

## NERVE SPARING BILATERAL EXTRAVESICAL DETRUSORRHAPHY

### Hypothesis / aims of study

The modified Lich-Gregoir extravesical reimplantation is an effective method for correcting vesicoureteral reflux and has advantages compared to intravesical approaches, including decreased postoperative discomfort, decreased bladder spasm, decreased hematuria, and a shorter hospital stay. However, there is reluctance to perform bilateral detrusorrhaphy because of the reported high incidence of voiding dysfunction postoperatively. We evaluated the outcome and incidence of urinary retention after bilateral detrusorrhaphy using modification for avoiding disruption of detrusor innervation.

### Study design, materials and methods

We reviewed the charts of 22 consecutive patients (12 boys and 10 girls) who underwent bilateral extravesical reimplantation between October 2002 and February 2004. The patients were divided into two groups according to the type of paraureteral myotomy. In the late period of our experience, since June 2003, we have performed distal myotomy which is curved ventromedially just below the UVJ for saving trigonal innervation rather than extended linearly. Group 1 consisted of 12 patients (M:F 5:7, mean age 4.5 yrs, range 5 months to 7 years) who underwent bilateral detrusorrhaphy using conventional linear myotomy along the ureteral course. Group 2 (M:F 7:3, mean age 3.1 yrs, range 8 months to 7 years) consisted of 10 patients who underwent bilateral detrusorrhaphy using previously mentioned nerve sparing myotomy ('J' shaped incision). Postoperative voiding was monitored by uroflowmetry and by postvoid residual urine volume with ultrasound bladder scan or catheterization. Urinary retention was defined as the emptying failure requiring temporary urethral diversion or intermittent catheterization. Postoperative follow up included VCU and renal USG 3 to 4 months postoperatively. Further USG or DMSA scan was performed in selected cases. We compared the rate of postoperative urinary retention as well as successful reflux resolution between both groups.

### Results

The mean duration of follow up in group 1 (12 patients) was 11 months (range 1 to 17) and the grade of reflux was I in 1 ureter, II in 9, III in 7, IV in 5, V in 2. In group 2 (10 patients), the mean duration of follow up was 5.4 months (range 1 to 9). The reflux grade was I in 2 ureters, II in 2, III in 5, IV in 9, V in 2. Preoperatively mean maximal flow rate was 16.7 ml/sec in group 1 and 15.9 ml/sec in group 2 each other ( $p>0.05$ ). At uroflowmetry, mean voided volume was 127.8 ml in group 1 and 98.1 ml in group 2. Nobody of 22 patients had the residual urine volume larger than 25% of total volume on preoperative RU check. The overall success rate for reflux resolution was high. However, 2 patients (3 ureters) in group 1 did not acquire the resolution of reflux at 3 or 4 months follow up. The success rate was 85 % in this group. On the other hand, all (7 patients) that underwent initial follow up VCU in group 2 had resolution of reflux. Mean postoperative date of catheter removal and voiding trial was 6.3 day (range 4-15) in group 1 and 4.0 day (range 3-7) in group 2. Urinary retention developed in 3 (25%) of group 1, but in none (0%) of group 2 ( $p<0.05$ ). All that experienced urinary retention required Foley catheter re-indwelling, but the resolution of voiding difficulty appeared at 8 days, 9 days, and 26 days postoperatively in each other. During the further follow-up periods, no serious voiding dysfunctions were found in both groups.

### Interpretation of results

It seems that bilateral extravesical detrusorrhaphy using modified myotomy curved ventromedially below the UVJ decreased the rate of postoperative urinary retention and persistent reflux because the incision parallel to the traverse nerves below the UVJ area could minimize nerve damage and achieve enough tunnel length as possible.

### Concluding message

Compared to conventional bilateral extravesical detrusorrhaphy, nerve sparing bilateral detrusorrhaphy using 'J' shaped modified myotomy showed decreased incidence of urinary

retention postoperatively. It seems to be efficacious procedure associated with low morbidity for correcting bilateral vesicoureteral reflux in children.

**References**

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