

Letter to the Editor

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Reply to Penders *et al*

We congratulate Penders and associates for their excellent article, which was published in the October 2003 issue of *Spinal Cord*.¹ Penders and associates recommend that urine cultures could be performed less frequently or only when therapy becomes mandatory. We do not advise sending samples of urine for microbiology from spinal cord injury patients, who visit spinal unit for annual check-up if they do not have symptoms or signs of urinary tract infection. We believe that asymptomatic bacteriuria in spinal cord injury patients needs neither investigations nor treatment. This viewpoint is supported by a recent publication on management of urinary tract infection in spinal cord injury patients.² Asymptomatic bacteriuria in the patients with indwelling catheters or intermittent catheterisation has no clinical significance and antibiotic prescription is not indicated.³ Sending samples of urine for microbiology from spinal cord injury patients, who do not have symptoms or signs of urinary infection, may contribute to the patient's anxiety. Further, treatment of asymptomatic bacteriuria may not be beneficial and, in fact, may be associated with harmful outcomes, such as increased short-term frequency of symptomatic infection, adverse drug effects, and reinfection with organisms of increased antimicrobial resistance.⁴

A 20-year-old female sustained C-5 incomplete tetraplegia in 1998 in a car accident. She has been performing self-catheterisation and using oxybutynin bladder instillation. Occasionally, when she introduced oxybutynin bladder instillation, the bladder pushed the solution out. A sample of urine was sent for microbiology. She was advised to take modified-release tolterodine 4 mg once a day and discontinue oxybutynin bladder instillation. Urine microbiology showed a mixed growth of *Pseudomonas aeruginosa* (10 000 CFU/ml) and *Escherichia coli* (>100 000 CFU/ml). Both organisms were sensitive to gentamicin, ceftazidime, piperacillin/tazobactam and imipenem/cilastatin. Since the patient had no systemic symptoms or signs of urinary infection, she was reassured that bacteriuria probably represented colonisation and she did not require intravenous antibiotic therapy.

A 30-year-old male, who was born with spina bifida, attended the spinal unit for annual surveillance. He had undergone urostomy during childhood. A sample of

urine was sent for microbiology during this routine visit to spinal unit. This sample of urine showed a mixed growth of *P. aeruginosa* (>100 000 CFU/ml) and *E. coli* (>100 000 CFU/ml). Both organisms were resistant to a number of routinely tested antibiotics including cefalexin, cefotaxime, ceftazidime and ciprofloxacin. Both of the isolates were sensitive to gentamicin, piperacillin/tazobactam and imipenem/cilastatin. This patient was reassured that intravenous antibiotic therapy was not indicated at this time, as he had no symptoms of urinary infection.

In contrast to this approach of neither investigating nor treating asymptomatic bacteriuria, we recommend sending samples of urine for microbiology from spinal cord injury patients, who are scheduled to undergo invasive procedures in the urinary tract, for example, open surgery, endoscopic lithotripsy or interventional radiology, viz. ultrasound-guided aspiration of renal abscess. In these clinical situations, the microbiology report will guide in prescribing the most appropriate antibiotic to spinal cord injury patients before performing an invasive procedure on the urinary tract. We try to limit the duration of antibiotic therapy to the shortest possible time so that emergence of multidrug-resistant bacteria may be prevented.⁵

A 48-year-old male with C-5 tetraplegia had been managing his bladder by indwelling urethral catheter drainage. He had frequent blockages of the urethral catheter. Flexible cystoscopy showed debris and stones in the bladder. He was scheduled for endoscopic lithotripsy. Urine microbiology revealed a mixed growth of *P. aeruginosa* (>100 000 CFU/ml) and *Enterococcus faecalis* (>100 000 CFU/ml). *Pseudomonas* was resistant to gentamicin, ciprofloxacin, ceftazidime, piperacillin/tazobactam and imipenem/cilastatin; it was moderately sensitive to amikacin (MIC: 8 mg/l) and sensitive to colistin. *Enterococcus* was sensitive to ampicillin and teicoplanin and high-level gentamicin resistant. This patient received single doses of amikacin 1 g and teicoplanin 600 mg intravenously half an hour before the endoscopic procedure. Cystoscopy and removal of bladder stones and debris were carried out uneventfully under inhalational anaesthesia. He did well after the procedure. This case serves as an example of successful clinical outcome when a spinal cord injury patient receives the right antibiotics prior to urological procedures and the duration of antibiotic therapy is limited to the shortest possible time.



Figure 1 X-ray of pelvis (13102003) in a 39-year-old male with L-2 paraplegia, shows several calculi in the urinary bladder

In contrast to the above patient, who was prescribed antibiotics based on urine microbiology and in whom, the postoperative period after cystoscopy was uneventful, we describe the clinical course of a patient, who did not receive the appropriate antibiotic during cystolithotripsy, and then developed serious illness due to urinary infection. PT, a 39-year-old male with paraplegia at L-2, had several large stones in urinary bladder. (Figure 1). Prior to cystoscopy and electrohydraulic lithotripsy of vesical calculi, he was prescribed ciprofloxacin, 500 mg twice a day by mouth. A sample of urine had not been sent for microbiology. In the operation theatre, he received 240 mg of gentamicin intravenously. Lithotripsy was carried out uneventfully. However, 12 h later, this patient developed fever with rigors. The antibiotic therapy was changed empirically to meropenem. Since he continued to have temperature of 39°C, the antibiotic was changed to piperacillin/tazobactam; but there was no clinical response. Urine microbiology subsequently showed growth of *P. aeruginosa* (>100 000 CFU/ml), which was resistant to gentamicin, ciprofloxacin, piperacillin/tazobactam, ceftazidime, imipenem/cilastatin, meropenem and tobramycin. The isolate was sensitive to amikacin and colistin. This patient received amikacin

500 mg intravenously every 12 h for 5 days and made a satisfactory recovery. This case illustrates the short-coming of prescribing antibiotics on empirical basis to spinal cord injury patients, who undergo urological procedures.

Our philosophy of management of urinary infections in spinal cord injury patients may be summarised as follows:

- A sample of urine should be sent for microbiology only when therapy is mandatory.
- Asymptomatic bacteriuria requires neither investigation nor treatment.
- Spinal cord injury patients, who undergo invasive procedures on the urinary tract, should receive the most appropriate antibiotic(s) based on urine microbiology report. Prescribing antibiotics on empirical basis is likely to compromise the safety of the patient. The duration of antibiotic therapy should be limited to the shortest possible time in order to prevent emergence of multidrug-resistant organisms.

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