

# **Symptom Sorter**

**THIRD EDITION**

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# INTRODUCTION

Life would be much simpler for GPs if patients presented with diagnoses. Unfortunately, they do not: they present with symptoms, which are frequently vague, sometimes multiple and occasionally obscure. It is up to the GP to create some order from this chaos. However, the vast majority of clinical texts adopt a diagnosis, rather than symptom-based, approach and the few which do reflect the reality of patient presentations are inevitably orientated towards hospital medicine and so are irrelevant to GPs.

This book, originally serialised, in a different form, in *Doctor* magazine, aims to redress the balance. It analyses 100 or so symptoms commonly seen in primary care and, for each, presents differentials, distinguishing features, possible investigations and key points. The only omissions are presentations for which there are so few differentials that diagnosis is really quite simple (e.g. 'lump on elbow'); those which rarely present in isolation (e.g. nausea, anorexia); and those which are so rare that the reader would be sure to require specialist advice (our personal favourite being 'pilimiction').

Written by two full-time GP principals, its perspective is very much grass roots primary care and its appeal is therefore wide. GP registrars and young principals, relatively unfamiliar with the protean presentations possible in general practice, will be able to check their diagnostic hypotheses against the information in the book; the more experienced GP might use it as a refresher or as a pointer to a more exotic diagnosis in an unusual case; and the nurse practitioner, taking increasing responsibility as a first port of call in primary care for many patients, will find the contents unique and essential.

The popularity of the first edition and the need for second and third editions emphasises the fact that, while general practice may experience multiple reorganisations and restructurings, the bread and butter business of making sense of symptoms remains. This new edition consolidates the first two with a number of extra chapters and significant updates of existing chapters.

Each symptom is analysed in a uniform, accessible way, as follows.

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## The GP overview

This defines the symptom and its key characteristics, and gives some idea of the frequency of presentation.

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## Differential diagnosis

This lists the likely diagnoses, subdivided 'Common', 'Occasional' and 'Rare'. (It should be noted that these headings are relative to the symptom in question. For example, some of the 'common' causes of delayed puberty will be rarer than some of the 'occasional' causes of acute abdominal pain – for the simple reason that abdominal pain is much commoner than delayed puberty as

a presenting symptom.) Restrictions of space and imagination mean that such a differential can never claim to be exhaustive, and a lack of accurate prevalence data renders the allocation of the diagnoses to these subdivisions somewhat arbitrary, based on our experience rather than hard evidence. These are minor limitations, however; this section will invariably provide clear guidance as to the likely cause of any symptom.

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### Ready reckoner

This provides a quick guide to the key distinguishing features of the five most likely diagnoses listed in the preceding section.

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### Possible investigations

This section outlines those investigations likely to assist the reader in making a diagnosis. The emphasis is upon tests performed in primary care or usually arranged by the GP. Where appropriate, more complex, hospital-initiated investigations are outlined – partly because GPs may wish to let their patients know the type of tests they might anticipate after referral and also because GP access to traditionally hospital-organised investigation is increasing. All investigations discussed are categorised according to the likelihood that they will be performed, the three categories being, ‘Likely’, ‘Possible’ and ‘Small print’.

### TOP TIPS

This provides a pot-pourri of management nuggets appropriate to each symptom, which the authors have accumulated over the years. Such hints from experience are difficult to analyse or quantify and so most are unashamedly anecdotal rather than evidence based – this should not detract from their usefulness or occasional elegance. Some might appear to stretch the scope of the book in that they cross the boundary between symptom assessment and symptom management – but the reader should bear in mind that the diagnostic process, particularly in primary care, involves hypothesis testing, and so these boundaries are, in reality, blurred.



Most symptoms presented in primary care are benign, minor and self-limiting. This can occasionally lull the unwary into a false sense of security: for each presentation there exist pointers which should set alarm bells ringing. ‘Red flags’ highlights aspects of symptoms which suggest significant pathology and which therefore should not be missed or neglected.

## How to use this book

This *Symptom Sorter* is designed to act as a rapid reference. It has deliberately been written in a note and list format so that, unlike weightier tomes, it is quick and easy to use. For the sake of brevity, common and well-recognised abbreviations have been used whenever possible. Its consistent style will soon breed familiarity and allow the reader to know where and how to retrieve information painlessly. To help achieve this, the symptoms are arranged in sections, each section corresponding to a system or anatomical region. In these sections, the symptoms are arranged alphabetically and, for the most part, are labelled in patient, rather than doctor, vernacular (e.g. shortness of breath rather than dyspnoea) – the exceptions being where there is no acceptable or concise ‘patientspeak’ version. However, as many symptoms can have a variety of descriptions (e.g. shortness of breath, dyspnoea, breathlessness, wheeziness, difficulty breathing and so on) the index is deliberately expansive and cross-referenced, and will quickly guide the reader to the appropriate pages.

The categorisation of symptoms and their arrangement in sections is a complex task which can be approached in a number of ways – for example, rashes might be divided according to distribution, size of lesion, morphology, itch and so on. Throughout, we have chosen the approach which seems most logical to us and which, whenever possible, avoids unnecessary omission or repetition; again, the index should rapidly point the reader in the right direction. Assigning symptoms to certain sections may sometimes seem arbitrary, especially when they can have such disparate causes, but this approach provides the book with a clear, understandable structure.

As GPs, we are aware that patients often present polysymptomatically. Our book, neatly dividing complaints into individual symptoms, might therefore be criticised for not accurately reflecting real primary care life. In fact, such presentations can usually be distilled down to one or two predominant symptoms; more minor symptoms often act as pointers to the actual diagnosis, a fact our ‘Ready reckoners’ in each chapter exploits. In the truly polysymptomatic, the book may help to define a common thread amongst the symptoms, thereby revealing the real diagnosis – usually, in such cases, anxiety or depression.

The book should be kept to hand for use during surgery to confirm the likelihood of a certain diagnosis or raise the possibility of others. Being comprehensive, relevant and accessible, retrieval of information will be speedy and helpful during the consultation itself (you may wish to wait until the patient is undressing behind the curtain: there should be time).

The book may be used in other ways. GP trainers could use the analysis of a certain symptom provided in the text as the basis for a tutorial. Indeed, the book could itself form part of the GP registrar’s curriculum. By ‘sorting’ two or three symptoms a week, using the text as a guide, the registrar could, over the course of his or her practice year, cover the vast majority of presentations seen in primary care. Trainers of undergraduates, too, will find that the contents provide useful material for teaching sessions.

Others might simply like to browse, refreshing or refining their diagnostic skills and mulling over the Red flags and Top tips.

Feedback received by the authors indicates that the first and second editions are now included in many undergraduate curricula as recommended reading, and the book is proving very popular amongst primary care nurses and nurse practitioners.

However the reader uses this book, we are convinced that it will prove an essential resource.

Making sense of symptoms is the essence of general practice, and any tool designed by and for GPs which contributes to this art is likely to benefit doctors and patients alike.

**Keith Hopcroft**  
**Vincent Forte**  
*June 2007*

# **URINARY**

**Blood in urine**

**Excessive urination**

**Frequency**

**Incontinence**

**Nocturia**

**Retention**



# BLOOD IN URINE

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## The GP overview

Bright red blood in the urine causes instant alarm in a patient, and usually generates an emergency appointment or an out-of-hours call. Blood may also be picked up by dipstick testing or MSU during the assessment of some other problem or in a routine medical. This is often less frightening even when disclosed to the patient, but should prompt full investigation.

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## Differential diagnosis

### COMMON

- ❑ UTI
- ❑ bladder tumour
- ❑ renal/ureteric stones
- ❑ urethritis
- ❑ prostatic hypertrophy/carcinoma of prostate

### OCCASIONAL

- ❑ jogging and hard exercise
- ❑ renal carcinoma
- ❑ chronic interstitial cystitis
- ❑ anticoagulant therapy
- ❑ nephritis/glomerulonephritis

### RARE

- ❑ renal tuberculosis
- ❑ polycystic kidney disease
- ❑ blood dyscrasias: thrombocytopenia, haemophilia, sickle-cell disease
- ❑ infective endocarditis
- ❑ schistosomiasis (common abroad)
- ❑ trauma

## Ready reckoner

	<i>UTI</i>	<i>Bladder tumour</i>	<i>Stones</i>	<i>Urethritis</i>	<i>Prostate</i>
Frank blood	Possible	Possible	Possible	No	Possible
Dysuria	Yes	No	Yes	Yes	No
Urethral discharge	No	No	No	Yes	No
Poor urinary stream	No	Possible	Possible	No	Yes
Loin pain	Possible	No	Possible	No	No

## Possible investigations

*LIKELY:* urinalysis, MSU, FBC, U&E.

*POSSIBLE:* PSA, red cell morphology, ultrasound, plain abdominal X-ray, IVU, cystoscopy.

*SMALL PRINT:* urethral swab, CT scan, urine cytology, renal biopsy, angiography.

- Urinalysis: pus cells and nitrite in UTI. Pus cells alone in urethritis, TB and bladder tumour. Presence of protein suggests renal disease.
- Urine microscopy and culture to establish pathogen in infection. May show casts in renal disease.
- FBC and U&E help establish basic renal function and any associated anaemia or leucocytosis; consider PSA – usually elevated in prostatic carcinoma.
- Urethral swabs if urethritis (best done at GUM clinic).
- Urine red cell morphology: if abnormal morphology, suggests primary renal disease.
- If painless haematuria, ultrasound may show renal tumour or polycystic kidneys; CT may be more useful.
- IVU is investigation of choice if renal/ureteric stones are suspected (when pain is present); plain abdominal X-ray useful when attack has settled (reveals 90% of stones). IVU also required if ultrasound, abdominal X-ray and cystoscopy are all negative.
- Specialist investigations include cystoscopy, urinary cytology, renal biopsy and angiography.

## TOP TIPS

- Microscopic haematuria in an asymptomatic menstruating woman can be ignored temporarily; repeat the urinalysis at mid-cycle.
- Remember that there are other less common causes of spurious haematuria – sometimes the blood may be coming from the rectum or vagina. Assess each case carefully and be prepared to rethink if symptoms persist but urological investigations prove negative.
- Some food pigments, beetroot and certain drugs (e.g. nitrofurantoin) can colour the urine red – confirm haematuria with urinalysis to save the patient unnecessary tests.
- Microscopic haematuria with abnormal red cell morphology and/or proteinuria should be referred to a nephrologist. Most other unexplained cases require the services of a urologist.



- ❑ Painless frank haematuria is an ominous sign indicating possible malignancy.
- ❑ Beware of recent onset of recurrent cystitis with haematuria in the elderly. The underlying cause may be a bladder tumour, especially if the haematuria (micro- or macroscopic) does not settle with treatment of the infection.
- ❑ Renal tumours can sometimes present with renal colic, as blood clots in the ureters mimic the effects of stones. A useful clue is that the bleeding may precede the pain.
- ❑ Haematuria requires emergency admission if there is significant blood loss or clot retention.

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# EXCESSIVE URINATION

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## The GP overview

Polyuria is a highly subjective symptom and one which presents rather less often than urinary frequency (which is dealt with separately, see p. 393). Most of the causes of polyuria listed here are also, by implication, causes of polydipsia – the only causes of true polydipsia not included are those due to dehydration.

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## Differential diagnosis

### COMMON

- ❑ diabetes mellitus (DM)
- ❑ diuretic therapy
- ❑ chronic renal failure (CRF)
- ❑ hypercalcaemia (e.g. osteoporosis treatment, multiple bony metastases, hyperparathyroidism)
- ❑ alcohol

### OCCASIONAL

- ❑ potassium depletion: chronic diarrhoea, diuretics, primary hyperaldosteronism
- ❑ relief of chronic urinary obstruction
- ❑ drugs: lithium carbonate, demeclocycline, amphotericin B, glibenclamide, gentamicin
- ❑ cranial diabetes insipidus (hypothalamo-pituitary tumour, skull trauma, sarcoidosis or histiocytosis X)
- ❑ Cushing's disease from excessive corticosteroid doses and ACTH-secreting bronchial carcinoma
- ❑ sickle-cell anaemia
- ❑ early chronic pyelonephritis

### RARE

- ❑ psychogenic polydipsia (compulsive water drinking)
- ❑ supraventricular tachycardia
- ❑ DIDMOAD syndrome (diabetes insipidus, diabetes mellitus, optic atrophy, deafness: autosomal recessive)
- ❑ familial cranial diabetes insipidus (autosomal dominant inheritance)
- ❑ familial nephrogenic diabetes insipidus (males only: X-linked recessive)
- ❑ Fanconi syndrome

## Ready reckoner

	<i>DM</i>	<i>Diuretic therapy</i>	<i>CRF</i>	<i>Alcohol</i>	<i>High Ca<sup>2+</sup></i>
Marked thirst	Yes	No	No	No	Yes
Other abnormalities on urinalysis	Possible	No	Possible	No	No
Abdominal pain and vomiting	Possible	No	No	No	Yes
Episodic	No	Possible	No	Yes	No
Anorexia/weight loss	Yes	No	Possible	No	Possible

## Possible investigations

*LIKELY:* urinalysis, blood sugar.

*POSSIBLE:* FBC, U&E, serum calcium.

*SMALL PRINT:* blood film, further specialist investigations (see below).

- ❑ Urinalysis: glucose and possible ketones in diabetes; possible haematuria and proteinuria with renal problems; specific gravity very low in diabetes insipidus and psychogenic polydipsia.
- ❑ Blood sugar: to confirm diabetes mellitus.
- ❑ FBC: normochromic anaemia in CRF; film for sickle-cell anaemia.
- ❑ U&E: to detect potassium deficiency and abnormalities suggesting CRF.
- ❑ Serum calcium: elevated in hypercalcaemia.
- ❑ Further specialist investigations: many of the aforementioned 'causes' will need further investigation in secondary care to establish underlying aetiology (e.g. ultrasound and renal biopsy in CRF, water deprivation test for diabetes insipidus, CT scan if possible pituitary lesion, and so on).

## TOP TIPS

- ❑ Take time to clarify the symptoms. It is essential to differentiate polyuria from frequency, as the causes are very different.
- ❑ Remember alcohol as a possible cause, especially in young males. Patients can be surprisingly slow to make quite obvious connections.
- ❑ Refer for more detailed investigation if the symptoms are clear cut and baseline tests draw a blank.



- ❑ Diabetes mellitus is not the only cause of polyuria with thirst. If urinalysis is negative for sugar, consider diabetes insipidus or hypercalcaemia.
- ❑ Weight loss and cough in a smoker with polyuria suggests a possible ACTH-secreting tumour. Arrange an urgent CXR.
- ❑ If urinalysis reveals glucose and ketones in a known or new diabetic, arrange for urgent assessment with a view to admission for stabilisation.
- ❑ Renal disease is likely in patients with polydipsia who have blood and protein on urinalysis.

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# FREQUENCY

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## The GP overview

This means an increased frequency of micturition, and is usually associated with the passage of small amounts of urine. It is not the same as increased production of urine (see Excessive urination, p. 390). It is a commonly presented problem, affecting women far more often than men: the average GP will deal with around 60 cases of cystitis (the main cause) each year.

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## Differential diagnosis

### COMMON

- ❑ infective cystitis
- ❑ anxiety
- ❑ unstable bladder (detrusor instability)
- ❑ bladder calculus
- ❑ prostatism (BPH and, rarely, carcinoma)

### OCCASIONAL

- ❑ interstitial cystitis (non-infective)
- ❑ prostatitis
- ❑ pregnancy
- ❑ ureteric calculus (in lower third of ureter precipitates reflex frequency)
- ❑ urethritis, pyelonephritis
- ❑ iatrogenic (e.g. diuretics)
- ❑ bladder neck hypertrophy
- ❑ 'habit frequency'

### RARE

- ❑ pelvic space-occupying lesion, e.g. fibroid, ovarian cyst, carcinoma
- ❑ secondary to pelvic inflammation: PID, appendicitis, diverticulitis, adjacent tumour
- ❑ bladder tumour (benign or malignant)
- ❑ post-radiotherapy fibrosis (testicular, ovarian and prostatic cancer)
- ❑ tuberculous cystitis/renal TB
- ❑ fibrosis secondary to chronic sepsis from long-term catheter drainage

## Ready reckoner

	Anxiety	Infective cystitis	Unstable bladder	Prostatism	Bladder calculus
Dysuria	No	Yes	No	No	Possible
Eased when prone	No	No	No	No	Yes
Hesitancy, slow flow	No	No	No	Yes	Possible
Nocturnal frequency	No	Yes	Yes	Possible	No
Abnormal urinalysis	No	Yes	No	Possible	Yes

## Possible investigations

*LIKELY:* urinalysis, MSU.

*POSSIBLE:* urethral swab, PSA, uroflowmetry, urodynamic studies, plain abdominal X-ray, IVU, cystoscopy.

*SMALL PRINT:* pelvic ultrasound, U&E, pregnancy test and three EMUs for TB.

- Urinalysis: protein, nitrites, leucocytes and possible haematuria in infection; possible stone or tumour if blood alone.
- MSU: microscopy may show abnormal epithelial cells, blood, pus and help identify pathogen in infection.
- Swab any urethral discharge present for *Chlamydia* and gonorrhoea.
- EMU: for pregnancy test; also three EMUs to check for TB if suspected (e.g. sterile pyuria).
- U&E: check if assessment suggests chronic sepsis or outflow obstruction.
- PSA: consider this if prostatism in male.
- Specialist tests include: uroflowmetry (for prostatism), urodynamic studies (for unstable bladder), IVU and cystoscopy (for stones and tumours) and ultrasound (for pelvic masses).

## TOP TIPS

- Frequency due to anxiety is typically long term, worse with stress and cold weather, and is associated with a normal urinalysis.
- It is reasonable to make an empirical diagnosis of unstable bladder in a non-pregnant female with frequency in whom both pelvic examination and urinalysis are entirely normal.
- An unrecognised pregnancy may present with frequency: ask about periods, and do a pregnancy test if a period has been missed.



- ❑ In the elderly, a bladder tumour may present as cystitis. If a new, recurring problem, or haematuria attributed to the cystitis does not settle with antibiotics, consider referral.
- ❑ Do not ignore sterile pyuria on the MSU: possible causes include urethritis and TB.
- ❑ The adult patient with frequency who has persistent microscopic haematuria but no other abnormalities on urinalysis may have a stone or tumour. Refer.
- ❑ Appendicitis can cause mild frequency and pyuria. Do not be misled by the urinalysis into an inappropriate diagnosis of UTI: act according to the clinical findings.
- ❑ UTI in infancy is a major cause of renal failure. Refer after the first episode to investigate for ureteric reflux. Never delay empirical treatment and keep the child on prophylactic antibiotics until advised by the paediatrician.

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# INCONTINENCE

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## The GP overview

Incontinence is involuntary micturition. It is not a common presenting symptom, embarrassment tending to inhibit patients, but it is often mentioned as a 'while I'm here' or noted by the doctor, typically because of the characteristic odour when visiting an elderly patient. It may present more frequently in the future as the problem receives more publicity and patients realise that help is available. The population prevalence in women is around 10%, but is probably much higher in older age groups.

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## Differential diagnosis

### COMMON

- ❑ stress incontinence (with or without prolapse)
- ❑ infective cystitis
- ❑ detrusor instability: idiopathic or secondary to other problems, e.g. CVA, dementia, Parkinson's disease
- ❑ chronic outflow obstruction, e.g. prostatic enlargement, bladder neck stenosis, urethral stenosis
- ❑ post-prostatectomy (usually temporary)

### OCCASIONAL

- ❑ chronic UTI
- ❑ interstitial cystitis
- ❑ bladder stone or tumour
- ❑ after abdomino-pelvic surgery and radiotherapy
- ❑ fistula: vesicovaginal/uterine, ureterovaginal (surgery and malignancy)
- ❑ polyuria (any cause, e.g. diabetes, diuretics – particularly if compounded by immobility in the elderly)

### RARE

- ❑ post-pelvic fracture (direct sphincter damage with or without neurological damage)
- ❑ congenital abnormalities: short urethra, wide urethra, epispadias, ectopic ureter
- ❑ sensory neuropathy, e.g. diabetes and syphilis
- ❑ multiple sclerosis, syringomyelia
- ❑ paraplegia, cauda equina lesion
- ❑ psychogenic

## Ready reckoner

	Stress incontinence	UTI	Detrusor instability	Outflow obstruction	Prostatectomy
Stress pattern	Yes	No	No	Possible	Possible
Urge pattern	No	Yes	Yes	No	Yes
Overflow pattern	No	No	No	Yes	No
Dysuria	No	Yes	No	No	Possible
Palpable bladder	No	No	No	Yes	No

## Possible investigations

*LIKELY:* urinalysis, MSU.

*POSSIBLE:* PSA, U&E, ultrasound, IVU, urodynamic studies, uroflowmetry.

*SMALL PRINT:* blood sugar, syphilis serology, cystoscopy, neurological investigations.

- ❑ Urinalysis: to test for infection and diabetes.
- ❑ MSU: to confirm infection and guide antibiotic treatment.
- ❑ Blood sugar and syphilis serology: if diabetes or syphilis a possible cause of neuropathy.
- ❑ PSA: consider symptoms of prostatism or prostatic enlargement on examination.
- ❑ U&E: to assess renal function in chronic outflow obstruction.
- ❑ Ultrasound good for assessing renal size non-invasively: may suggest outflow obstruction or chronic infection.
- ❑ IVU best for looking for renal scarring of chronic UTI, structural anomalies and demonstrating residual urine; may also reveal site of outflow obstruction and fistulae.
- ❑ Specialist investigations may include: urodynamic studies (helpful to distinguish between urge and stress incontinence), uroflowmetry (prostatism), cystoscopy (may reveal cause of outflow obstruction, stone or tumour) and neurological investigations (e.g. imaging of spinal cord).

## TOP TIPS

- ❑ Incontinence has many causes, but can often be broadly categorised into one of three groups: stress incontinence (e.g. with coughing), urge incontinence ('when I've got to go, I've got to go') and continuous, like water over the edge of a dam (e.g. through a vesicovaginal fistula, or in overflow from a chronically distended bladder).
- ❑ If pressure over the urethra controls stress incontinence due to pelvic floor laxity, then surgery is likely to help. This is a useful diagnostic test.
- ❑ The aetiology may be multifactorial, particularly in the elderly. Mobility, vision, distance to the toilet and ongoing medication may all be relevant.
- ❑ Detrusor instability and stress incontinence can be difficult to distinguish. The latter rarely causes nocturnal incontinence, while it may be a feature of detrusor instability. If in doubt, refer for urodynamic studies.

- ❑ Adopt a sympathetic approach. Incontinence can have a devastating impact on self-esteem and seriously affect a patient's social and sexual functioning.



- ❑ Incontinence with saddle anaesthesia and leg weakness suggests a cauda equina lesion. This is a neurological emergency: refer urgently.
- ❑ Continuous incontinence suggests significant pathology, such as a fistula, chronic outflow obstruction or a neurological problem.
- ❑ Never empty the huge bladder of chronic retention in one go. This can cause bleeding and renal complications. Admit for catheterisation and controlled release.

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# NOCTURIA

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## The GP overview

Nocturia may present in isolation or it may be a manifestation of other urinary disturbances such as polyuria or frequency. Surprisingly, in older age groups, it is as common in women as men. Occasional nocturia is, of course, quite normal – the symptom should only be viewed as pathological when it causes disruption or distress.

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## Differential diagnosis

### COMMON

- ❑ age related (in part caused by a reduction in bladder capacity)
- ❑ excess fluid at bed time (especially alcohol)
- ❑ any cause of swollen ankles (the recumbent posture redistributes the fluid load at night) – see Swollen ankles, p. 288
- ❑ cystitis
- ❑ prostatism

### OCCASIONAL

- ❑ unstable bladder
- ❑ lower urinary tract obstruction (other than prostate problems)
- ❑ any other cause of urinary frequency (see Frequency, p. 393)
- ❑ diabetes mellitus
- ❑ any other cause of polyuria (see Excessive urination, p. 390)

### RARE

- ❑ anxiety
- ❑ drug side-effect (rare because drugs likely to cause a diuresis are usually taken in the morning)
- ❑ diabetes insipidus

## Ready reckoner

	<i>Age related</i>	<i>Excess fluid</i>	<i>Swollen ankles</i>	<i>Cystitis</i>	<i>Prostatism</i>
Daytime ankle oedema	Possible	No	Yes	No	No
Daytime frequency	Possible	No	No	Yes	Possible
Poor urinary flow	No	No	No	No	Yes
Long term problem	Yes	Possible	Yes	No	Yes
Polyuria	No	Yes	Yes	No	No

## Possible investigations

*NOTE:* urinary frequency, polyuria, or swollen ankles as ‘causes’ of nocturia will need investigating in their own right – see the relevant sections for more details on each of these topics.

*LIKELY:* urinalysis, MSU.

*POSSIBLE:* blood sugar, PSA.

*SMALL PRINT:* cystoscopy, urodynamic studies, IVP/ultrasound, water deprivation test.

- ❑ Urinalysis: protein, nitrites, leucocytes and possible haematuria in infection; glucose in diabetes; specific gravity very low in diabetes insipidus.
- ❑ MSU: to confirm infection and identify pathogen.
- ❑ Blood sugar: to confirm diabetes mellitus.
- ❑ PSA: pros and cons of this test may be discussed if assessment raises the possibility of prostate cancer.
- ❑ Specialist tests include: cystoscopy and IVU/ultrasound (for lower urinary tract obstruction), urodynamic studies (for unstable bladder) and water deprivation test (for diabetes insipidus).

### TOP TIPS

- ❑ In the elderly, the cause is often multifactorial.
- ❑ The effects – such as disturbed sleep, a disrupted household, exhaustion and occasional incontinence – may be more important to the patient than the specific diagnosis.
- ❑ Swollen ankles – of any aetiology – are frequently overlooked as an underlying cause.
- ❑ Nocturia may just be a manifestation (albeit the most distressing) of polyuria or urinary frequency. Focus your approach on the underlying problem.



- ❑ Exclude diabetes – but remember that it is not the only cause of polyuria, nocturia and thirst.
- ❑ A habitual 'night cap' may be the cause of nocturia – and may be a pointer to an underlying alcohol problem, especially in solitary elderly males.

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# RETENTION

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## The GP overview

Retention is failure to empty the bladder completely. The acute form characteristically affects men, presents urgently and requires immediate catheterisation or hospitalisation. Chronic retention may produce few symptoms and may only be discovered during palpation of the abdomen.

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## Differential diagnosis

### COMMON

- ❑ prostatic hypertrophy: benign, rarely carcinoma
- ❑ anticholinergic drugs: bladder stabilisers and tricyclic antidepressants
- ❑ constipation
- ❑ bladder neck obstruction/urethral stricture
- ❑ UTI (including prostatitis and prostatic abscess)

### OCCASIONAL

- ❑ urethral calculus
- ❑ 'holding on' (leads to prostatic congestion)
- ❑ pelvic mass: retroverted, gravid uterus or fibroid uterus
- ❑ acute genital herpes (via local inflammation and interference with neurological control of detrusor reflex arc)
- ❑ clot retention (e.g. after bleed from tumour or post-TURP bleed)
- ❑ balanoposthitis in children (if very painful)

### RARE

- ❑ neurological: MS, syphilis, spinal cord compression
- ❑ pedunculated bladder tumour
- ❑ traumatic rupture of urethra
- ❑ foreign body inserted into anterior urethra
- ❑ phimosis
- ❑ psychological

## Ready reckoner

	<i>Prostatic hypertrophy</i>	<i>Drugs</i>	<i>Constipation</i>	<i>Bladder neck</i>	<i>UTI</i>
Enlarged prostate PR	Yes	No	No	No	Possible
Acute	Possible	Yes	Possible	No	Yes
Young patient	No	Possible	No	Possible	Possible
Abnormal urinalysis	Possible	No	No	No	Yes
Palpable colon	No	No	Yes	No	No

## Possible investigations

*LIKELY:* urinalysis, MSU.

*POSSIBLE:* U&E, PSA, ultrasound, IVU, cystoscopy.

*SMALL PRINT:* neurological investigations, prostatic biopsy, urethrography (all hospital-based investigations).

- Urinalysis of any urine available may confirm a UTI as the cause; may also reveal microscopic haematuria if a stone or bladder tumour.
- MSU: will confirm infective agent in UTI.
- U&E: renal failure may follow chronic retention.
- PSA may be worth considering if preceding symptoms of prostatism or abnormal prostate on examination.
- Specialist tests may include: renal ultrasound (reveals obstruction and pelvic masses), IVU (may reveal site of obstruction and will provide information about renal function), cystoscopy (may be diagnostic and therapeutic for stones, stricture, bladder outflow obstruction and bladder tumour), neurological investigations (e.g. spinal cord imaging if cord lesion suspected), prostatic biopsy (if suspicious area of prostate palpable) and urethrography (for stricture).

## TOP TIPS

- Do not overlook faecal impaction in the elderly patient as a cause of urinary retention.
- 'First aid' relief of retention when the cause is a painful perineal condition (e.g. balanoposthitis, Herpes simplex or UTI) may be achieved by encouraging the patient to urinate while immersed in a warm bath.
- Anuria can be mistaken for retention. A straightforward clinical assessment should differentiate the two conditions.



- ❑ A history suggesting a disc prolapse with urinary retention indicates possible cord compression – admit immediately.
- ❑ Sudden stoppage of urine with a pain like a blow to the bladder and passage of a few drops of blood is pathognomic of urethral calculus.
- ❑ Beware of any drugs with anticholinergic side-effects in patients with a history of outflow obstruction – they may precipitate acute retention.
- ❑ Avoid catheterisation when sepsis is likely (e.g. possible UTI) – instrumentation may result in septicaemia. Instead, admit to hospital for catheterisation under appropriate antibiotic cover.
- ❑ Do not catheterise the patient with chronic retention; admit for controlled drainage. Sudden decompression can result in haematuria and renal complications.

NOTES: