

201

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**Title:** LONG-TERM RESULTS OF AUGMENTATION ILEO-CYSTOPLASTY IN PATIENTS WITH SPINA BIFIDA

**Objective:**

The aim of this retrospective monocentric longitudinal study was to assess long-term clinical, functional, urodynamics, and safety results of augmentation ileo-cystoplasty in consecutive patients with spina bifida.

**Material and method:**

From July 1987 to June 1998 we performed 43 ileo-cystoplasty in 14 female and 29 male patients (mean age 19,5 years, range: 10,5-48 years) with spina bifida. Forty patients were in failure of conservative treatment (clean intermittent catheterization (CIC) and anti-cholinergic drugs), 2 patients were in failure of previous colo-cystoplasty and 1 woman claimed for undiversion (trans-ileal ureterostomy). They presented with disabling/handicapping/harmful urinary leakage (41). A group of 22 patients had an upper urinary tract deterioration (high grade reflux (10), hydronephrosis (12)). Surgery was done as follows:

"clam" cystoplasty (n=7),

subtotal cystectomy with Hautmann(1) cystoplasty (n=34) and

detubulation of former colo-cystoplasty (2).

Augmentation of bladder outlet resistance was performed at the same time in 9 patients ("V-Y" bladder neck plasty (2), modified rectus fascial sling (3) and artificial urinary sphincter (4)). Later on an artificial urinary sphincter was implanted in 4 patients, 1 to 7 years after cystoplasty. All patients had at least 1.5 year of follow-up. Patients were followed post-operatively at 1, 3, 6 and 12 months and then yearly focusing on continence status and upper urinary tract outcome. We defined continence as complete when there were no leakage in any condition, as satisfactory when occasional stress or night incontinence occurred but with no claim for an improvement from the patient. All other cases were considered as clinical failure of the procedure. Urodynamics study, renal ultrasound examination, cystoscopy, and creatinine serum level were performed yearly and at last follow-up.

**Results:**

Mean follow-up was 8 years and 4 months (ranged from 1.5 to 12.5 years). One patient (1/43) escaped from follow-up. Thirty-one patients (74%) achieved complete continence, 8 (19%) had a satisfactory continence. The last 3 patients (men) were still incontinent. This functional failure was in contrast to a good clinical examination and urodynamics results and related to a poor respect of rules of CIC (frequency, volume). Complete paraplegic non ambulatory patients (12/43) displayed a 91% continence rate. Twenty-five patients (59,5%) performed CIC, 13 (31%) voided with using abdominal straining and 4 used both

methods. One third of the patients had to modify their voiding procedure during follow-up from abdominal straining to CIC after surgery.

Urodynamics results at last visit exhibited an increased functional bladder capacity (185 ml (20 to 500 ml) preoperatively versus 460 ml (240 to 800 ml) post-operatively) and an increased compliance at functional bladder capacity (5,5 ml/cm (1 to 21) of water preoperatively versus 37,5 ml/cm of water (8 to 100) post-operatively). No bladder rupture has been recorded. Bladder lithiasis occurred in two patients. One female patient had pregnancy and delivered without problem. Renal function remained stable and 8 patients had clinically significant urinary tract infection along follow-up opposite to 16 before surgery (more than one episodes of infection/year; infection is pyelonephritis and/or orchiepididymitis). No cystoscopic pathological findings have been encountered on neobladder.

### **Discussion:**

Augmentation ileo-cystoplasty is a safe and efficient procedure in patients with spina bifida provided that they agree for CIC and yearly visits for follow-up. The results of this retrospective series in a specific cohort of spina bifida are very different of those observed in a spinal cord injury population(2). As most of the publications are reporting on mixed population(3), we have been able to report on long-term follow-up in a specific and numerous myelodysplastic patients population(4). The failure rate could be improved with cognitive and behavioural evaluation before surgery. This problem is less encountered for patients without congenital spinal disease. The low rate of bladder stone is related to yearly follow-up and education of patients to obtain a good quality of emptying of the neobladder through CIC. Orthotopic neobladder is at lower risk of stone formation because of better quality of drainage through declive urethra.

It must be considered as the gold standard treatment when conservative management has failed so far other conservative options have been definitely validated.

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