

SURGICAL PERSONAL TECHNIQUE FOR AN ORTHOTOPIC ILEAL NEO-BLADDER RECONSTRUCTION: LONG TERM FUNCTIONAL RESULTS

Aims of Study

Several techniques have been developed for reconstruction of an orthotopic neo-bladder after cystectomy, with the purposes to create a low-pressure reservoir and to preserve renal function.

We investigated the functional results over long term follow up of an orthotopic ileal neo-bladder using a surgical personal technique.

Methods

Seventy-three patients (70 males and 3 females; mean age was 64 ± 7.2 years) with bladder cancer underwent cystectomy with orthotopic ileal neobladder. Personal technique was the following: use of a 45-50 cms ileal segment in a "U" loop which was longitudinally detubularized using GIA staplers; the proximal and distal 5 cms of the loop were left tubularized and the ureters were reimplanted there using an extraluminal anti-reflux technique; vertical placement of the neo-bladder with neo-bladder urethral anastomosis as the lowest point of the "U" loop. The catheter was removed 18 to 26 days after surgery and patients underwent micturitional biofeedback training to optimize voiding by means of abdominal straining associated with sphincter relaxation. Morpho-functional evaluation was performed at 3 mos, and every 12 months, by means of ultrasound, urodynamics, cystourethrography, and video-urodynamic evaluation.

Results

Sixty-one patients (58 males and 3 females) were studied at 3 and at 12 months after surgery.

Three months follow up. All patients presented with moderate incontinence (45 both during the day and the night; 16 only at night). On urodynamics, mean maximum neo-bladder capacity was 253 ± 43.2 ml; contractions of the ileal wall were observed in almost all patients and the mean volume at which such contractions appeared was 96 ± 40 ml. Compliance of the reservoir was reduced in 41 patients. On pressure-flow study, mean maximum flow rate was 11.3 ± 5.9 ml/sec and the mean postmicturition residual volume was 50 ± 90.4 ml. Mean maximum urethral closure pressure (MPCU) was 55.3 ± 10.2 H₂O.

Twelve months follow up. Fifteen patients showed complete diurnal and nocturnal urinary continence, 2 patients complained of incontinence related to the contractions of the neo-bladder, and 44 patients reported a mild-moderate degree of stress urinary incontinence. On urodynamics, mean maximum neo-bladder capacity increased to 314.3 ± 85.3 ml, contractions of the ileal wall persisted in 44 patients; the mean volume at which such contractions appeared was 172.7 ± 90 ml. Compliance of the reservoir was reduced in 18 patients. On pressure-flow study, mean maximum flow rate and mean postmicturition residual volume increased to 13.5 ± 5.9 ml/sec, and to 59 ± 88 ml respectively. MPCU was 50.7 ± 18.4 cm H₂O.

Five years follow up. Thirty patients (27 males and 3 females) were studied again five years after surgery. A complete urinary continence was observed in 12 patients (40%), and the remaining complained of nocturnal urinary incontinence and of a mild degree of SUI; they used 1-2 pads per day. On urodynamics, the mean maximum neo-bladder capacity was 379.8 ± 108.9 ml; contractions of the ileal wall persisted in 17 patients: the mean volume at which the contractions appeared was 214.6 ± 127 ml, with a maximum pressure of 44.3 ± 18.2 cmH₂O. The compliance of the reservoir was reduced in 14 patients. On pressure-flow study mean maximum flow rate was 13.3 ± 10.4 ml/sec, with a mean post-micturitional residual volume of 70.3 ± 114 ml. Seven patients showed a urine residual volume higher than 100 ml, but in only one a transient daily catheterization was required. Mean MPCU was 46.3 ± 17.1 cmH₂O. On ultrasound, we could observe a bilateral renal pelvis dilatation in 3 patients. Four patients complained of recurrent neo-bladder infections; neo-bladder stones were found and treated in 4 cases and laparoceles in 3.

Conclusions

The helix-shaped configuration of the present surgical technique provides low neo-bladder capacity 3 months after surgery with an increase in the frequency of micturition. The capacity of the neo-bladder increases over time but within limited values. The longitudinal metallic sutures along the median line help develop a ring of scars acting as the fulcrum for voiding. Thus the reservoir remains able to empty without of excessive abdominal straining and of large amount of urine residual volumes over long term follow up. These characteristics are responsible for the low incidence of neo-bladder complications, as far as for the absence of upper urinary tract damage.