A New Extra-Abdominal Channel Alternative to the Mitrofanoff Principle Based on two Lower Abdominal Cutaneous Flaps: Preliminary Clinical Experience

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A COMPARATIVE STUDY BETWEEN CONTINENT DERIVATION AND BLADDER NECK CLOSURE AND CONTINENT DERIVATION AND BLADDER NECK RECONSTRUCTION IN CHILDREN

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PURPOSE

To assess the long-term outcome of continent diversion in children with structural or neurogenic cause for incontinence with special interest in differences between closed or open bladder neck.

MATERIAL AND METHODS

A cohort of 63 children with intractable incontinence treated with continent diversion between January 1998 and January 2008 was reviewed for underlying disease, type of surgery, complications and outcome.

RESULTS

40 patients have had a continent diversion with bladder neck reconstruction (group 1), 23 patients have had their bladder neck closed (group 2: 11 primarily closed = Group 2A, 12 secondarily closed = Group 2B). There was no difference in patient’s characteristics, in surgical complications or reinterventions or in stone formation (table 1). The continence rate however was significantly better in group 2 (95.7% vs 78.5%).

Table 1  Surgical interventions following continent diversion with and without BN closure.

<table>
<thead>
<tr>
<th></th>
<th>Closed BN (n=23)</th>
<th>Open BN (n=40)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cystotomy for stones</td>
<td>2 (2)</td>
<td>3 (3)</td>
<td>Ns</td>
</tr>
<tr>
<td>Endoscopic stone treatment</td>
<td>4 (3)</td>
<td>6 (4)</td>
<td>Ns</td>
</tr>
<tr>
<td>Bladder neck revision</td>
<td>4 (4)</td>
<td>3 (3)</td>
<td>Ns</td>
</tr>
<tr>
<td>Open revision for stoma stenosis</td>
<td>6 (4)</td>
<td>13 (8)</td>
<td>Ns</td>
</tr>
<tr>
<td>Endoscopic revision for stoma stenosis</td>
<td>1 (1)</td>
<td>7 (5)</td>
<td>Ns</td>
</tr>
<tr>
<td>External stoma orifice revision</td>
<td>6 (5)</td>
<td>11 (8)</td>
<td>Ns</td>
</tr>
<tr>
<td>Revision for stoma leakage</td>
<td>2 (1)</td>
<td>7 (6)</td>
<td>Ns</td>
</tr>
<tr>
<td>Other related surgery (augmentation, ureter reimplantation, bladder perforation, …)</td>
<td>7 (2)</td>
<td>11 (10)</td>
<td>Ns</td>
</tr>
<tr>
<td>Total</td>
<td>31 (14)</td>
<td>61 (16)</td>
<td>P=0.04</td>
</tr>
</tbody>
</table>

CONCLUSIONS

In children treated with a continent diversion for intractable incontinence, bladder neck closure as primary or as salvage procedure does not result in extra morbidity and has high success ratio. Good urodynamic evaluation of bladder function is an important key to success in therapy planning for these children and thus minimizing the need for reintervention.

DP01: AUGMENTATION/DIVERSION - DISCUSSED POSTER 1

A NEW EXTRA-ABDOMINAL CHANNEL ALTERNATIVE TO THE MITROFANOFF PRINCIPLE BASED ON TWO LOWER ABDOMINAL CUTANEOUS FLAPS: PRELIMINARY CLINICAL EXPERIENCE

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PURPOSE

The appendix is the gold-standard channel for the Mitrofanoff principle in pediatric urology, but the search for alternatives is justified. The aim of this study is to report on technical feasibility and present our preliminary clinical experience with an alternative conduit based on two lower abdominal skin flaps.

MATERIAL AND METHODS

We configured a tube from two rectangular skin flaps 1×4 cm opposite each other in the middle line of the lower inferior abdomen. The vascular support of the flaps is based on inferior epigastric and circumflex branches in the subcutaneous tissue. The channel was anastomosed to the bladder dome with embedding 3.0 prolene sutures to create a valvular mechanism. None patients required bladder augmentation and surgery was performed entirely extraperitoneally. We used this method so far in 4 patients with congenital non-neurogenic bladder diseases presenting with residual volumes without compliance deficits. The last patient was a 16 year old boy and he underwent a laser skin follicules ablation regimen before surgery.
RESULTS

Mean follow-up of the clinical series is 10.4 months. Three patients remained continent up to 4 hours, whereas 1 patient had urinary leakage through the stoma and underwent open revision of the valve mechanism by crossing the rectus abdominal muscle in the midline to create a neosphincter-shape.

CONCLUSIONS

We were able to confirm feasibility of a new extra-abdominal channel based on the Mitrofanoff. Follow-up is still short but initial experience of a totally extraperitoneal method is very appealing so far.

# DP01-2 (DP)
CONTINENT URINARY DIVERSION. VARIATIONS ON THE URETERIC MITROFANOFF CONDUIT

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PURPOSE

Mitrofanoff described the use of a nonrefluxing ureter to construct a continent stoma (CS), which sometimes involves risking the good kidney with a complicated transuretero-ureterostomy.

MATERIAL AND METHODS

During the period from 1993-2008 we performed and evaluated 74 children with CS, age from 2-7 years. Apendicovesicostomy was most frequent method, involving 31 (41.9%) patients, followed by CS with distal ureter in 27 (36.5%) patients. Latter method was applied in patients with neurogenic bladder, posterior urethral valve, bladder extrophy or intraspinal neuroblastoma. Follow-up period ranged from 8 months to 15 years. We formed a CS by using the distal part of the refluxing or obstructive ureter/megaureter on the functioning or nonfunctioning kidney. In patients with reflux the continent mechanism was formed by using the Lich-Gregoire technique or Barry’s tunneling method, with or without tapering of the distal ureter. Previous reimplantation is not a contraindication to the usage of the distal ureter for CS.

RESULTS

Patients had no stenosis of the ureterocutaneous junction. For 24 patients we found no leakage, while for 3 patients the leakage was solved with sting procedure. Catheterization was easy and painless, and the aesthetic results were excellent in 73 (98.6%) patients.

CONCLUSIONS

Compared with other techniques for continent stomas this method is quicker, requires less skill and causes few complications, which is the reason why this vesicostomy is frequently used in our hospital. Our experience with extravesical ureterocystoneostomies suggests that there is always enough ureter for continent stoma and ureterocystoneostomy. Avoidance of intraperitoneal dissection is one of its main advantage, especially for patients with ventriculo-peritoneal shunt.

# DP01-3 (DP)
THE RECTUS ABDOMINAL NEOSPHINCTER FOR IMPROVING CONTINENCE AND PREVENTING STOMAL LEAKAGE IN CONTINENT URINARY DIVERSION

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PURPOSE

Continent urinary diversion is presently a well established method to improve bladder capacity and promote continence. Stomal complications like stenosis and leakage represent 10-20% of overall complications. We found a previous report of Yachia with the use of the rectus abdominal as a neosphincter to create a continent mechanism to outlet channels. We performed 10 consecutive cases in two situations: as a revision procedure of leaking channels (group A) and as an additional continence method to the embedding of the outlet channel in continent catheterizable ileum-based reservoirs (group B). We wanted to present our initial clinical experience with the method.

MATERIAL AND METHODS

We included 3 patients in group A and 7 patients in group B. Myelomeningocele was the primary disease in 9 cases, except 1 with valve bladder (PUV). The procedure consisted in crossing 2 nondetached rectus muscle strips 1.5 cm wide in the midline lower abdominal area.

RESULTS

Mean follow-up of the clinical series was 4.2 months (1-9). All patients were continent up to 4 hours after stomal catheter removal, one patient reports some leakage after 2 hours after 6 months of follow-up.

CONCLUSIONS

We were able to confirm technical feasibility and found 100% initial continence with this method not yet reported in the pediatric population. Follow-up is still short but initial experience was very favorable. The procedure itself is technically simple and straight-forward, requiring no more than 10-15 minutes. We incorporated the rectus abdominal neosphincter as an additional continence procedure to our bladder reconstructions with outlet channels.