Classification of Mixed Incontinence

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1. Background

Mixed incontinence has been defined symptomatically by the International Continence Society (ICS) as “the complaint of involuntary leakage associated with urgency and also with exertion, effort, sneezing or coughing” [1]. It has been described urodynamically as “representing both urodynamic stress incontinence and detrusor overactivity, with or without incontinence” [2]. In everyday clinical practice, it is usually considered as a combination of stress incontinence and urgency incontinence. Overactive bladder (OAB) is a symptom syndrome, also known as the urgency/frequency syndrome, which is defined as “urgency, with or without urgency incontinence, usually with frequency and nocturia” [1]. These symptoms are suggestive of detrusor overactivity (urodynamically demonstrable involuntary bladder contractions) but can be due to other forms of voiding or urinary dysfunction. The mainstay of treatment for OAB symptom syndrome is bladder retraining combined with antimuscarinic therapy [3,4]. The resulting urgency leads to reduced “warning time” of the need to void with consequently increased frequency and reduced volume voided per micturition, with the potential to result in nocturia or incontinence. Clearly urgency drives the other symptoms of the symptom syndrome (Fig. 1).
The picture becomes more complicated when the relative contributions of the two components of mixed incontinence are considered separately, particularly in the light of the current definition that allows for the presence of detrusor overactivity, whether or not there is incontinence. In effect, the urodynamic definition combines stress incontinence with detrusor overactivity underlying OAB with or without incontinence (“OAB wet” or “OAB dry”).

Pure stress urinary incontinence (SUI) has traditionally been considered to arise either as a consequence of hypermobility of the proximal urethra and bladder neck (usually arising from a loss of supporting tissues) with normal internal sphincter function, with no detrusor overactivity, or as a result of intrinsic urethral sphincter weakness (ISW). Although some reports have suggested a low prevalence for ISW, it is in actual fact extremely likely that the majority of women with SUI have some degree of ISW, with an inevitable spectrum existing between hypermobility on the one hand and a predominance of ISW on the other. In support of this hypothesis is the observation that clinically significant hypermobility is found in about 60% of parous women, most of whom are not incontinent. Therefore, it seems likely that a significant proportion of women with SUI do have some sphincteric dysfunction.

Moving towards real-life practice, better definitions will be important to determine the true prevalence of OAB symptoms, SUI, pure urinary urgency incontinence, mixed symptoms, and mixed incontinence, within the spectrum of lower urinary tract symptoms (LUTS), a term more commonly used in male rather than female patients (Fig. 2). In our view, a clarification of terminology is warranted and it may be best to consider mixed incontinence as comprising patients with OAB wet and SUI, but the term mixed symptoms as incorporating those with OAB dry and SUI.

Even so, “mixed” is a very heterogeneous term and says little about which is the predominant or, to the patient, the most bothersome problem. Superficially, this may seem to be a question of semantics, but the lack of clarity affects not only the diagnosis and management of individual patients, but also makes clinical trials difficult to perform and interpret.

Patients eligible for clinical trials of mixed incontinence may have virtually all urgency incontinence and a little stress incontinence, or the reverse, and this will affect outcomes, whatever the therapeutic intervention. In clinical trials, the growing tendency is to use the terms urgency-
stress—“predominant” to describe patients with mixed incontinence, but clearly usage of this terminology needs clarification because there is little indication of how to best define “predominance.”

Gender has a significant impact on the relative importance of urinary symptoms and the degree of bother experienced by patients. Storage symptoms are predominant in women with bother increasing, as might be expected, with increasing incontinence (Fig. 3). In men, voiding symptoms predominate, with SUI and mixed incontinence present in only a small proportion of cases (Fig. 4). Until recently, the term LUTS has principally been used in connection with voiding symptoms but, because the term applies to problems affecting the whole lower tract, both the bladder and the urethra, it is more appropriate to use it for both voiding and filling symptoms (Table 1).

Clearly, whenever possible it is appropriate that patients with mixed incontinence are diagnosed and treated in the community setting, with referral to secondary care being restricted to complex cases. Community practitioners have the advantage of knowing a patient’s full history and of being able to provide holistic management and continuity of care. They are also ideally placed to recognise and understand the impact of concurrent medications and to ensure that the balance of benefits and risks of treatment remains in the patient’s favour. In a community setting, urinary continence can be managed in a highly effective way, with 70% of patients showing improvement or cure [5]. At a community level, the core dilemma is to identify whether the predominant problem is stress or urgency incontinence so that the most appropriate treatment can be given. Certainly there may be a tendency to classify all female incontinence as SUI in origin and

![Fig. 4 - The bothersomeness of lower urinary tract symptoms in men. LUTS = lower urinary tract symptoms; OAB = overactive bladder; SUI = stress urinary incontinence.](image)

![Table 1 - Voiding and storage symptoms](table)

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<table>
<thead>
<tr>
<th>Voiding symptoms</th>
<th>Storage symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premicturition delay</td>
<td>Frequency</td>
</tr>
<tr>
<td>Poor stream</td>
<td>Nocturia</td>
</tr>
<tr>
<td>Terminal dribble</td>
<td>Urgency</td>
</tr>
<tr>
<td>Postmicturition dribble</td>
<td>Urgency incontinence</td>
</tr>
<tr>
<td>Feeling of incomplete emptying</td>
<td></td>
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</tbody>
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![Fig. 5 - Differential diagnosis of overactive bladder, stress incontinence, and mixed symptoms.](image)
to overlook urgency incontinence. Not surprisingly, therefore, difficulty will inevitably arise with the management of mixed incontinence, in identifying the predominant component, whether OAB or SUI in each patient [6].

2. Differential diagnosis

Effective history-taking is essential. Patients should be asked about the LUTS, and bladder diaries can provide essential supportive information. A presumptive differential diagnosis of OAB, SUI, and mixed incontinence can be proposed on the basis of symptomatology (Fig. 5). However, there is debate over the presence of frequency in SUI because many patients with SUI will void preemptively to try to maintain an empty bladder and thereby reduce the likelihood of leakage. A review of medications will highlight possible drug-related causes of symptoms.

Physical examination should include general, abdominal (including bladder palpation), and neurologic examination. Pelvic and rectal examination should be performed in women and rectal examination in men. The observation of urine loss during vigorous coughing provides strong evidence for SUI.

Urinalysis will rule out haematuria, pyuria, bacteriuria, glucosuria, and proteinuria, and appropriate blood tests can check for glucose, prostate-specific antigen, and electrolyte abnormalities.

Referral for urodynamic tests and specialist opinion is indicated in the presence of:

- Haematuria without infection on urinalysis
- Symptoms suggestive of poor bladder emptying (e.g., hesitancy, poor stream, terminal dribbling)
- Evidence of unexplained neurologic or metabolic disease
- Symptoms that do not respond to initial treatment within 2–3 mo

There is some debate over the best way to differentiate between stress, urgency, and mixed incontinence. This has been the subject of review by the International Consultation of Incontinence and their conclusions as to the diagnostic pathway to follow are summarised in Fig. 6.

3. Conclusions

Mixed incontinence is commonly considered as the combination of “stress and urgency” incontinence. But this overlooks differences between current definitions of symptomatic and urodynamic mixed incontinence. It also fails to consider the wide variations in the relative importance of the stress and urgency components of mixed incontinence that different patients experience and their degree of bother.

Effective history-taking and careful physical examination form the basis of differentiating between mixed and other forms of incontinence and in determining a trial of treatment, all of which can usually be carried out in a primary care setting. However, for more complex cases, coordinated patient management between community practitioners and their secondary care colleagues may be necessary.

Conflicts of interest

Scientific consultant/researcher for Pfizer, Novartis, Astellas, Schwartz, Ranbaxy, Recordati, Tanabe, and Q-Med.

References


