

CASE REPORT

'Neurogenic' urinary tract dysfunction: don't overlook the bowel!

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Study design: Case report.

Objectives: To demonstrate that massive constipation is a rare cause for bladder dysfunction.

Setting: Paraplegic centre in Switzerland.

Method and results: In two patients presenting with acute deterioration of bladder dysfunction, evaluation demonstrated compression of the urinary tract by massively distended colon due to excessive constipation.

Conclusion: Colorectal dysfunction may intensify neurogenic urinary tract dysfunction simply by mechanical compression. Treatment of constipation can improve bladder function in these patients. With increasing time since spinal cord injury, the possibility of this finding should be taken into account in patients with newly diagnosed upper or lower urinary tract obstruction.

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Keywords: spinal cord injury; neurogenic bladder dysfunction; neurogenic colorectal dysfunction

Introduction

Spinal cord lesions are commonly associated with both neurogenic bowel dysfunction and lower urinary tract dysfunction.¹ The functional interactions caused by the common neurogenic origin of these two disorders have been studied previously, whereas mechanical interactions of bladder and bowel have rarely been described. We report two cases in which mechanical compression of the bladder by overdistended bowel mimicked a deterioration of bladder function.

Case reports

Case 1

In September 2007, a 63-year-old man with post-traumatic paraplegia sub Th 7 since 17 years was referred to our department because of urinary incontinence and recurrent urinary tract infections. He performed intermittent catheterization four times a day. Physical examination revealed a soft, distended abdomen with decreased peristalsis over all quadrants and masses palpable in the left lower abdomen. Percussion was tympanitic over three quadrants but dull over the left lower quadrant. Digital rectal examination revealed massive stool masses. Ultrasound demonstrated significant dilatation of the left kidney. As a bladder tumor was ruled out by cystoscopy, a CT scan was performed. An enormous

dilatation of the colon, completely filled with stool, was detected, compressing the bladder and the left ureter (Figures 1a and b).

Colonic hydrotherapy (rinsing the bowel with 0.5 l of water per minute for 45 min) led to massive evacuation of the intestine after two sessions. CT scan after 4 days demonstrated that the bowel, though still dilated, was sufficiently cleared and that the left ureter was no longer obstructed.

Case 2

A 62-year-old man with post-traumatic quadriplegia sub C 7 since 42 years underwent sacral deafferentation and implantation of an anterior root stimulator in 2002. Hemicolectomy was performed in 1998 for colonic cancer. In November 2005, he presented to our department, as voiding with the Brindley stimulator has not been possible since 3 days. Physical examination revealed a minimally protuberant, slightly distended abdomen with infrequent bowel sounds and masses palpable in the left lower abdomen. Percussion was tympanitic over the entire abdomen. There was no shifting dullness. On digital rectal examination, lumps of hard stool were detected.

Video-urodynamic examination demonstrated normal function of the implant. The bladder, however, was elongated and compressed against the symphysis, making voiding impossible despite sufficient detrusor contractions. Ultrasound and plain abdominal X-ray confirmed a large stool mass in the colon being responsible for the compression. After evacuation by colonic hydrotherapy, voiding by electrical stimulation was possible without problems.

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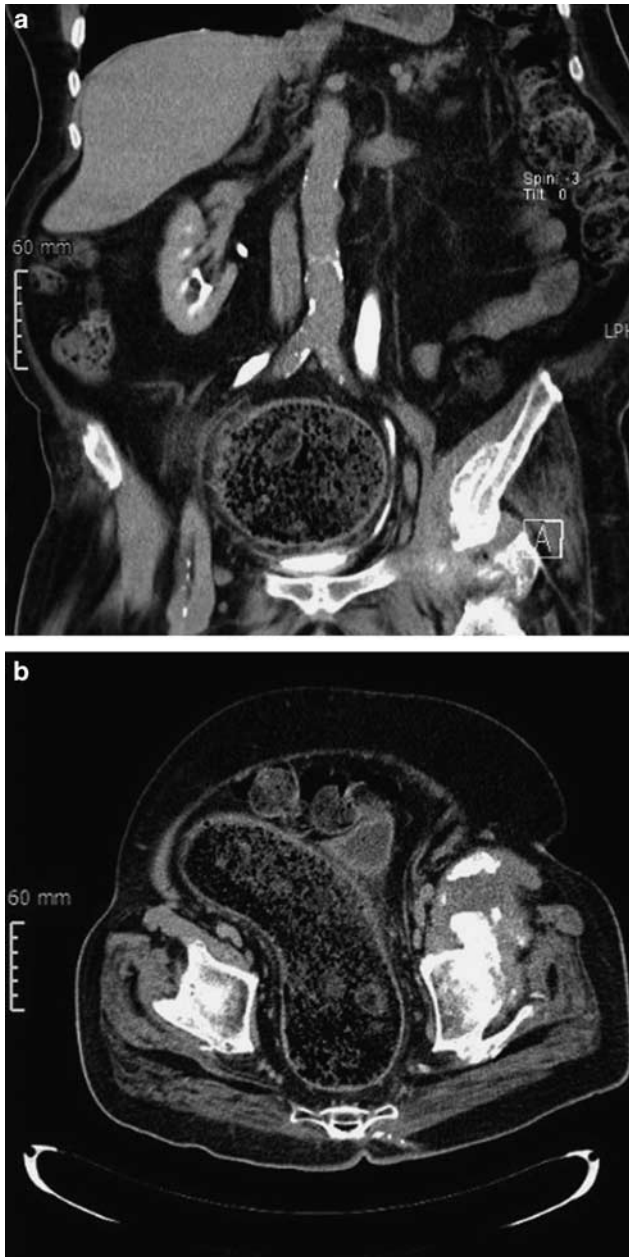


Figure 1 (a and b) CT scan of Case 1 before colonic hydrotherapy.

Discussion

Neurogenic lower urinary tract dysfunction and colorectal dysfunction in patients with spinal cord lesions share several similarities. The affected nerves causing the dysfunction are alike, and colorectal dysfunction, as bladder dysfunction, changes with time since spinal cord injury.² As bladder dysfunction has proven to affect renal function and tends to vary over time, a regular follow-up with urodynamic controls is mandatory.³ Because it has not been shown that colorectal

dysfunction equally impairs life expectancy, a regular follow-up of bowel function is mostly based on clinical findings.⁴ Although functional assessment of lower urinary tract function is well standardized, techniques to measure bowel function are not readily available for patients with spinal cord injury.

The pathophysiology of urinary tract dysfunction has been studied extensively. It has been demonstrated that changes may occur with time since spinal cord lesion, either due to neuronal plasticity or local alterations such as detrusor fibrosis, prostate growth, lithiasis or chronic infections. Therefore, if changes in upper or lower urinary tract are detected in these patients, urological examinations, including video-urodynamics, endoscopy, ultrasound and possibly CT scan are initiated. However, generally little attention is paid to changes of the surrounding tissues. Although morphological changes not related to spinal cord injury, as ovarian cysts, are known to influence bladder function, the influence of overdistended bowel on bladder and even renal function has not been described previously. Physical examination was the cornerstone in the diagnosis of constipation in our patients. Plain abdominal X-rays and CT scan were helpful in quantifying bowel distension and demonstrated the correlation between bowel and urinary tract.

Colonic hydrotherapy is widely used for the treatment of constipation. Although it is not without risks,⁵ this technique proved to be a valuable treatment option to empty massively impacted colons in our patients.

Conclusion

Bowel dysfunction with chronic constipation may mechanically influence urinary tract function. Especially, in patients with a long history of spinal cord lesion, chronic constipation may occur without clinical symptoms.² Therefore, the possibility of clinically silent colorectal dysfunction leading to mechanical obstruction should be taken into account in a patient with newly diagnosed upper or lower urinary tract obstruction.

References

- 1 Benevento BT, Sipski M. Neurogenic bladder, neurogenic bowel, and sexual dysfunction in people with spinal cord injury. *Phys Ther* 2002; **82**: 601–612.
- 2 Faaborg PM, Christensen P, Finnerup N, Laurberg S, Krogh K. The pattern of colorectal dysfunction changes with time since spinal cord injury. *Spinal Cord* 2008; **46**: 234–238.
- 3 Nosseir M, Hinkel A, Pannek J. Clinical usefulness of urodynamic assessment for maintenance of bladder function in patients with spinal cord injury. *NeuroUrol Urodyn* 2007; **26**: 228–233.
- 4 Ratnaraja N, Raymond N. Extensive abscesses following colonic hydrotherapy. *Lancet Infect Dis* 2005; **5**: 527.
- 5 Correa GI, Rotter KP. Clinical evaluation and management of neurogenic bowel after spinal cord injury. *Spinal Cord* 2000; **38**: 301–308.