

Original Article

Do spinal cord injury patients always get the best treatment for neuropathic bladder after discharge from regional spinal injuries centre?

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Objective: To draw attention to inadequate care received by some spinal cord injury patients after discharge from the regional spinal injury center.

Setting: Regional Spinal Injuries Centre, Southport, UK.

Methods: Presence of the urethral stricture was not recognised in a 69-year-old male with T-3 paraplegia, who attended a health-care facility with a urinary infection. A Foley catheter was inserted into the urethra only half-way and the catheter balloon was then inflated in the urethra distal to the stricture. In a 68-year-old male with T-8 paraplegia, a long-term indwelling catheter was eroding the urethra and he developed a severe degree of hypospadias while being managed in the community. A 49-year-old male with C-4 tetraplegia developed recurrent urine infections. He received several courses of antibiotics, which were prescribed by community health professionals. But he continued to be unwell. Subsequently, the patient was admitted to a district general hospital, where he was diagnosed to have mild chest infection and was about to be sent home. However, his wife was not happy, and then ultrasound of abdomen was taken, which revealed pyonephrosis. He was then transferred to a spinal unit.

Results: These patients were not seen promptly in a regional spinal injury centre when they developed medical problems. The complications, which ensued, might have been prevented if expert medical treatment had been provided without delay.

Conclusion: In order to meet the needs of a growing population of persons living in the community with spinal cord injury, more beds are required in spinal units. Provision of day surgery wards within spinal units, out-reach clinics and home visits by spinal cord clinicians may reduce the demand for admission in a spinal unit. Education of community health professionals on delayed complications of spinal cord injury, and good communication between spinal cord clinicians, patients, carers, and community health professionals by telephone, e-mail or conventional postal system are likely to improve the care of spinal cord injury patients after discharge from spinal injury centres. Spinal cord clinicians should adopt a patient-centred care instead of the traditional, paternalistic, doctor-centred care.

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Keywords: spinal cord injury; community care; urinary tract complications; day surgery unit; regional spinal injury centres

Introduction

Syam *et al*¹ reported a 25-year-old male with C-6 tetraplegia, who developed a urethral calculus 16 months after sustaining cervical spinal cord injury. This patient received appropriate treatment without delay. But all spinal cord injury patients may not be so fortunate. We describe three patients, who probably did not get the best care for lower urinary tract dysfunction in the community.

Case reports

Case 1: Inflating the balloon of Foley catheter in urethra
A 69-year-old male developed an extradural abscess with T-3 paraplegia in 1993. He has been managing his bladder by reflex voiding with penile sheath drainage. After 10 years, he developed a urinary infection and a catheter was inserted per urethra by a health professional. This patient did not feel pain or discomfort in the penis. The catheter was not draining urine satisfactorily and therefore, he came to spinal unit about 2 weeks later. Examination revealed swelling of his penis. A long

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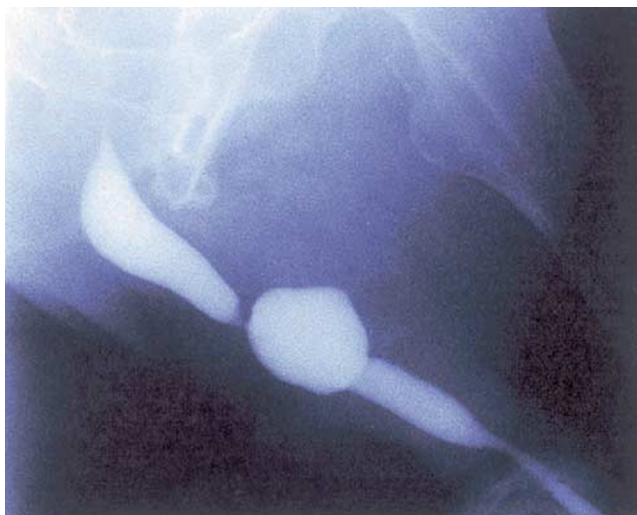


Figure 1 Ascending urethrogram (patient number 1) shows dilation of penile urethra, where the balloon of Foley catheter had been inflated. A short segment stricture is visible proximal to the widely dilated urethra

segment of Foley catheter was lying outside the external urinary meatus. The balloon of the Foley catheter could be palpated in the penoscrotal region. Flexible cystoscopy showed ballooning of the penile urethra in the penoscrotal region with narrowing of the urethra proximally. Ascending urethrography demonstrated dilation of urethra where the Foley balloon had been inflated (Figure 1). A short segment urethral stricture was visible proximally. Internal urethrotomy was performed and an 18 Fr. Foley catheter was inserted.

This patient attended a health-care facility with a urinary infection.

The presence of the urethral stricture was not recognised. A Foley catheter was inserted into the urethra only half-way and the catheter balloon was then inflated in the urethra distal to the stricture.

Case 2: Severe degree of urethral erosion by long-term indwelling catheter

A 68-year-old male sustained T-8 paraplegia due to spinal cord compression by heavy calcification of the ligamentum flavum at multiple levels. He was managing urinary bladder with an indwelling urethral catheter. The catheter was eroding the urethra and he developed a severe degree of hypospadias (Figure 2). Suprapubic cystostomy was performed.

Case 3: Recurrent urinary infection, pyonephrosis and perinephric abscess in a male with tetraplegia

A 49-year-old male with C-4 tetraplegia attended the spinal unit on 22 February 2002 for routine check-up. Intravenous urography showed good excretion of contrast by both kidneys. But there was mild fullness of both ureters and renal pelvis (Figure 3). There was dilute contrast in the urinary bladder. The patient was



Figure 2 Clinical photograph of penis and scrotum (patient number 2) shows extensive erosion of penile urethra by indwelling urethral catheter. This patient underwent suprapubic cystostomy



Figure 3 Intravenous urogram of patient 3, performed on 22 February 2002, shows excretion of contrast by both kidneys. There is mild fullness of ureters and renal pelvis bilaterally

advised to have intermittent catheterisation at least three times a day in addition to penile sheath drainage. With this regimen of penile sheath drainage and intermittent catheterisation, he was doing well for the next 13

months. Then his wife, who was carrying out intermittent catheterisation, developed back problems and therefore, she was unable to cope with intermittent catheterisation schedules. From then on, the patient started getting recurrent urine infections. The patient was prescribed several courses of antibiotics for recurrent urinary infections with no long-lasting improvement. Despite receiving many courses of antibiotics, he became generally unwell. When his wife rang the spinal unit, she was advised to contact her family doctor. The patient received additional courses of antibiotics, but his general condition deteriorated. X-ray of abdomen, taken on 3 September 2003, showed gaseous distension with faecal loading of the colon. No radio opaque urinary tract calculus was noted.

At the insistence of patient's wife, he was then admitted to a district general hospital, where he was diagnosed to have mild chest infection and was about to be sent home. However, his wife expressed her dissatisfaction, and then ultrasound of abdomen was done, which revealed pyonephrosis. He was then transferred to a spinal unit. Percutaneous nephrostomy was performed. Pus from nephrostomy grew *Proteus mirabilis* sensitive to ciprofloxacin, gentamicin, augmentin, cefotaxime and cefuroxime. He was prescribed cefuroxime intravenously and ciprofloxacin by mouth.

Intravenous urography, performed on 1 October 2003, showed a large opaque calculus in right renal pelvis. There was no excretion of contrast by the right kidney. MAG-3 isotope renogram showed no function from the right kidney. Time-activity curve from the left kidney was nonobstructive, though excretion was a little sluggish. CT of upper abdomen showed hydronephrotic right kidney with renal cortical thickness of about

1.5 cm. Multiple calculi were seen in the right renal pelvis and upper ureter. There was a large (10 cm × 7 cm) retroperitoneal abscess situated posterior to right kidney (Figure 4). The patient received four units of blood, as his haemoglobin was 8.2 g/dL. Under CT guidance, a 10 French pigtail catheter was inserted into the psoas collection. A volume of 180 ml of thick pus was aspirated. If follow-up tests show at least some recovery of function in right kidney, laser lithotripsy of ureteric and renal pelvic calculi may be carried out and the kidney can be salvaged. Otherwise, this patient will require right nephrectomy.

Discussion

These cases probably represent rare incidents of inadequate care, which was provided to patients with a neuropathic bladder. Health professionals in the regional spinal injury centres have the expert knowledge of the changes in anatomy, physiology, and pathology of different organ systems as a result of spinal cord injury. Therefore, patients with spinal cord injury should ideally be seen promptly in a regional spinal injury centre when they develop medical problems, which require specialised expertise. Prompt referral to spinal units will ensure that spinal cord injury patients receive optimum care for lower urinary tract dysfunction, increased spasms, autonomic dysreflexia, or chest infection.

In case 3, patient's wife, who was not happy with the treatment received by her husband in the community, tried to contact the spinal unit, but she was advised to get in touch with the community health professionals as per the protocol. Following protocols strictly may be all right for a bureaucrat (a person who applies the rules without exercising much judgement), but it did not help patient number 3. We believe that the spinal cord injury patients, their carers and community health professionals should be able to access regional spinal units, especially when a patient's condition is not improving. When patient 3 developed recurrent urine infections, detailed investigations would have revealed the ureteric stones, which were causing hydronephrosis. Had appropriate treatment been provided promptly, the patient might not have developed pyonephrosis or perinephric abscess.

Successful implementation of this care pathway requires an expansion of facilities in the regional spinal injury centres and other departments, for example, radiology and pathology.^{2,3} Savic *et al*⁴ from the National Spinal Injuries Centre, Stoke Mandeville Hospital, Aylesbury, England noted that the hospital bed requirements for people with chronic spinal cord injury are greater than the amount of clinical provision currently available in specialised spinal centres.⁴ In order to meet the needs of a growing population of persons living in the community with spinal cord injury, these authors pointed out that more specialised spinal injuries care beds would be required.

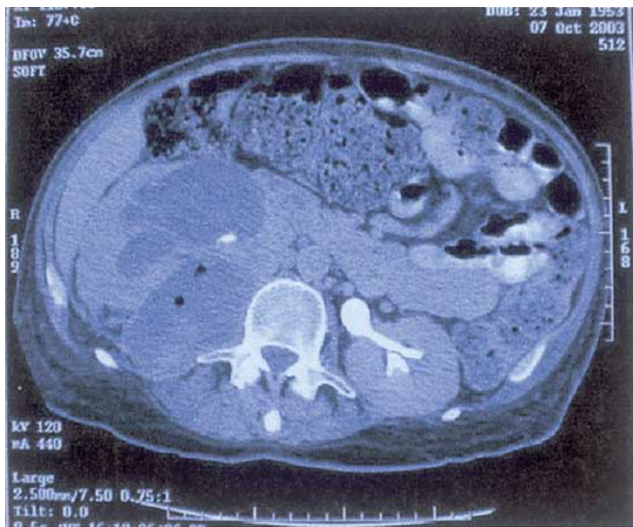


Figure 4 CT of abdomen of patient 3, carried out on 7 October 2003, shows normal left kidney. The right kidney is displaced anteriorly by a large (10 cm × 7 cm) psoas abscess. Pockets of gas within the abscess indicate infection with a gas-forming organism. The right kidney is markedly hydronephrotic due to calculus obstruction

The Commission for Health Improvement, England and Wales was concerned that staffing problems and difficulties in returning patients with spinal injuries to their own community was reducing beds in the spinal injury unit. This meant that few new patients could be admitted to a specialist unit and could receive the expert care they needed.^{5,6} The joint action plans developed for spinal injury units, hopefully, will resolve these issues.^{7,8}

Although these action plans were developed specifically for two spinal units, the general principles of these action plans are applicable to other spinal injury units as well. We also face a shortage of beds in our spinal injury unit almost every day. When general practitioners refer spinal cord injury patients with chest infection or a severe urinary tract infection and autonomic dysreflexia, to our unit for urgent admission, we are often unable to admit these seriously ill patients, who require expert nursing and medical care. Provision of additional beds and expansion of other facilities in regional spinal injury centres will alleviate these problems to a great extent. Augmentation of human and material resources in spinal units will ensure that spinal cord injury patients always get the best treatment not only during the acute phase of spinal cord injury but also after their discharge from spinal units.

In addition to creating additional beds in regional spinal injury centres, facilities for a day surgery ward may be developed within the spinal units. Such a facility will reduce the demand for admission to the spinal unit. Spinal cord injury patients and their carers can learn the technique of intermittent catheterisation by visiting the day surgery ward. Similarly, selected spinal cord injury patients can undergo procedures such as flexible cystoscopy and bladder biopsy in day surgery unit, thus obviating the need for an admission in the spinal unit.

Out-reach clinics and home visits by doctors and nurses from spinal units will help in assessing bladder management, pressure sores, etc. Thus expanding the area of service provision by spinal cord clinicians may be of advantage to the patients and to the spinal unit. The spinal cord clinicians can visit a patient's home and teach patients, carers, and community nurses how to manage a specific medical problem that has arisen recently.

We believe that spinal cord clinicians should be *proactive* in preventing complications of spinal cord injury.⁹ Patient 3 started getting recurrent urinary infections, when his wife was unable to cope with the schedule of regular intermittent catheterisation. Had facilities been available in the community for intermittent catheterisation to be performed on spinal cord injury patients, the train of complications, which ensued, could have been prevented. This case emphasises the urgent need for creating a community care waiting list, for spinal cord injury patients.¹⁰

Attention may also be paid to enhance the education and training of the community health professionals on delayed complications of spinal cord injury. Further, good communication between spinal cord clinicians, patients, carers, and community health professionals by

telephone, e-mail or conventional postal system is likely to improve the care of spinal cord injury patients after discharge from spinal injury centres.¹¹ Artificial barriers in communication due to hierarchical or bureaucratic set up should be removed.

Finally, the health-care system needs to recognise and adopt patient-centred care in treating persons with spinal cord injury. Patient-centred care is likely to lead to decreased hospital admissions and shorter hospital stay for patients with chronic disease or disability.¹² The traditional, didactic 'Medical model' approach to the doctor-patient interaction, which focuses on the disease rather than the person with the disease, will not reduce total morbidity from chronic disability such as spinal cord injury. As medical management of spinal cord injury comprises more than just a single pill, more complex methods of interacting with, and partnering, patients are needed to improve adherence to management, quality of life and health outcomes.

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