

BLADDER NECK CLOSURE FOR TREATING NEUROGENIC INCONTINENCE IN PEDIATRIC PATIENTS WITH MYELODYSPLASIA

Aims of Study

Urinary incontinence in children with anatomical or neurogenic abnormalities is clinically serious problem and often intractable despite conservative management or even surgical management. There are many surgical procedures to increase bladder outlet resistance. All of them, however, have variable degrees of success and complication. We compared the results of bladder neck closure (BNC) and other bladder neck reconstruction procedures for the treatment of neurogenic urinary incontinence in patients with myelodysplasia.

Methods

Between June 1993 and November 2002, 27 children with myelodysplasia underwent bladder neck surgeries for the treatment of severe urinary incontinence. All of them had persistent urinary incontinence intractable to anticholinergic medication and frequent clean intermittent catheterization. In 23 children, augmentation cystoplasty was performed concurrently with bladder neck surgery in order to increase bladder compliance and capacity. Four children had been augmented before. Pre- and post-operative serum chemistry tests, renal ultrasonography, and DMSA renal scan were obtained in all patients to assess and predict renal damage in each patient. Preoperative video urodynamic study was performed in all patients.

Above 27 patients were divided into two groups according to the type of performed bladder neck operation. Group 1 consisted of 16 patients (10 male, 6 female) who underwent bladder neck closure (BNC). Mean age was 9.3 years (range 6 to 22). And mean follow-up was 23 months (range 4 to 79). In 12 children of group 1, BNC was done as primary surgical procedure for neurogenic incontinence, and In 4, as a salvage procedure. Mitrofanoff diversion with appendix was done in all group 1 patients. Group 2 consisted of 11 patients (10 male, 1 female) who received bladder neck surgeries for continence other than BNC. 10 children received sling procedures using rectus fascia and 1 the Pippi Salle procedure. Mean age of group 2 was 9.9 years (range 6 to 14), and mean follow-up was 37 months (range 1 to 115). There was no significant difference between the two groups with regard to sex, age, follow-up duration ($p>0.05$). Information on continence status and complications after bladder neck surgeries were examined. The operation was considered successful when the patient remained completely dry day and night. Occasional minor stress and/or nocturnal incontinence were considered a partial success, and daily diurnal incontinence was regarded as a failure.

Results

In group1, after BNC, all patients were completely dry, so success rate was 100%. In group 2, only 4 patients (36.4%) who underwent sling procedures remained completely dry, and one patient was partially dry. So overall success rate of group 2 was 45.5%. Significant difference between two groups was found regarding the postoperative continence ($p<0.01$). Three patients in group 2 received finally bladder neck closure and achieved complete continence ultimately.

Postoperative complications were observed in 6 (37.5%) of 16 children who belonged to group 1. Leakage or fistula was not seen in all patients. Bladder stones were seen in 3 patients (18.8%), postoperative ileus in 2 patients (12.5%), and clinically significant urinary tract infection (acute pyelonephritis) in 1 (6.3%). Stomal complications were seen in 3 patients (appendiceal polyp 1, stomal stenosis 2)(18.8%). Three patients in group 1 required reoperations to treat bladder stones, and 2 of them who developed concurrent stomal problems underwent stomal revisions simultaneously. In group 2, 6 children (54.5%) developed postoperative complications. Bladder stones were seen in 2 patients (18.2%), postoperative ileus in 1 patient (9.1%), and febrile urinary tract infection also in 1 patient (9.1%). Because of severe difficulty in catheterization, one, who underwent the Pippi Salle procedure, had to undergo visual internal urethrotomy. Eventually, 3 patients underwent

reoperations for complications. There was no significant difference between the two groups with regard to overall complication rate and reoperation rate for complications ($p>0.05$). Evaluation of post-operative renal function showed that no patient had any worsening.

Conclusions

Compared to other bladder neck surgeries, BNC showed high success rate and acceptable complication rate. BNC seems to be highly efficacious and safe procedure in achieving continence in pediatric neurogenic urinary incontinence. Considering regular catheterization is mandatory in patients who undergo augmentation cystoplasty, BNC in conjunction with bladder augmentation may be considered as a primary procedure as well as a salvage procedure in patients with myelodysplasia.

References

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