Today's Treatment

Diseases of the urinary system

Common urinary symptoms

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The kidney when diseased remains a relatively silent organ, and many serious renal diseases produce few, if any, symptoms that specifically indicate their origin. In contrast the diseased bladder readily produces symptoms that direct attention to the lower urinary tract. A patient's symptoms therefore usually provide more help in diagnosis for the urologist than for the nephrologist. I will consider chiefly the common urinary symptoms as encountered in medical practice, although the interface between urology and nephrology is blurred, with probable gain to both specialties if not always immediately to the patient. Haematuria has already been discussed¹ and I shall not consider it further although it is one of the most important complaints referable to the urinary system.

Dysuria

Dysuria, sometimes described as a sensation of scalding on micturition, is the urinary tract system most often encountered in general practice and is caused by urethral irritation. It occurs much more commonly in women than in men. Usually dysuria is assumed to indicate infection of the lower urinary tract and is often treated with antibiotics without investigation, but bacteriological proof of infection is obtained only in about half of women complaining of dysuria and other lower urinary tract symptoms. When proof of bacterial infection is not forthcoming the term "urethral syndrome" is often used, and the cause of the urethral or bladder irritation is then conjectural. In some patients evidence is eventually found of bacterial infection in the paraurethral glands in women or in the prostate in men. Non-bacterial infective agents may sometimes be responsible and include *Trichomonas*, *Candida albicans*, and possibly viruses and *Chlamydia* (TRIC agent).

Chemicals in deodorants or bath additives occasionally cause a dysuria and frequency syndrome. Other possible causes of dysuria include atrophic changes in the vaginal and lower urethral epithelia in elderly women, trauma from frequent or clumsy sexual intercourse, and abnormal patterns of micturition, such as voluntary over-riding of the urge to micturate for prolonged periods. A rare cause of severe suprapubic pain and dysuria is chemical cystitis, which may complicate the use of some drugs—for example, cyclophosphamide. Dysuria also results from the presence of a calculus in the bladder, or rarely in the urethra.

Symptoms that suggest infection in the upper urinary tract (kidney, pelvicaliceal system, and ureter) include loin pain and

tenderness, considerable fever, rigors, and pronounced constitutional upset, often accompanied by vomiting. Lower urinary tract symptoms, such as dysuria and frequency, may be absent.

Urinary infections in neonates, infants, and preschool children may present with few if any symptoms obviously referable to the urinary tract. Thus in neonates weight loss, jaundice, convulsions, and, if septicaemia complicates the infection, peripheral circulatory failure may dominate the clinical picture. Diarrhoea, vomiting, and noticeable irritability may be presenting features in infants. In elderly patients urinary tract infections may also present as unexplained fever and are sometimes associated with mental confusion and incontinence of urine.

Urgency of micturition often accompanies dysuria in urinary infections but is also common in prostatism even without infection.

Frequency of micturition, that is increased frequency, most often accompanies dysuria and has much the same implications. Painless frequency is sometimes caused by lower urinary tract infection but may also arise from anxiety. Patients with polyuria also pass urine more often than normal, but the nature of this disorder is usually apparent on questioning. Prostatism is an important cause of frequency, and this is also prominent in some patients with neuropathic bladders.

Nocturia

Nocturia, or nocturnal frequency of micturition, occurs in most patients with polyuria (see below) but is also commonly experienced in urinary tract infections and has many other causes. It is one of the common symptoms caused by prostatism and also occurs in chronic renal failure, nephrotic syndrome, cardiac failure, and various endocrinopathies—for example, Addison's disease. In these conditions renal ability to concentrate the urine is commonly impaired, but nocturia is also due partly to a reversal of the normal diurnal rhythm of urine production. The precise mechanisms underlying this normal rhythm of urine flow remain unknown, but it may be lost or reversed not only in these conditions but also temporarily in many severe illnesses. In late middle age and old age reversal of the diurnal rhythm of urine flow sometimes occurs in the absence of any recognised cause and then not infrequently leads to a mistaken diagnosis of prostatism. When questioning a patient who complains of nocturia one should remember to inquire about the use of diuretics. For those who observe Ramadan and who are receiving diuretics nocturia is an almost inevitable consequence of the delay until sunset before the day's tablets are taken.

Changes in ejection pattern

Changes in the pattern of ejection of the urinary stream arise most commonly in prostatism and may not be volunteered by the patient but emerge on questioning. Such symptoms include

hesitancy, poor stream, and terminal dribbling. Rarely one encounters the striking symptom that the urine flow stops abruptly in midstream to start again after an interval; this may result from a calculus in the urethra, which is not always painful. The observation that the urge and ability to micturate return within a few minutes of micturition may arise from ureteric reflux, with the return to the bladder of the urine expressed retrogradely up the ureter, but this condition usually produces no specific symptoms.

Polyuria

Polyuria—that is, an increase in the output of urine—is usually not noticed by the patient until he is passing more than about four litres of urine in 24 hours. Unless the output is very large he is more likely to complain of the nocturia that occurs in most polyuric states. Very large volumes of hypotonic urine suggest neurohypophyseal diabetes insipidus, compulsive over-drinking, or almost total renal insensitivity to antidiuretic hormone as in familial nephrogenic diabetes insipidus and occasionally in hypercalcaemia. Somewhat lesser volumes of isotonic or slightly hypertonic urine may be passed in diabetes mellitus and in obstructive uropathy after relief of the obstruction (the urine is sometimes hypotonic in the latter condition). Patients with chronic renal failure may void three to four litres of urine daily, but nocturia is probably their only complaint on this score.

Oliguria

The term oliguria should strictly be reserved for the passage of less than 400 ml of urine in 24 hours by an adult. As such it occurs in acute renal failure when far too much is happening to the patient for the reduced urine output to rank high on his list of symptoms. A patient who complains of passing less urine as a major feature of his presentation is, not infrequently, experiencing periods of fluid retention; thus this symptom is often volunteered by women suffering from idiopathic oedema.

Alternating periods of oliguria and polyuria is a rare complaint but sometimes occurs in certain forms of obstructive uropathy—for example, in retroperitoneal fibrosis.

Acute retention

Complete inability to micturate occurs in acute retention. The age and sex of the patient, together with the clinical circumstances, usually make identification of the underlying cause quite easy. Outflow tract obstruction, as in prostatic hypertrophy, other forms of bladder neck obstruction, and urethral stricture, account for many cases. Other causes include the pain and trauma of surgery or childbirth, multiple sclerosis and other causes of neuropathic bladder, hysteria, pelvic masses, and occasionally lower urinary tract infection—for instance, acute prostatitis.

Incontinence of urine

Incontinence of urine has many causes including any neurological disease that interrupts either the reflex circuits between spinal cord and the bladder or the inhibitory pathway from higher central nervous centres to the lumbosacral cord segments. Stress incontinence occurs usually with prolapse uteri in either parous or non-parous women, and atrophy of the local tissues with age is probably an important factor. Incontinence may follow surgery on the bladder neck and occasionally complicates carcinoma of the prostate.

Enuresis

Enuresis, or bed-wetting, is usually not associated with organic

disease, and this term is reserved by some authorities for urinary incontinence without neurological or urinary disease. It is ascribed to an emotional disorder, but the mental background to this symptom is often obscure, and it is important to remember that nocturnal incontinence may also result from urinary infection, polyuria, anatomical abnormalities such as an ectopic ureteric opening, and neurological disorders such as spina bifida. Rarely, it is the presentation of nocturnal epilepsy.

Changes in urine appearance

Visible changes in the appearance of the urine are discussed more appropriately in the context of haematuria.¹ Other causes of red or brown urine include haemoglobinuria, myoglobinuria, acute intermittent porphyria, and beeturia. Frothy urine is sometimes noticed by observant patients who have heavy proteinuria. Milky urine suggests chyluria. When the urinary stream is interrupted by bubbles of gas pneumaturia is suggested; causes include vesicocolic fistula and some urinary infections in diabetic patients. The complaint of "offensive" urine suggests infection but sometimes is merely the result of a highly fastidious nature.

Loin pain

Loin pain can occasionally be one of the most difficult urinary tract symptoms to interpret. Its cause may be readily apparent as when it occurs in acute pyelonephritis, or in association with renal or ureteric calculi. Loin pain during micturition is experienced by some patients with vesicoureteric reflux. Chronic loin pain occurs in some patients with renal calculi, hydronephrosis, or dysplastic kidneys even without evidence of infection. Minor degrees of pelviureteric junction obstruction may fluctuate in severity and the pyelogram may be virtually normal, despite the patient's protestations of intermittent loin pain. In such conditions the patient may notice that the loin pain tends to occur after drinking, especially after alcoholic drinks. Isotope renography before and after drinking may detect intermittent and partial obstruction to the outflow of urine from the renal pelvis.

The above recognised causes are absent in a few patients who complain of recurrent loin pain, sometimes accompanied by haematuria. These patients are almost invariably young women, and they often undergo repeated investigation as the cause for their symptoms remains elusive, and formidable sagas of negative radiological and cystoscopic investigation have been described. Renal biopsy occasionally reveals a form of glomerulonephritis. Evidence of small blood vessel occlusion has also been described in women with this syndrome and has tentatively been linked with oral contraceptive treatment. A decision about the time to stop further investigation is an important point in the management of these patients.

Reference

- ¹ Boyd, P J R, *British Medical Journal*, 1977, **2**, 445.

ONE HUNDRED YEARS AGO Our Paris correspondent writes: M Littré, I am sorry to say, is no better, and you will learn with much concern that another eminent character is suffering from the same malady which confines the great lexicographer to his bed. I allude to M Thiers, whose anaemic condition is so marked as to cause great anxiety among his friends, as he is labouring under great prostration both mentally and physically. M Thiers is past 80; but the anaemia with which he and M Littré are affected is not attributable merely to their old age; it is the anaemia of *savants* or those given to much brain-work. (*British Medical Journal*, 1877.)