Resolution of Vesicoureteric Reflux and Abnormal Urodynamics in A Case of Spina Bifida with Neurogenic Bladder

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Abstract. Congenital malformations such as neural tube defects may be associated with neurogenic bladder or bowel. The sequel are many with far-reaching consequences and include recurrent episodes of urinary tract infections, development of vesico-ureteric reflux, urinary incontinence and progressive renal damage which may culminate into renal failure. Deeper insights into the physiology and pathophysiology of the dynamics of micturition has surfaced the fact that the development of these complications is not only preventable but also reversible to a variable extent. Management strategies include pharmacotherapy, patient cum parent psychotherapy, education about the disease process and last but not the least, surgery. We hereby report a case of neurogenic bladder with bilateral reflux who had complete resolution of reflux and improvement in bladder dynamics on aggressive non-operative treatment.

Keywords: Neurogenic bladder, Urinary incontinence, Neural tube defects, Meningomyelocele, Clean intermittent catheterization, Vesico-ureteric reflux, Bladder dynamics, Anti-cholinergics

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Case Report

A 11 month old male child presented with continuous dribbling of urine and recurrent urinary tract infections since birth. There was also history of bilateral lower limb weakness since birth. The patient had undergone lumbosacral meningomyelocele excision at 6 months of age. Examination revealed normally located urethral meatus with bilateral descended testes. Midline scar of previous surgery was seen on the lower back. Bilateral lower limb power was 2/5. Rest of the systemic examination was within normal limits. Investigatory work up revealed normal renal function tests. Ultrasound showed normal bilateral kidneys and slightly thickened urinary bladder wall with cystitis. Micturating cystourethrogram detected bilateral vesicoureteric reflux (grade 3 on right side and grade 1 on left side) and a trabeculated vertically elongated bladder (Fig. 1a). The post-void residual urine was significant. Glomerular filtration rate (100 ml/min/1.73 m²) was in the normal range for his age. Urodynamic study (UDS) was suggestive of small capacity high pressure bladder with multiple uninhibited contractions (Fig. 2a). He was started on chemoprophylaxis, clean intermittent catheterization (CIC) and oxybutynin. Patient was kept on close follow up to ensure the compliance. There was no breakthrough urinary tract infection till his last follow up. Bilateral VUR has resolved on repeat MCU done at 1 year.
Resolution of VUR and Abnormal urodynamics in A case of spina bifida with neurogenic bladder

Fig. 1. Fig. 1a. Initial MCU with bilateral VUR and Fig. 1b. Follow-up MCU on which VUR has resolved

Fig. 2. Fig. 2a. Initial UDS and Fig. 2b. Follow-up UDS

(Fig. 1b). On repeat urodynamics 6 months later bladder capacity has increased to normal for age though the pressures remained high. Intravesical pressures returned to normal on UDS at 1 year follow-up (Fig. 2b). The GFR (120 ml/min/1.73m2) was normal at last follow-up.

Discussion

The patient presented with neurogenic bladder with recurrent urinary tract infections but had normal renal function at presentation. Early aggressive treatment with anticholinergics, CIC and chemoprophylaxis led to improved urodynamics and resolution of VUR with preservation of renal function in present case.

Conclusion

Effective bladder management with prevention of urinary tract infections is an integral part of treatment of neurogenic bladder. Instituting this treatment early can prevent renal dysfunction in these cases.

References


