# SELECTION OF SURGICAL METHODS FOR NEUROGENIC BLADDER IN CHILDREN

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## OBJECTIVE

To explore the effect of surgical choice on postoperative recovery of neurogenic bladder children.

## METHODS

**A total of 32 cases were selected in this study**. Their age is 6 months to 8 years old, and the ratio of men and women to 2:1. Among the total cases, 25 cases had lumbosacral masses, tethered cord syndrome (TCS) who underwent surgical lysis; 6 cases of non surgical lysis; 1 case had space occupying lesion in spinal canal and underwent surgical treatment.

**MRU, IVP, VCUG and urological ultrasonic examination** were routinely used in all cases before and after operation. The PAC angle and the obliquity of the bladder and the posterior angle of the vesicourethral were measured before and after operation. And besides urodynamic examination and anorectal manometry before and after operation were also underway[1-2] .

**Operative methods:** ①suspension of pelvic floor, ② bladder neck suspension, ③bladder augmentation, ④ Malone procedure, and ⑤anti-vesicoureteral reflux. ICI-Q-SF score, Li Zheng fecal incontinence clinical score, urodynamic examination and anorectal manometry were used for comprehensive evaluation before and after operation[3-4].

**Rehabilitation training** for half a month after operation, such as intermittently open urethral catheterization and then intermittent catheterization, biofeedback and so on. Postoperative follow-up and urodynamic evaluation were performed.


Fig.1: Imaging and signs in children with neurogenic bladder. (A: Tethered cord syndrome with myelocele, B and C: Neurogenic bladder with megalo-ureter, D: Neurogenic bladder with muscular atrophy of the lower extremities and high arch feet.)

## RESULTS

The bladder capacity generally increased 150~200ml after operation. Postoperative follow-up of 8 months to 3 years with functional training and intermittent catheterization, after Malone operation with anterograde enema.

The children are stability of the disease and able to integrate into the society. They are not wet pants and benches during school. A total of 32 cases in the study, 16 cases of surgical combination with operative methods ①, ② and ③; 5 cases of surgical combination with operative methods ①, ②, ③ and ④; 6 cases of surgical combination with operative methods ①, ②, ③ and ⑤; 2 cases of surgical combination with operative methods ①, ② and ⑤; 1 case of surgical combination with operative methods ① and ②; 1 case of surgical combination with operative methods ② and ⑤; 1 case of surgical combination with operative methods ③ and ⑤.

There were 104 times of all operative procedures in 32 children, and average 3.25 times needed of surgical methods for each child.

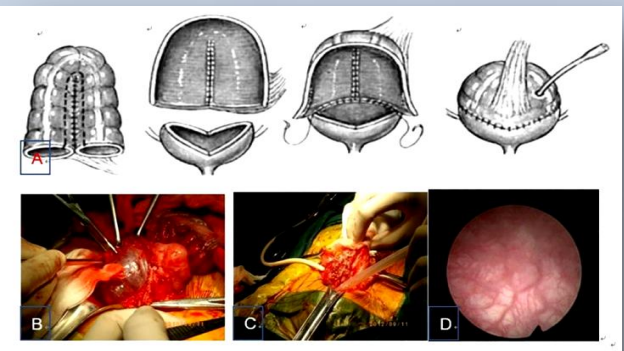


fig2: Bladder Augmentation (A: Schematic diagram of bladder augmentation, B and C: Intraoperative operation of bladder augmentation, D: Cystoscopy of 3 months after bladder augmentation.)

## CONCLUSIONS

The treatment of neurogenic bladder should adhere to the principle of comprehensive treatment, a single treatment is often difficult to get the goal of treatment, and a variety of operative combinations are needed to achieve the therapeutic effect always.

Pelvic floor muscle strengthening, bladder neck suspension and bladder enlargement surgery are the basic surgical treatments for neurogenic bladder. At the same time, postoperative rehabilitation training is also indispensable for ensuring the efficacy of surgery.

## REFERENCES

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