CASE REPORT

Reflective assessment and management of a 39-year-old female with stress urinary incontinence

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Abstract

A 39-year-old woman was referred for the assessment and treatment of long-term stress urinary incontinence (SUI) that was becoming increasingly problematic. On subjective assessment, it was determined that her symptoms had been present since she had been pregnant with her first child 9 years before. The subject's main complaint was involuntary loss of urine when sneezing and, occasionally, while running. A vaginal examination detected no abnormalities, but there was no evidence of reflex pelvic floor activity when the subject coughed and only minimal hold was evident during conscious pelvic floor muscle (PFM) contraction. A structured PFM home exercise programme and "The Knack" were prescribed in order to reduce the symptoms of SUI, along with specific lifestyle changes. Since the subject has a good basic level of PFM function and is well-motivated, the management plan is predicted to produce good results.

Keywords: exercise, pelvic floor muscles, stress urinary incontinence, vaginal examination.

Introduction

Stress urinary incontinence typically presents as the loss of urine during periods of increased intra-abdominal pressure, such as sneezing, coughing and physical exercise (Laycock *et al.* 2001). Pressure on the bladder is increased by such activities, and SUI can occur in individuals whose pelvic floor muscles (PFMs) have been weakened (Bayliss 2010). Since the urethra is supported by the fascia of the pelvic floor, it can move downward at times of increased abdominal pressure if this support is insufficient, allowing urine to leak. The physical changes in women that are caused by pregnancy, childbirth and the menopause often contribute to SUI (Nygaard & Heit 2004).

The present report describes the case of a 39-year-old woman who was referred by her general practitioner to a physiotherapist for the assessment and treatment of long-term SUI that was becoming increasingly problematic.

Case report

Subjective assessment

A 39-year-old woman with a 9-year history of progressively worsening SUI that had begun during her first pregnancy was referred by her general practitioner to the Physiotherapy Department of the University Hospital of Wales, Cardiff, UK. She reported daily involuntary losses of urine of minimal volume during sneezing, and occasionally while running, but she felt that this issue did not necessitate pad use. The subject denied having any other symptoms that would suggest urgency or prolapse, such as frequency, small void volumes or perineal discomfort. She reported being unable to complete an instant mid-stream stop, and admitted to "just in case" voids, which she subsequently tried to reduce after attending the Physiotherapy Department's group SUI session.

The subject also reported long-term chronic constipation resulting in regular straining and manual evacuation, which she currently avoids through the use of the laxative Movicol (Norgine Pharmaceuticals Ltd, Uxbridge, Middlesex). She denied having faecal or flatal incontinence, haemorrhoids, bleeding at stool or any other bowel issues. The subject usually opened her

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Editorial note

This case report is an example of a submission for the ACPWH "Physiotherapy Assessment and Management of Female Urinary Dysfunction" workshop, which was endorsed by the Chartered Society of Physiotherapy (CSP) several years ago.

To fulfil the learning requirements and gain the endorsed certificate, students have to submit a written submission within 3 months of completing the workshop, which must then be judged to merit a passing grade. In our experience, managers recognize that a CSP-endorsed course is preferable to one that is not. The tutors strive to explain the requirements for the written work and provide support for those who want to submit; however, the overall pass rate at the first attempt is around 70%.

The submission should be a piece of reflective work that demonstrates that the student can: adequately assess a patient with pelvic floor dysfunction; formulate an effective management plan; show an awareness of appropriate treatment modalities; and demonstrate a knowledge of the CSP's Core Standards of Physiotherapy Practice. Some students find this difficult if they are new to the speciality or are not practising in this area; however, we do allow extensions to the submission date. Others may submit a satisfactory submission overall, but fail to anonymize the content, which means that they are automatically failed. In some cases, students are inexperienced in undertaking reflective work, even though they must be able to do so to maintain their continuing professional development, and find it difficult to write enough to gain a pass. Occasionally, a student has not fully grasped the fundamental principles of safe pelvic floor assessment.

As always, failure is disappointing and difficult to accept, but resubmissions are often of a very high standard. One example is the present case report submitted by Vonda Price, which is a credit to her and an excellent example of what we require. Although the written submission does involve rather a lot of work, many of the students who submit tell us that they feel that they got much more from the workshop in comparison to other courses with no written component that they have attended. After all, what you get from attending this weekend course really depends on how you can put it into practice and reflecting on what you have learned.

Doreen McClurg *Chair Education Subcommittee*

bowels two to three times a week when using Movicol, evacuating typical stools of the types rated either 3 or 4 on the Bristol Stool Chart (Fig. 1).

Her risk factors for SUI were linked to constipation, pregnancy and delivery (Deindl et al. 1994; Amselem et al. 2010). She had undergone two vaginal deliveries and had sustained a "bad" tear during the first. This required suturing and the use of vaginal dilators, but no physiotherapy treatment was offered to her. The subject reported feeling that she had fully recovered from this trauma, having returned to sexual activity with no dyspareunia or coital leakage. She had no significant obstetric, gynaecological, surgical or medical history, and had undergone no previous investigations or treatment for her SUI symptoms. Her body mass index of 21 is within the normal range and she does not smoke. The subject was taking no medication other than Movicol.

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She worked part-time as a support clerk. The subject also performed regular exercise, including a weekly keep fit exercise class, occasional Fitball classes and treadmill running. She reported that her symptoms, i.e. feeling "vulnerable underneath" with occasionally leakage, had affected her enjoyment and ability to keep fit.

The subject scored 12 out of a possible 21 on the International Consultation on Incontinence Questionnaire – Urinary Incontinence Short Form (ICIQ-UI SF; ICIQ 2012), and a moderately large (7/10) interference with everyday life was recorded (Fig. 2). To ensure confidentiality, all patient documentation has been anonymized (CSP 2002).

Objective assessment

Urinalysis was performed with the Cobas Combur⁷ Test (Roche Diagnostics Ltd, Burgess Hill, West Sussex, UK) in order to rule out other



Figure 1. The Bristol Stool Chart (Lewis & Heaton 1997). Reproduced by kind permission of Dr K. W. Heaton, Reader in Medicine at the University of Bristol, Bristol, UK. © 2000 Norgine Pharmaceuticals Limited.

complications such as a urinary tract infection. This dipstick test was clear.

A 3-day fluid chart (Table 1) recorded a low fluid intake, averaging 1008 mL daily, with a resultant low frequency (Paraiso & Abate 2008), averaging three times daily. The subject explained that this low fluid intake was a longterm conscious attempt to reduce her SUI symptoms. Her bladder demonstrated a good storage capacity with a maximum void of 550 mL. She mainly consumed tea and coffee, but caffeine did not appear to be a trigger for voiding or leakage. During the 3 days that she was examined, the subject reported no episodes of leakage, which she attributed to the absence of both sneezing and running.

After establishing that there were no contraindications or precautions, the objective assessment procedure was fully explained to her by the present author. The subject was offered a chaperone and given an opportunity to ask questions. In line with Chartered Society of Physiotherapy (CSP) guidelines (CSP 2011), her informed, verbal consent to continue with the assessment was then gained, with the acknowledgement that she could stop the assessment at any time should she wish. On vaginal observation, the condition and colour of the tissues appeared normal. Dermatomes S2–4 were tested with a light touch and were all found to be normal. On separating the labia, no introital gaping was noted and there were no signs of prolapse. The vaginal mucosa exhibited normal colour, condition and rugae. When coughing, there was no evidence of reflex pelvic floor activity and only minimal hold during conscious PFM contraction.

The digital vaginal examination was carried out in compliance with the guidelines for assessment and infection control (NICE 2003; CSP 2005). The vaginal size appeared to be small, and there was increased tone (right more so than the left) in the pubococcygeus and iliococcygeus muscles, which were deemed to be trigger points. Sensation and cortical awareness were both normal. There was no evidence of laxity or prolapse.

In order to assess the PFMs, a maximum voluntary contraction (MVC) was performed and recorded using the PERFECT scale incorporating the modified Oxford scale: 4/6/3//10 (Laycock *et al.* 2008).

The subject was able to perform the correct technique, and achieved a palpable lift of the pelvic floor and an observable drawing in of the perineum (Laycock et al. 2008). She was able to perform 10 fast MVCs in a row. Movement was symmetrical, but a sluggish release was notable during the holds, with approximately onequarter release at 3 s, then three-quarters release at 6 s, and verbal prompting required to facilitate full release. The subject struggled to isolate the PFMs initially, and there was some accessory muscle activity bilaterally in the hip adductor and abdominal muscles, which reduced with verbal prompting. There was some degree of breath holding, which increased as the PFMs became fatigued. Manual assessment and the instant feedback of both the PFMs and the abdominal muscles were found to be extremely useful during the assessment, improving the subject's technique, control and isolation of her PFM contraction (Bø & Sherburn 2007). Time was taken to explore the best wording of the instructions for the patient and agree on the verbal cues to be used.

Clinical impression

The subject exhibited reduced PFM endurance; poor control, especially during release; and increased muscle tone. There was no evidence of reflex activity and she had only a minimal ability

1	Please write in your date of birth:							
2	Are you (tick one):	Female Male						
3	How often do you leak urine? (Tick one box)	· · · · · · · · · · · · · · · · · · ·						
	•	never 0						
		about once a week or less often						
		two or three times a week						
		about once a day 🗹 3						
		several times a day						
1	We would like to know how much urine <u>yo</u> u think leaks.							
	How much urine do you <u>usually</u> leak (wheth	ner you wear protection or not)?						
	(Tick one box)							
		a small amount 12						
		a moderate amount 4						
		a large amount 📃 🧧						
5	Overall, how much does leaking urine interfere with your everyday life? Please ring a number between 0 (not at all) and 10 (a great deal)							
	0 1 2 3 4 5	6 (7) 8 9 10						
	not at all	a great deal						
		ICIO score: sum scores 3+4+5						
6	When does urine leak? (Please tick all that a	pply to you)						
6	When does urine leak? (Please tick all that ap	pply to you) never – urine does not leak						
6	When does urine leak? (Please tick all that ap	pply to you) never – urine does not leak						
6	When does urine leak? (Please tick all that ap	poply to you) never – urine does not leak eaks before you can get to the toilet leaks when you cough or sneeze						
6	When does urine leak? (Please tick all that ap	pply to you) never – urine does not leak eaks before you can get to the toilet leaks when you cough or sneeze leaks when you are asleep						
6	When does urine leak? (Please tick all that ap leaks when y leaks when you have	poply to you) never – urine does not leak leaks before you can get to the toilet leaks when you cough or sneeze leaks when you are asleep you are physically active/exercising						
6	When does urine leak? (Please tick all that ap leaks when you have	poply to you) never – urine does not leak eaks before you can get to the toilet leaks when you cough or sneeze leaks when you are asleep you are physically active/exercising e finished urinating and are dressed leaks for no obvious reason						

Figure 2. International Consultation on Incontinence Questionnaire – Urinary Incontinence Short Form (ICIQ-UI SF) scores.

to contract her pelvic floor musculature as per "The Knack" (Miller et al. 2008).

Stress urinary incontinence typically presents as the loss of urine during forms of physical exertion such as sneezing, coughing and running (Laycock *et al.* 2001). Although the subject did not leak during the assessment, a diagnosis of SUI was supported by her history and her fluid chart results (Table 1). The diagnosis was also corroborated by objective findings including the absence of reflex activity during coughing, poor active PFM hold with coughing, early muscle fatigue and increased PFM tone, which potentially limited her range of movement. The SUI symptoms and pelvic floor dysfunction found on assessment may have been a consequence of her

	Day 1 (Friday)			Day 2 (Saturday)			Day 3 (Sunday)		
Time (h)	Amount voided (mL)	Volume drunk (mL)	Type of drink	Amount voided (mL)	Volume drunk (mL)	Type of drink	Amount voided (mL)	Volume drunk (mL)	Type of drink
06:00									
07:00									
08:00		200	Coffee						
09:00	175				250	Tea		250	Tea
10:00				350					
11:00		175	Tea						
12:00									
13:00	350				250	Coffee			
14:00		200	Tea					250	Tea
15:00									
16:00									
17:00		200	Water				400		
18:00					250	Coffee		280	Tea
19:00	300	200	Juice						
20:00								50	Water
21:00								250	Теа
22:00	150	250	Теа	200				200	1.000
23:00							550		
00:00							000		
01:00									
02:00									
03:00									
04:00									
05:00	400								
Total	1375	1225		550	750		950	1050	
Frequency*	5			2			2		

*Intake void frequency.

first pregnancy, which culminated in a traumatic delivery (Deindl et al. 1994).

The chronic constipation that the subject reported may have been caused by her conscious reduction in her fluid intake, a strategy that she had adopted in order to address her SUI symptoms. Her long-term constipation, which had led to previous regular straining so as to defecate, may also have been a factor in her pelvic floor dysfunction (Amselem *et al.* 2010). Along with the subject's anxiety regarding urine leakage, this may have produced a holding pattern (i.e. increased the tone of her PFMs and, therefore, reduced the effectiveness of these muscles when needed).

Management plan

Education has been identified as essential to successful treatment (Laycock *et al.* 2001; Bø 2004). The group SUI education class that is held prior to assessment at the present author's department allows a great deal of general information to be covered, and gives patients an opportunity to understand their symptoms, ask questions and appreciate that they are not alone.

As per CSP and NICE guidelines (Laycock et al. 2001; NICE 2006), a PFM training (PFMT) programme was chosen as the main emphasis of treatment because the subject was able to demonstrate a Grade 4 muscle contraction. In recognition of the fact that individuals may have different learning styles (Meadows 1993), the subject's PFMT was supported by the use of diagrams, a pelvic model and video clips of pelvic floor movement from the Interactive Pelvis and Perineum DVD-ROM (Primal Pictures Ltd, London, UK) along with written instructions following CSP recommendations (Laycock et al. 2001). Pelvic floor muscle exercises were taught again during perineal observation and internal examination to confirm the full capabilities of the relevant muscles and provide some manual feedback so as to facilitate optimum technique.

An individualized home exercise programme (HEP) was devised with the full involvement of the subject in order to ensure that it was achievable and to increase adherence. The NICE recommendation of eight contractions, three times a day (NICE 2006), was considered, but

modified to specifically challenge the subject according to her presentation. In keeping with the concept of muscle overload (Wallace 1994), slow contractions with a 6-s hold were agreed. These were repeated four times in a row, three times a day, this target being slightly more than the subject was able to achieve during the assessment. Advice regarding feedback to assist her HEP was given, including digital examination and visual observation using a mirror. To avoid exacerbating the increased muscle tone, fast contractions were prescribed starting at 10 repetitions, twice a day, and these focused on full release. The initial instruction session involved PFM exercises (PFMEs) in crook lying so that the subject could focus on technique and work on reducing accessory muscle activity. Once she had mastered the PFMEs, the plan was that she should progress to a variety of functional positions, such as standing, so as to utilize the effects of gravity (Laycock et al. 2001).

In an attempt to reduce leakage, which was secondary to her lack of reflex activity, the subject was taught "The Knack", and encouraged to contract her PFMs consciously prior to and during any abdominal pressure increase (Bø 2007; Miller *et al.* 2008).

A full explanation of the potential outcome and the expected time frames were covered, and the subject was asked to make a minimum commitment to 3 months of PFMT (NICE 2006). In order to motivate her and encourage her adherence to the HEP, various options were discussed, such as: performing exercises at a set time or in a particular place; affixing reminder stickers in prominent places to act as prompts; and using mobile phone alarms (Bø 2007).

In a discussion of the risks of constipation, Amselem *et al.* (2010) equated it with perineal trauma in terms of pelvic floor damage, and highlighted the importance of addressing bowel management alongside PFM rehabilitation. The potential effects of constipation and straining on the PFMs were explained to the present subject with the use of diagrams to aid understanding. She was encouraged to increase her fluid intake gradually using a fluid chart, was taught the correct position for defecation (Fig. 3), and given advice about avoiding symptom exacerbation through straining and poor lifting technique (Price *et al.* 2011).

The importance of regular supervised PFMT has been well researched (Goode *et al.* 2003), and therefore, a follow-up appointment was arranged 2 weeks after the assessment in order to

monitor the subject's progress, answer any questions or concerns that she might have, and maintain her motivation until signs of improved PFM function become evident. In line with this, the subject was provided with a contact telephone number for any queries she might have between appointments.

Discussion

With regard to future management, the present subject's progress could be measured at successive treatment sessions by employing: subjective self-reported symptoms; objective assessments of strength, endurance, release, control and coordination; "The Knack"; and repeating the fluid chart and ICIQ-UI SF.

The HEP might be progressed by increasing the subject's hold duration, increasing repetitions, adding submaximal contractions for intermediate fibres/endurance, or challenging the PFMs with weighted vaginal cones (Bø 2007). However, cones have not been found to be any more effective than PFMEs alone, and should be used with caution in this case because of concerns about this patient's potential increased accessory muscle use (Bø 1995; Bø *et al.* 1999).

The clinical guidelines for SUI discuss biofeedback (NICE 2006). However, since the subject presented with moderately strong contractions, and demonstrated good awareness and self-motivation, biofeedback was deemed unnecessary at the initial session. Nevertheless, if no improvement was found on follow-up, poor muscle release continued or additional feedback was deemed necessary, options such as a PFME indicator like the Neen Pelvic Health Educator (Patterson Medical UK Ltd, Sutton-in-Ashfield, Nottinghamshire, UK), electromyography or ultrasound could be incorporated in order to increase her awareness and improve her technique (Laycock *et al.* 2001; Bø 2007).

Should the subject express a desire to return to running before she has gained control of her symptoms, the use of an intraurethral device such as the FemSoft insert (Rochester Medical Corporation, Stewartville, MN, USA), or an intravaginal one like the IncoStress (C&G Medicare Ltd, Swansea, UK) or Contiform appliances (Contiform International Pty Ltd, Blacktown, NSW, Australia), could be explored in subsequent sessions (Imamura *et al.* 2010). It would be anticipated that the advice and HEP described above would make these options unnecessary.

Correct position for opening your bowels



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Figure 3. Diagram illustrating the correct position for opening the bowels (© 2003 Norgine Ltd).

On reflection, the trigger points identified and treated during the assessment of the present subject are more likely to have been increased muscular tone, which was potentially secondary to a habitual holding pattern created by her fear of leakage and possible assessment anxiety. On reassessment of her muscle contractions, increased lift and strength were palpable, and the subject reported that the contractions felt easier. While this was taken to be evidence of trigger point release, it may equally have been verification of facilitated release of the holding pattern and an improved technique. Further assessment is necessary in order to ensure an accurate diagnosis at the follow-up appointment.

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