak point pressure more than 40 cmH<sub>2</sub>O, decreased bladder compliance ( $<10$  mL/cmH<sub>2</sub>O), and refluxing detrusor pressure with an average of  $55.3 \pm 15.2$  cmH<sub>2</sub>O before the surgery. All 29 patients had various degrees of reflux, as demonstrated by VUD during the filling phase, including Grade I reflux ( $n = 3$ ), Grade II ( $n = 7$ ), Grade III ( $n = 11$ ), Grade IV ( $n = 5$ ), and Grade V ( $n = 3$ ), according to the International Reflux Study Group Classification. To evaluate the change of the bladder compliance and VUR, post-operative urodynamic variables were compared with pre-operative urodynamic variables (Figure 2 and Table 1). Reflux resolved in 24 patients (83%), downgraded in three (10%), but persisted in two (7%). In addition, 16/21 (76%) patients had reflux Grades I–III; 100% patients with reflux Grades IV and V had complete cessation of reflux. The VUD manifested a significant improvement of bladder capacity, diminution of maximum detrusor pressure, bladder compliance, and resolution of VUR after augmentation enterocystoplasty. The mean total bladder capacity increased from  $250.4 \pm 127.5$  mL to  $457.5 \pm 37.3$  mL ( $p < 0.01$ ) and the mean maximal end filling pressure decreased from  $61.4 \pm 28.2$  cmH<sub>2</sub>O to  $14.5 \pm 4.3$  cmH<sub>2</sub>O ( $p < 0.01$ ). Twenty-seven patients were managed with CIC, with a mean interval of 4–6 hours between catheterizations; most patients did not experience any difficulty during the procedure, but two elderly female patients experienced occasional difficulty. Two vigorous male patients emptied their bladders by abdominal straining after surgery. Twenty-six patients reported completely dry bladder, two had mild incontinence, and one had moderate incontinence. The incontinence occurred in two patients with mild leakage once a day to once a week, usually at night when the bladder was either too full or CIC incompletely emptied the bladder. One patient with moderate leakage complained of urinary incontinence despite regular CIC six to eight times a day. This patient was given an anticholinergic drug (solifenacin) after the surgery to control the incontinence. Only one patient had recurrent febrile urinary tract infection after surgery and this patient was treated with antibiotics. In four patients, casing slime obstructed the catheter after the operation, and thus these patients received bladder irrigation.

All of the patients had normal creatinine levels (range 55–80  $\mu$ mol/L). Neither anemia nor electrolyte abnormality was diagnosed. Similarly, cancer and urolithiasis did not develop in any of the augmented bladders.

Download English Version:

<https://daneshyari.com/en/article/3485070>

Download Persian Version:

<https://daneshyari.com/article/3485070>

[Daneshyari.com](https://daneshyari.com)