

Letter to the Editor

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Vesicoureteral reflux and bladder management in spinal cord injury patients

Vesicoureteral reflux in the early stage of spinal cord injury: a retrospective study Suzuki T and Ushiyama T. *Spinal Cord* 2001; **39**: 23–26

Compliance with bladder management in spinal cord injury patients

Yavuzer G, Gök H, Tuncer S, Soygür T, Arıkan N, and Arasil T. *Spinal Cord* 2000; **38**: 762–765

Suzuki and Ushiyama¹ observed that patients with injuries between Th10 and L2, which involve the sympathetic nervous system, often exhibited vesicoureteral reflux in the early stage after spinal cord injury (SCI). In persons with SCI, the behaviour of neuropathic bladder does not remain static; there can be significant changes in urinary bladder function with passage of time. Physicians caring for SCI patients should promptly detect functionally significant alterations in bladder physiology, and institute appropriate modifications in bladder management without delay. Otherwise, irreparable damage to upper urinary tracts may occur, as exemplified by the following case.

A 69-year-old male sustained paraplegia below T-12 as the result of a fall in 1973 while he was working in a dockyard. A routine intravenous urography (IVU) done in October 1992 showed normal appearances of kidneys, ureters and bladder (Figure 1a,b). He was prescribed phenoxybenzamine 10 mg three times a day. He managed his bladder by wearing a penile sheath and was doing well. As part of the follow-up, videourodynamics was performed in February 1993; this showed no uninhibited detrusor contractions. Cystogram showed a large capacity bladder with smooth outline; there was no vesicoureteric reflux. (Figure 2). Since the beginning of 2000, this patient started developing recurrent urinary infection. Unfortunately, we did not review this patient after February 1993 until December 2000, when videourodynamics was carried out. Videourodynamics showed bilateral grade-3 vesicoureteric reflux. He exhibited hyperreflexic contraction with a detrusor pressure exceeding 100 cm of water. (Figure 3). IVU, performed in January 2001, showed marked bilateral hydronephrosis with bilateral cortical thinning (Figure 4). Blood test revealed creatinine level of 198 micromol/L. Twenty-four hours urine collection showed creatinine clearance of 38 ml per minute, and urine protein of 2.38 grams. Bladder management was changed to indwelling urethral catheter drainage with oral oxybutynin therapy. Subsequently, ultrasound-scan of the kidneys showed resolution of the hydronephrosis. There was however, generalised cortical thinning, focal scarring of right upper pole, and reduction in the size of both kidneys. These changes were consistent with reflux nephropathy.

Yavuzer and associates² recommended that the bladder management method of SCI patients should be selected so as to be suitable to the patients' life style; besides

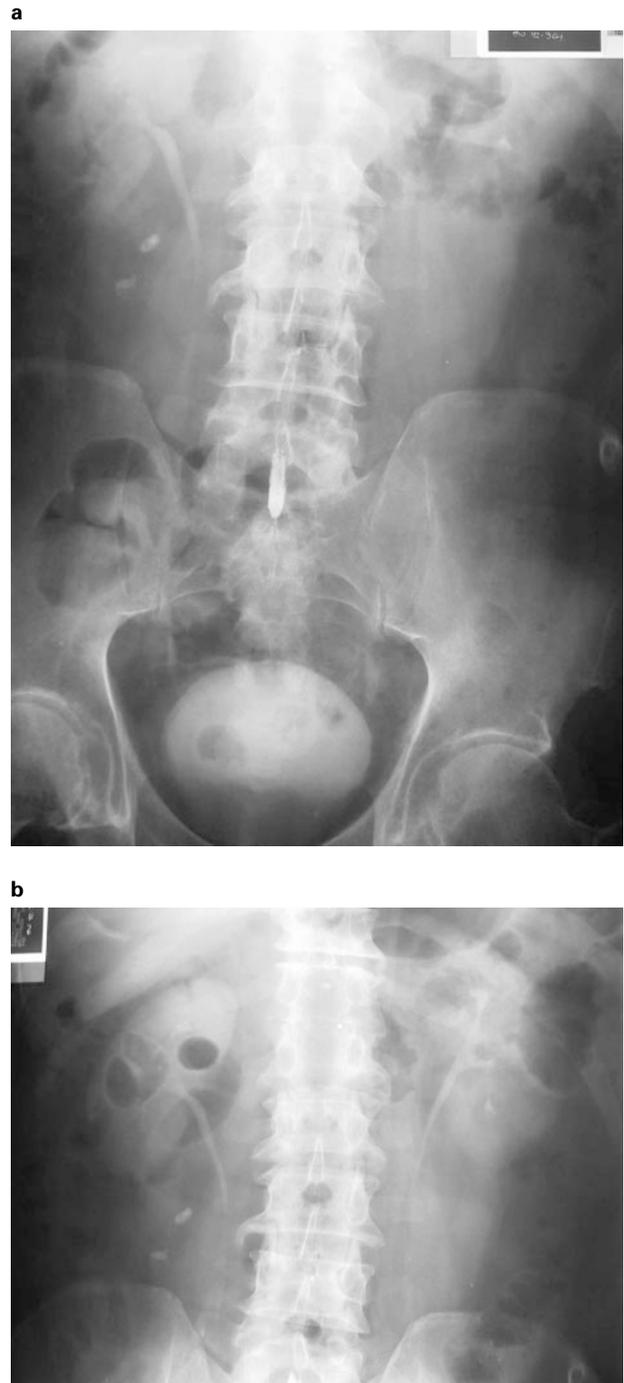


Figure 1 IVU (14-10-1992). (A) Note normal appearances of kidneys, ureters and bladder. (B) 5-min cross-kidney film of IVU showed normal cortical thickness



Figure 2 Cystogram (24-02-1993): There was no vesicoureteric reflux



Figure 3 Videourodynamics (19-12-2000) revealed hyper-reflexic contraction and bilateral vesicoureteric reflux

reducing morbidity, it also has to enhance the quality of life. While choosing a suitable method of bladder management for an individual with SCI, physicians should be aware that vesicourethral function undergoes changes with the passage of time. Therefore, during annual follow-up visits, it will be desirable to review the method of bladder management and institute changes when necessary, in a proactive manner, before irreversible damage to the upper urinary tracts occurs. This is illustrated by the following examples:

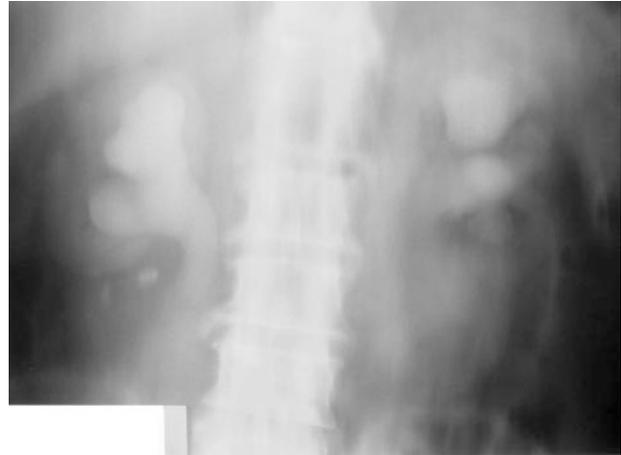


Figure 4 IVU Tomogram (04-01-2001) showed marked bilateral hydronephrosis with bilateral cortical thinning, most marked in the right upper pole

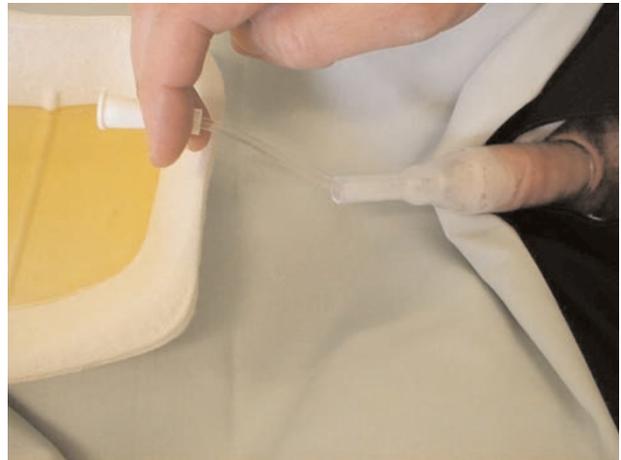


Figure 5 Photograph of a male with spinal cord injury and paraplegia, performing urethral catheterisation through a see-through sheath (Clear Advantage penile sheath)

- (1) During a routine follow-up visit, we observed that a paraplegic patient, who had been managing his bladder with penile sheath drainage, was not emptying his bladder completely. This patient required intermittent catheterisation to achieve complete vesical emptying and to prevent recurrent urinary infection. We recommended urethral catheterisation to be performed 2–3 times a day by inserting a sterile catheter through a see-through penile sheath (Clear Advantage silicone penile sheath manufactured by Seton Healthcare Group plc, UK). The advantage of a see-through penile sheath over a conventional penile sheath is that the transparent sheath enables the patient to visualise the urinary meatus, and insert a catheter through the sheath into the urethra without having to remove the penile sheath prior to each catheterisation (Figure 5).
- (2) A SCI patient, who relies on long-term Foley catheter drainage per urethra, will be benefited by oral oxybutynin therapy, as patients who take oxybutynin

regularly have better bladder compliance, lower bladder leak point pressure and less hydronephrosis.³

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