

# Enterocystoplasty vs Detrusorectomy: Outcome in the Adult with Spina Bifida

Paul W. Veenboer,\* Sven Nadorp, Tom P. V. M. de Jong, Pieter Dik,  
Floris W. A. van Asbeck, J. L. H. Ruud Bosch and Laetitia M. O. de Kort

From the Department of Urology (PWV, SN, JLHRB, LMOdeK) and Department of Rehabilitation (FWA van A), University Medical Center Utrecht, Utrecht and Pediatric Urology Center, University Children's Hospitals, Wilhelmina Kinderziekenhuis Utrecht/Emma Kinderziekenhuis, Amsterdam (TPVMdeJ, PD), The Netherlands

## Abbreviations and Acronyms

BV = bladder volume  
CIC = clean intermittent catheterization  
EFP = end filling pressure  
GFR = glomerular filtration rate  
SB = spina bifida  
UTI = urinary tract infection

Accepted for publication August 20, 2012.

\* Correspondence: Department of Urology, University Medical Center Utrecht, Room C.04.236, Heidelberglaan 100, P. O. Box 85500, 3508 GA Utrecht, Utrecht, The Netherlands (telephone: 00-31-887553348; e-mail: P.W.Veenboer-2@umcutrecht.nl).

**Purpose:** Bladder augmentation by enterocystoplasty or detrusorectomy might prevent renal damage, help achieve dryness and decrease the need for antimuscarinics. We compared the long-term outcomes of enterocystoplasty and detrusorectomy in adults with spina bifida.

**Materials and Methods:** A retrospective study using the hospital electronic database was performed. We identified 47 patients with spina bifida (median age at followup 26.8 years) who underwent either enterocystoplasty or detrusorectomy between 1988 and 2004. Median followup was 13.1 years in the detrusorectomy group and 15.3 years in the enterocystoplasty group.

**Results:** In the detrusorectomy group 4 patients with treatment failure were identified. All 4 patients underwent secondary enterocystoplasty. No reoperation was necessary in the enterocystoplasty group. Preoperative bladder volume was approximately 100 ml higher in the detrusorectomy group (not significant). There was a significantly greater improvement of median bladder volume in the enterocystoplasty group (increase of 300 vs 77.5 ml,  $p = 0.006$ ). No differences in continence rate, antimuscarinic use or condition of the upper tract were found.

**Conclusions:** In this series of 47 patients long-term outcomes were good after enterocystoplasty and detrusorectomy, although bladder volume exhibited a greater increase in the enterocystoplasty group. No differences were observed among the other outcomes. If preoperative bladder volume is sufficient, detrusorectomy can be considered before enterocystoplasty is done.

**Key Words:** spinal dysraphism; urinary bladder, neurogenic; urologic surgical procedures

In the spina bifida population with neurogenic bladder a limited bladder volume, low compliance and high pressures due to detrusor overactivity could cause problems in the upper and lower urinary tracts. Bladder augmentation in these patients serves the goals of 1) reducing pressures in the bladder and thereby protecting the kidneys, 2) achieving dryness and 3) decreasing the need for antimuscarinic agents. In the 1960s and 1970s most patients with

spina bifida underwent urinary diversion (eg ileal conduit) to protect the kidneys and treat urinary incontinence. Today detrusorectomy (also called autoaugmentation, which involves removing part of the detrusor muscle and thereby creating a pseudodiverticulum) or enterocystoplasty (adding an enteric segment to the bladder) is performed in these patients.

Successful detrusorectomy was first reported in 1989 and has since been

used with varying success rates.<sup>1,2</sup> Proposed benefits in comparison to enterocystoplasty are the absence of mucous production and decreased incidence of stone formation, infections and electrolyte disturbances. Detrusorectomy is less invasive than ileocystoplasty and does not carry the risk of intestinal complications. Also since the pseudodiverticulum created with detrusorectomy is lined with transitional cell epithelium, the risk of malignancy is supposedly less.<sup>3</sup> When comparing the 2 techniques, the question arises of whether detrusorectomy is sufficient or whether enterocystoplasty, although more complicated, is better in terms of continence and preservation of the upper tracts.

To our knowledge no previous study has examined the long-term results of enterocystoplasty and detrusorectomy in comparable and concurrent cohorts. We examined the long-term clinical (eg use of antimuscarinics, kidney function, frequency of CIC) and urodynamic outcomes in an adult population with SB.

## MATERIALS AND METHODS

We analyzed 260 patients who were being followed at the adult spina bifida outpatient clinic between March 1999 and March 2009. This is a special clinic at our institution that is managed by a rehabilitation physician in conjunction with a urologist who checks these patients every 18 to 24 months, depending on their functional status. Of the patients 48 (18.5%) had undergone bladder intervention, with detrusorectomy being performed in 26 (10.0%) and enterocystoplasty in 22 (8.5%). One patient in the enterocystoplasty group was lost to followup after the first postoperative visit and, therefore, was excluded from further analysis, leaving 21 patients in that group. Median age at surgery was 14.0 years (IQR 11.0–17.0). Procedures were performed between 1988 and 2006 at various centers, although mostly at our institution (especially in case of detrusorectomy).

Data on the last preoperative urodynamic studies were retrieved. If not available at our hospital, other institutions were contacted to retrieve the data after written permission was obtained from the patient. Preoperatively BV was measured cystoscopically with the patient under anesthesia, and the capacity was used for making the decision as to which procedure to perform. Since most patients were operated on during puberty (when an adult BV was expected) absolute BV (ml) was reported instead of relative BV expected for age.

Bladder compliance was retrieved as a numerical value (ml/cm H<sub>2</sub>O). Categories of compliance (poor, borderline and good) were also used, since they are generally used in daily practice. Compliance was considered improved if a patient went from poor or borderline compliance to borderline or good compliance postoperatively. End filling pressures were defined as detrusor pressure in cm H<sub>2</sub>O (detrusor pressure = bladder pressure - abdominal pressure) at the end of the filling phase during filling cystometry. EFP was chosen instead of leak point pressure be-

cause leakage did not always occur. In most cases EFP equals the leak point pressure.

The same method was used with postoperative urodynamic parameters. Postoperative parameters were retrieved from the most recent filling cystometry studies found. Detrusor overactivity of preoperative and postoperative urodynamic investigations, defined as any involuntary detrusor contraction during the filling phase, was noted.

Condition of the upper tract was determined by ultrasound of the kidneys and serum creatinine. Findings of upper urinary tract ultrasonography were subdivided into 5 categories, which consisted of 1) no dilatation or scarring, 2) unilateral dilatation, 3) bilateral dilatation, 4) cortical scarring and 5) shrunken kidney. For renal function we retrieved the most recent serum creatinine values. We did not calculate GFR because none of the formulas used to calculate GFR is validated in this group of patients, and GFR estimations in these patients are often unreliable. Although 24-hour urine collection could overcome this problem, this evaluation was not available for any of the patients.

Incontinence was subdivided into completely dry, socially continent (minimal urine loss or use of 1 pad daily) and incontinent. Any history of urolithiasis (kidney or bladder) during followup was reported. UTIs were subdivided into no clinical symptoms, and infrequent (less than 3 episodes yearly) and frequent infections (more than 3 episodes yearly).<sup>4</sup>

Patients who underwent enterocystoplasty after failed detrusorectomy were initially analyzed in the detrusorectomy group. Followup time was counted from detrusorectomy till enterocystoplasty. Clinical outcomes were compared using a 2-tailed Fisher exact test and contingency tables in case of discrete data. In case of more than 2 types of outcome a Pearson chi-square test was used. Mann-Whitney U test was used to compare 2 continuous variables and Kruskal-Wallis test for more than 2 continuous variables. Differences were considered statistically significant when the p value was less than 0.05. For statistical analysis commercially available software (SPSS®, version 20.0) was used.

Most patients were operated on during puberty (median age 13.1 years at detrusorectomy and 15.3 years at enterocystoplasty). Patients were not randomized. Basically detrusorectomy was intended, and enterocystoplasty was performed only if detrusorectomy was not feasible (BV less than 80% of expected capacity for age).<sup>5</sup> Surgeon preference and condition of the bladder wall also factored into decision making.

A lower abdominal incision (Pfannenstiel) was made to enter the abdomen, and detrusor muscle tissue was removed. Cycling of the bladder started as soon as possible on postoperative day 1. For enterocystoplasty clam ileocystoplasty was performed in all but 2 cases, in which colcystoplasty was done. A 25 cm long ileum segment was isolated, after which a U-shaped cap was created to form a new bladder dome. In 1 patient sigmoidocystoplasty was done because of a short ileal mesentery with severe lumbar lordosis. In 26 patients with a low leak point pressure the procedure was combined with a fascial sling procedure.

Download English Version:

<https://daneshyari.com/en/article/3864976>

Download Persian Version:

<https://daneshyari.com/article/3864976>

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