

Vesica



Sydney Urodynamic Centres newsletter for medical practitioners

OVERACTIVE BLADDER SYNDROME - an underdiagnosed condition

A/Prof Christopher Benness

Lower urinary tract symptoms in women are very common and can dramatically affect their quality of life. Thankfully, most women can have their symptoms significantly improved. Many of these women have what is now termed 'The Overactive Bladder Syndrome' (OAB). This is a symptom complex, defined by the International Continence Society, and comprising urinary urgency, with or without urge incontinence, and usually associated with frequency and nocturia. Urgency is the key symptom and refers to a sudden compelling desire to pass urine which is difficult to defer. Urinary urge incontinence is involuntary leakage which is associated with urgency, and this is one of the most meaningful symptoms to patients. At least one third of those with OAB report associated urinary incontinence. To make the diagnosis of OAB, urinary tract infection and other obvious pathology should be excluded. Some women with OAB symptoms may also have symptoms of stress urinary incontinence. The relationship between OAB and other common urinary disorders is indicated in the Venn diagram in Figure 1.

It is estimated that over one million women in Australia have significant lower urinary tract symptoms and many of these would have the Overactive Bladder Syndrome. The prevalence of OAB increases with age and is actually more prevalent than heart disease. Unfortunately, less than half of the women with OAB seek treatment. This is for a variety of reasons which include, fear of embarrassment, misconceptions regarding urinary problems, and the opinion that urinary symptoms are a normal part of getting older. As physicians, we need to be aware of this, and enquire of our patients as to whether they are having urinary problems. The fact that they may not raise the issue does not mean that it is not of significant concern to them.

The impact of OAB on quality of life can be considerable. Many women will plan their day on the location of bathrooms, wear absorbent products and decrease fluid intake. It may make them physically tired if they are up frequently during the night, and some may avoid sexual activity if this results in urine leakage. As the disease progresses it may affect their ability to work or travel, cause social isolation and loss of self esteem, and in the elderly is often a trigger for movement into a nursing home. There is also a correlation between OAB symptoms and depression. This may be due to the neurotransmitter serotonin, which decreases in depression and also has an impact on the urinary sphincter. Of course the flip side to these negative aspects on quality of life caused by urinary symptoms, is the extreme gratitude of women when their symptoms are significantly improved.

As physicians we may not be managing this common problem optimally. Recent studies have shown that in 85% of cases, women with urinary incontinence symptoms had to raise the issue with their doctor. Subsequent to this, only 34% of those with OAB received treatment. The reasons why women with OAB do seek treatment is outlined in table 1.

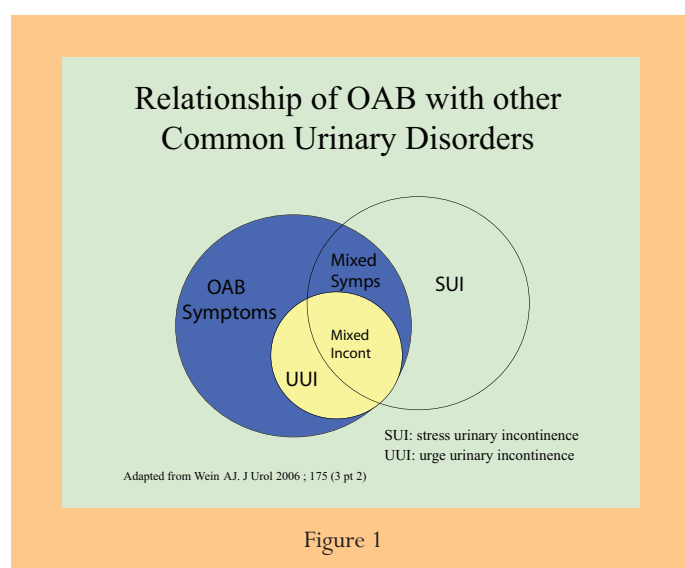


Figure 1

Table 1:

Reasons why women with OAB seek treatment

- Worry that others can smell urine odour
- Concern that the condition may get worse
- Concern that their condition is not normal
- Concern regarding a possible underlying more serious condition
- Concern regarding possibility of an embarrassing accident

Enquiring of our patients regarding bothersome urinary symptoms is to their benefit. A recent survey of women with urinary symptoms indicated that those who were diagnosed with OAB had an improvement in quality of life and higher sense of self esteem compared to those symptomatic but undiagnosed women. They were also more likely to discuss their problem with their spouse or partner, seek information regarding the condition and be active in managing their symptoms.

Treatment goals for women with OAB are to eliminate or improve urinary urge incontinence, reduce urgency and frequency episodes, and maximise treatment compliance thereby improving quality of life. It is very helpful in tailoring management to know which symptoms bother the patient the most. Future articles in this forum will focus on diagnosis and treatment. However, behaviour modification is one of the keystones in the management of urinary incontinence and OAB symptoms (Fig 2). This intervention is multifaceted and includes timed voiding, bladder retraining and pelvic floor muscle exercises as well as patient education and reinforcement. Lifestyle changes may also benefit urinary symptoms and some of these are indicated in Table 2. Women with excessive fluid intake

(>2.5 litres/day) will benefit from a reduction of intake which will decrease voiding frequency and may lessen incontinence. On the other hand, a fluid intake of less than 1500 mls/day may result in increased bladder irritation from concentrated urine. Smokers should be advised to cease, as nicotine irritates the detrusor muscle. The associated cough from smoking may also exacerbate urinary stress incontinence. Caffeine is known to be a bladder irritant and intake should be minimised in those with OAB. Weight loss can benefit urinary symptoms and constipation should be treated.

Table 2: Lifestyle Changes that may benefit OAB

- Alteration of fluid intake
- Smoking cessation
- Caffeine reduction
- Weight loss
- Treat constipation

We have indicated that urinary urgency is the key symptom in women with OAB. Therefore women should be given urge suppression strategies to help cope, and these are outlined in Table 3. Of course, there are a variety of other lower urinary tract conditions affecting women apart from OAB. Therefore where lifestyle changes and behaviour modification do not significantly improve symptomatology, Urodynamic assessment should be considered. It is important to remember that there are very few women with lower urinary tract symptoms who cannot have their symptoms significantly improved, particularly once an accurate diagnosis has been made.

Table 3: Urge Suppression Strategies

When patients experience urgency, they should:

- Pause, sit, and relax entire body
- Contract pelvic floor muscles repeatedly (to diminish urgency, inhibit detrusor contraction & prevent urine loss)
- Proceed to toilet without rushing when urgency has subsided

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Behaviour Modification

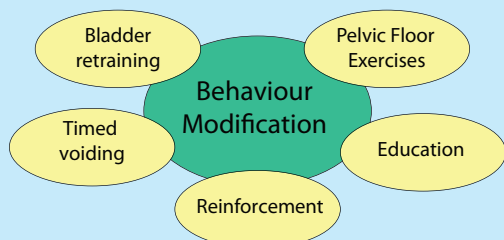


Figure 1

Voiding function in women

by HP Dietz

Bladder emptying is one of those functions of the human body that seem more simple to the layperson than they really are. There are major differences between male and female, and some of the symptoms commonly considered indicative of voiding dysfunction really have nothing to do with bladder emptying. All this makes for unexpected complexity, and this article will try to shed some light on the issues encountered in clinical practice.

It is self-evident that efficient bladder emptying is important for overall health. Total retention- that is, the inability to empty at all, will result in postrenal failure and / or urosepsis if not relieved. In the female total retention may occasionally result from a large prolapse or malignancy but, as outflow resistance rarely becomes as high as in a male with benign prostatic hypertrophy, overflow incontinence is a more likely outcome than acute retention. However, even if retention is chronic and subtotal rather than acute and total, the patient is still at an increased risk of urinary tract infection and urosepsis, and this was probably much more common in the pre- industrial past.

It is therefore clear that recurrent urinary tract infections are often a pointer towards voiding dysfunction. As regards other symptoms, hesitancy (slow start), stop- start voiding and a slow stream are associated with poor flow, but the sensation of incomplete emptying is not(1). If a patient reports that her bladder often does not feel empty and that she needs to void again after few minutes, then this is probably often due to 'after-contractions', when the detrusor contracts after voiding. What the brain interprets as a full bladder is not actual filling levels, but changes in wall tension, and of course a detrusor contraction increases wall tension even if it occurs with an empty bladder.

If a patient presents with hesitancy, stop- start voiding or a slow stream or recurrent urinary tract infections (UTI) (usually defined as two or more confirmed UTI's in a year) then she needs her residual urine checked, either with an in-out catheter (not by Foley catheter(2)), or by ultrasound. Cut- offs for what's normal vary, but it is suggested chronic residuals over 30 ml are a risk factor for UTIs(3).

The second standard diagnostic technique for investigating voiding function is uroflowmetry. This requires special if inexpensive equipment. A simple weight transducer under a toilet chair can provide information on the speed of voiding and its pattern, allowing not just a diagnosis of poor emptying but also an educated guess as to the nature of voiding dysfunction(4). To quantify voiding function, the best non-invasive assessment

would include uroflowmetry with registration of maximum urine flow per second relative to voided volume (using the Liverpool nomograms(5)) and residual urine estimation after voiding in privacy, in a setting that is as close to 'normal' as one can make it. More sophisticated diagnosis will require full urodynamic testing.

Effective voiding requires:

- a patent urethra
- absence of significant external obstruction,
- a contractile detrusor muscle.

Patent urethra

The first prerequisite, a **patent urethra**, is the most obvious requirement for efficient bladder emptying. Urethral stenosis, while not uncommon in the male, is rarely an issue in the female, and when it occurs it's more likely to be due to overactivity/ hypertrophy of the urethral rhabdosphincter- either as an organic (possibly neurogenic) abnormality called the 'Fowler Syndrome' (6), or psychogenic and associated with levator ani overactivity (vaginismus/ anismus). The former is difficult to diagnose and treat without electromyography, but the latter may be amenable to relaxation training through pelvic floor physiotherapy. In women with major neurological disease or dysfunction, voiding problems are common due to disruption of the normal coordination between rhabdosphincter relaxation and detrusor contraction that is necessary for emptying. This is the main reason why voiding problems should be investigated quite aggressively, especially in young women. Occasionally abnormal voiding function can be the first manifestation of multiple sclerosis (MS). However, usually the neurogenic origin of voiding problems is obvious (as in paraplegics). The issues associated with neuropathic bladder dysfunction are complex and outside the scope of this review.

Herpes genitalis infection can cause voiding dysfunction and an occasional presentation in Emergency departments (ED). It usually requires nothing but short- term catheterisation and local anaesthetic cream until the lesions settle down.

Urethral stenosis due to actual scarring (e.g. after trauma) is very uncommon but easily diagnosed by urethrocytoscopy. It requires blunt urethral dilatation with Hegar dilators, and recurrence is likely.

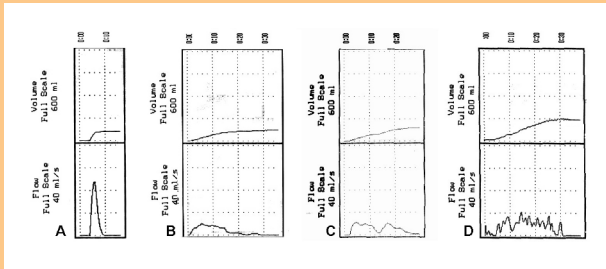


Figure 1: Typical flowmetry patterns :

- A, normal;
- B, very slow but noninterrupted- may be obstruction or detrusor hypofunction;
- C, slow and interrupted- likely poor detrusor function;
- D: artefactual: flow largely due to Valsalva maneuvers.

External obstruction

Obstruction can arise externally from prolapse, especially as a result of uterine prolapse and/ or enterocele, and even a rectocele can compress the urethra to some degree(7). More commonly, urethral kinking in a patient with cystocele can slow voiding(7), and sometimes patients realize themselves that emptying is improved by inserting a finger in the vagina to push the prolapse up and splint and straighten the urethra.

Urethral obstruction can also be due to a retroverted uterus, with the cervix pointing anteriorly and compressing the urethra against the symphysis pubis. This may manifest in pregnancy, usually at around 14 weeks (2 weeks earlier in twin pregnancies), when a retroverted uterine fundus has grown sufficiently to fill the entire true pelvis. In most cases of uterine retroversion the fundus rights itself without causing symptoms, but occasionally women present to an Emergency Department in retention, requiring a catheter for a day or two. This commonly results in spontaneous repositioning of the uterus, but occasionally this has to be done manually under anaesthetic. Very rarely, retroversion can persist and lead to voiding symptoms later in pregnancy(8).

External obstruction of the urethra is much more likely to be due to previous surgery. Anterior repair, especially with Kelly plication sutures, often results in short- term obstruction. Colposuspension and slings, especially old- fashioned fascial or synthetic slings, often leads to long- term obstruction, and this can be a major management problem, especially as it is

often combined with symptoms of detrusor overactivity(9). The modern suburethral slings such as TVT(10), Monarc(11), Sparc(12) and TVT-O are less obstructive than older methods, even if they similarly rely on 'dynamic obstruction' of the urethra as a mechanism of cure(13). Transobturator slings seem to be the least obstructive option available today when it comes to curing stress incontinence(11), with very limited effect on voiding.

Effectively contracting detrusor muscle

An ineffectively contracting detrusor muscle is frequently the cause of incomplete emptying, especially in older women. This may be due to diabetic neuropathy or idiopathic and is diagnosed by urodynamic testing. If detrusor activity is not well- sustained or not strong enough, resulting in short, low-amplitude contractions, then the bladder will not empty well, and often there is very little one can do about this apart from treating contributing factors such as prolapse, and encouraging double voiding. In the female there are no pharmacological options at present that would make the detrusor more efficient in emptying.

Conclusions

What does all this boil down to for primary care physicians? In general, if you suspect voiding problems and/ or if you have repeatedly found an elevated residual urine volume of 50 ml or more, you should refer that patient for specialist assessment. This will generally include urodynamic testing. Relief of obstruction and treatment of neuropathic voiding dysfunction are the job of the specialist or subspecialist. If no underlying cause can be found and/ or if treatment of a cause is impossible then symptomatic treatment is all that's needed, and this often is in the hands of the family doctor.

The top priority has to be to prevent urinary tract infections. Double voiding (going back to try again after a few minutes) can reduce residuals, and urinary antiseptics such as Hippuric acid with vitamin C, or cranberry juice or tablets are very likely to reduce the risk of UTIs. In postmenopausal women local estrogen is quite effective(14). Usually such measures are sufficient unless bladder emptying is markedly impaired. If so then clean intermittent self- catheterisation (CISC) may be the solution if the patient is compliant and physically able to self- catheterise. Teaching and supplies are obtained through local continence nurse services.

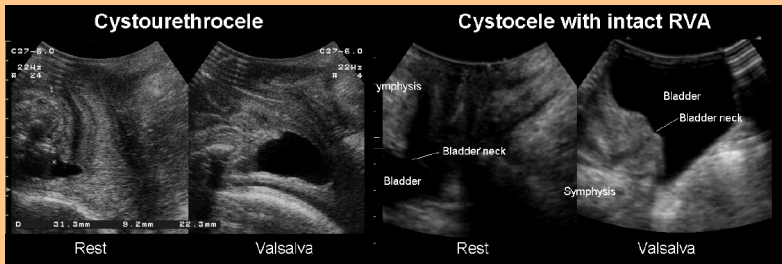


Figure 2: Two forms of anterior compartment prolapse with very different effects on voiding: A, Cystourethrocele with fast voiding and urodynamic stress incontinence; B, Cystocele with intact retrovesical angle; associated with stress continence, symptoms of prolapse and slow voiding.

CISC is the preferred option from a medical point of view, has minimal impact on body image and activities, and is usually successful in younger women. If CISC is impossible due to visual impairment, other disabilities or compliance issues, a permanent catheter may have to be considered, preferably in the form of a suprapubic catheter with a valve for intermittent drainage. Catheterisation may also be necessary in those women in whom, for whatever reason, detrusor pressures on emptying are so high as to endanger the kidneys through vesico- ureteric reflux, although this is very unlikely to

be a problem in patients without major neurological problems. Suprapubic catheters have to be changed (usually by a community nurse) every 6 weeks to avoid encrustations, and the occasional urinary tract infection is almost impossible to prevent, even if one uses urinary antiseptics and prophylactic antibiotics. It is better management not to use antibiotics, but rather to obtain catheter specimens and send them for culture. Infections can then be treated if and when they arise. Regular review by a specialist (or in a specialized catheter clinic) may be necessary. However, in many women, especially the elderly, voiding dysfunction often does not require permanent catheterisation and can be successfully managed in the primary care setting once a proper diagnosis has been made.

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Who are 'Sydney Urodynamic Centres'?

Sydney Urodynamic Centres has been providing the women of New South Wales and their doctors with a comprehensive urodynamic service for the past 20 years. They are able to scientifically assess female urinary incontinence and lower urinary tract dysfunction, provide an accurate diagnosis to the referring doctor and advise on clinical management.

The service is run by three urogynaecologists, trained and accredited in this sub-specialty by the Royal Australian and New Zealand College of Obstetricians and Gynaecologist (RANZCOG). These partners are assisted by a group of highly trained nurses who are adept at making the experience more pleasant for the women. There are seven centres around Sydney where studies can be performed in order to facilitate easy access to the service for most women.

These locations are:

SYDNEY

Sydney Urodynamic Centre
Level 3, 139 Macquarie Street, Sydney

CHATSWOOD

North Shore Urodynamic Centre
Suite 70, Chatswood Village
47 Neridah Street, Chatswood

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Camperdown Urodynamic Centre
Suite 404, RPAH Medical Centre
100 Carillon Avenue, Newtown

CONCORD

Concord Urodynamic Centre
Level 2, Concord Hospital Medical Centre
209 Hospital Road, Concord West

BANKSTOWN

Bankstown Urodynamic Centre
Suite 2, Level 1, 56 Kitchener Parade, Bankstown

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Liverpool Urodynamic Centre
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Associate Professor

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Associate Professor Dietz graduated from Heidelberg University, Germany, in 1988. After first emigrating to New Zealand, he arrived in Australia in 1997 and completed his FRANZCOG training in 1998. Between 1999 and 2002, Associate Professor Dietz undertook urogynaecology subspecialty training in Sydney, in addition to presenting a PhD thesis at the University of NSW. His major research interests include the interaction between pelvic floor biomechanics and childbirth, pelvic floor imaging, as well as the effects of anti-incontinence surgery on anatomy and voiding function. Today, he is employed as Associate Professor of Obstetrics and Gynaecology at the Nepean Campus of the University of Sydney, as well as a specialist in urogynaecology at the Sydney Urodynamic Centres.



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Following graduation from Sydney University, Associate Professor Benness did his specialty and sub-specialty training in both Sydney and London. An accredited sub-specialist in urogynaecology with the RANZCOG, he is a trainer and examiner in this field. He is a senior specialist in gynaecology at the Royal Prince Alfred Hospital, where he is also Head of the Department of Urogynaecology and a past Chairman of the Medical Board. He is the current Chairman of the NSW State Committee of RANZCOG. He is active in both teaching and research, and is a Clinical Associate Professor at the University of Sydney. His main research interests are improving surgical procedures for stress incontinence and prolapse.



Professor Andrew Korda

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Following graduation from Sydney University, Dr Korda did his specialty training at the Royal Prince Alfred Hospital in Sydney, with further training in Oxford, United Kingdom and New York in the United States.



Dr Korda is an accredited subspecialist in urogynaecology, pelvic floor disorders and reconstructive pelvic surgery. Dr Korda is a senior specialist in gynaecology at the Royal Prince Alfred Hospital where he is Chairman of the Pelvic Floor Unit. He is a clinical lecturer in gynaecology at the University of Sydney and he is involved in both teaching and research. He is trustee of the Australian Bladder Foundation, and is Professor of Obstetrics and Gynaecology at the University of Western Sydney.

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