EMERGENCIES IN GENERAL PRACTICE

ACUTE RETENTION OF URINE

BY

ALEC W. BADENOCH, M.D., Ch.M., F.R.C.S.

Surgeon to St. Peter's Hospital; Assistant Surgeon to St. Bartholomew's Hospital; Visiting Urologist, Royal Masonic Hospital

A patient is said to have retention of urine when he or she is unable to empty the bladder. The term "acute retention" is applied to the case in which there is a sudden complete stoppage. The term "chronic retention" is used to describe the condition when a quantity of urine equal to or more than the average capacity of the bladder (300 ml. or 10 fl. oz.) is constantly retained after the act of voiding. The cause of retention of urine differs in the two sexes, and, especially in the male, also differs with the varying age periods.

Aetiology

In the Female

Acute retention in the female is rare and is usually associated with a gynaecological or obstetrical event which makes the retention but an incident—albeit an important incident from the patient's point of view—in the course of the main medical condition. It occurs in labour, especially when there is obstruction in the second stage, and may result from oedema of the vulva soon after birth. It can also occur when a uterus with a large fibroid suddenly becomes impacted in the pelvis.

In the Male

In Childhood.—In infancy great difficulty and indeed a complete stoppage can occur if a narrow external urinary meatus becomes ulcerated. A complete phimosis may produce retention, and, much more rarely than formerly, a small stone may become impacted in the urethra. Such an incident is usually quite obvious, as is also the cause of the obstruction.

In the Young Adult.—Acute retention is rare in young adults. It may occur with acute urethritis and especially if this is associated with prostatitis or a prostatic abscess. It may result from a stricture of the urethra or from a stone impacted in the urethra, especially behind a stricture.

In the Older Adult.—After the age of 50 acute retention is much more often due to enlargement of the prostate gland having produced an obstruction at the bladder neck, and this is by far the commonest cause of acute retention. Such an enlargement is usually benign but may be malignant. Acute retention may, of course, also result from a stricture of the urethra present for many years which suddenly becomes completely occluded. A stone which has formed higher up the urinary tract may become impacted at the internal urinary meatus, in the prostatic urethra, or behind a stricture, or a prostatic stone may ulcerate into the canal. A neoplasm of the bladder may cause obstruction by infiltrating the internal meatus, or a benign pedunculated growth can have a ball-valve effect.

History

As in most ailments, an accurate history may be of prime importance in arriving at the correct diagnosis. Inquiry must be made about the presence and, if so, duration of any urinary symptom prior to the stoppage. If there is a long history of difficulty then either a stricture of the urethra or a simple enlargement of the prostate will be the

most probable cause. Pain other than that due to the retention, together with the passage of a little blood in the urine, especially at the end, will suggest a stone. A previous history of frequency is in favour of an enlarged prostate unless there is also a urinary infection.

Haematuria may be due to a neoplasm, although bleeding does quite often occur in association with enlargement of the prostate. When the latter is the cause, the bleeding is often more marked at the beginning or end of micturition, or may occur from the urethra independently of the act. The exact mode of onset is often important, and the patient in the prostatic age group who has already had symptoms usually discloses some irregularity of habit, perhaps an indiscretion of diet or behaviour, or some other complementary factor. There may have been a sudden increase in fluid intake, and this is usually alcohol, but 2 pints (1.1 litres) of blood quickly given intravenously, or the administration of a diuretic in a patient with a decompensated heart, has not infrequently precipitated complete retention. It is probable that in such a case the bladder becomes filled too quickly for the patient to void before the organ becomes overfilled. An attempt to hold on to the urine after experiencing the desire to pass it is quite often a contributing factor, and the patient with the enlarged prostate is wise to take such precautions as will allow him to pass water as soon as he has the desire, while paying due heed to normal conventions of behaviour.

Confinement to bed for some entirely different complaint such as respiratory or cardiovascular disease or some injury, especially if this is to the head, may precipitate acute retention in a patient with an obstruction in the lower urinary tract. This is especially likely if too great an insistence is made on complete immobility. Many a man is quite able to start the act of micturition and more or less to empty the bladder, if allowed to do so standing up, but if kept lying flat he may be entirely unable to do either. A medical practitioner, therefore, must be careful in holding the balance in such a case, as the ill attendant on acute retention of urine may be a greater strain on a coronary thrombosis, or a failing heart, than is standing out of bed or the stress of being helped on to a commode.

Examination

In acute retention with complete stoppage the patient is obviously in pain. This is not constant, but, while there is usually a perpetual discomfort in the suprapubic region, at varying intervals (and often there is only a few minutes' remission) there is a quite severe and often agonizing pain there. This is, of course, an intense and unsatisfied desire to pass urine. By the time a doctor sees the patient the spasms of pain have usually been going on for some time and often for several hours, during all of which time the patient has failed to pass any significant quantity of urine. Occasionally a few drops are expressed at the height of the spasm, and if this should occur the small quantity of urine may be tinged with blood. The patient looks pale, tired, and apprehensive, and in some cases he is cold and clammy, with a poor pulse and a low blood pressure manifesting some degree of shock. The tongue is often a little dry and is frequently furred. On inspection of the abdomen there

is fullness of the lower half, and in all but the very obese a swelling can be felt—and sometimes seen. This swelling is acutely tender on palpation and dull to percussion.

Differential Diagnosis

Acute retention of urine with a complete stoppage is usually very obvious, and the diagnosis of the condition, if not the cause, should not remain in doubt. Occasionally, however, and this is especially so in the elderly, some overflow occurs and the condition must then be differentiated from chronic retention. In the chronic case there is no definite history of onset, whereas in the acute case with overflow the patient can usually give a fairly accurate date of its beginning. In chronic retention also, the bladder is far more distended. It can usually be seen, and, though much softer and not so tense, can always be felt. Quite frequently it is not symmetrical, but deviates to one side, usually towards the right. There is no tenderness on palpation, although firm pressure produces a desire to micturate, or may even cause some urine to dribble away. An acute infection of the bladder may give rise to some doubt in the diagnosis when the patient is obese, but with cystitis there is always burning on micturition and pain at the end of the act rather than at the beginning.

In a stout patient with a failing heart there may occasionally be some difficulty in reaching a definite diagnosis. If he is ambulant only a little urine is passed when he is up, but soon after lying down diuresis occurs. The marked nocturnal frequency may simulate overflow and this is especially so if ascites is also present.

The diagnosis may only be completely confirmed after a catheter has been passed and the bladder is found to be full, but before this is done it is most important to ascertain the cause of the retention. As has already been said, in female and younger male patients the history in conjunction with the examination fairly readily leads to the correct diagnosis. In the older male adult, however, this may not be so easily ascertainable. In the large majority of cases of acute retention occurring in men over the age of 50 the cause is mechanical and is due to a simple enlargement of the prostate. It is not always possible to be sure of the presence of an enlarged prostate when the bladder is acutely distended, but in the majority of such cases in which it is present the gland is felt pushed back into the rectum. In simple benign enlargement the surface is smooth, there is a well-marked midline groove, and the gland is elastic or soft in consistency. These findings, taken in conjunction with the history, allow a diagnosis to be made with reasonable confidence.

If the cause is due to a malignant change in the gland, on the other hand, the correct appreciation of this may depend considerably on the position of the malignant focus and on the extent of its spread. In the majority of such cases the diagnosis is easily determined by a digital rectal examination, since as a rule the posterior part of the gland is affected, is enlarged, irregular, and nodular, and the nodules have a hard consistency which is quite different from that of the common benign enlargement. In the fat patient—and so many urological cases seem to be in this category—it may not be possible to introduce a finger far enough along the rectum to appreciate the type of enlargement, and especially is this so if a malignant focus is high up in the gland. The nature of the obstructing gland will then become evident only at operation or even later, when the removed tissue has been subjected to histological examination.

When the retention is due to a stricture of the urethra the patient is usually in a rather younger age group. He gives a history of having had a poor stream for years without nocturnal frequency, and may well volunteer the information that he has had a stricture or a diminished stream ever since an attack of urethritis, which on questioning rarely has had adequate treatment. In such a case, on rectal examination, the bladder is felt to be pushed

downwards and backwards into the rectum, but the prostatic bed is flat, smooth, and firm.

A correct appreciation of the cause of the acute retention is naturally most important in considering the treatment, since it is quite different in each of the groups.

Retention from Simple Enlargement of the Prostate

Acute Retention with Complete Stoppage

There has been considerable discussion on the treatment of this complication during the last few years, and urological opinion is not unanimous. There are the two schools—one advises immediate operation and the other catheterization of the bladder. The advocates of the first view claim that the risk of infection is minimal, that the stay in hospital is shortened, and that the mortality rate is lowered. Many urologists, and I agree with them, do not accept these deductions, and are against immediate operation for acute complete retention. The patient is in pain and should be relieved of this pain in the simplest and most rational way, which is to empty the bladder. The decision whether this should or should not be done may not devolve on the general practitioner. In an urban area it may well be easier and safer to send the patient to the nearest hospital, and, if the patient's home surroundings or the doctor's facilities are inadequate to allow of safe catheterization, this will always be so. On the other hand, the patient may be unwilling to go to hospital or his transfer may take some time to effect, and any doctor who may be called upon to deal with such a case ought to have the few requisites to hand.

The passage of a catheter must always be performed with due regard to surgical asepsis; if this is observed, infection should not occur in a case of acute retention. The instrument should be boilable, and the most suitable is a Tiemann's rubber catheter. This has an up-going tip, with the advantage of the Coudé design, and will slip easily through the prostatic urethra. It is fairly firm and can be introduced without contaminating that part of the instrument which is to enter the bladder or most of the urethra. It should be of a suitable size—16 to 18 Charrière (9–10 English) gauge. Some form of local analgesia is desirable but not essential. An effective and handy preparation is lignocaine jelly, which is dispensed, sterile, in a tube together with a conical nozzle which can be boiled. 10 ml. of the jelly is introduced through the external urinary meatus and milked along the canal. It is an advantage to have a penile clamp which will prevent any of the material escaping. Five minutes is sufficient to produce analgesia.

The glans penis and external meatus are cleaned with a suitable antiseptic—for example, "dettol" or 1 in 4,000 oxycyanide of mercury—or detergent (for example, cetrimide). The hands are again washed. The catheter is held near the distal end, and the tip, well lubricated (a water-soluble lubricant—kept sterile in a tube—is satisfactory), is introduced through the external urinary meatus and passed along the canal. Some resistance may be encountered low down in the bulb, but with gentle pressure and perhaps a little rotation of the catheter this is overcome. As the tip slips into the bladder, urine rushes out. The patient very soon experiences relief. The bladder is emptied and the catheter is withdrawn. He should now be encouraged to drink bland fluids. As he is usually quite thirsty, he is not averse to this. He should be asked to try to pass water in two hours, or earlier if he feels the desire.

In a considerable proportion of cases, normal micturition is re-established, but more than one catheterization may be necessary before this occurs. Due warning must be taken of this acute retention, however, and arrangements should be made for the removal of the prostate gland at an early date. If the patient does not re-establish normal micturition, admission to hospital must be arranged immediately and prostatectomy will be undertaken as soon as is convenient.

Acute Retention with Overflow

As has been said above, a few hours after a complete stoppage a certain proportion of patients begin to pass small quantities of urine. This to a great extent relieves the patient's distension, and, whilst he may be a little uncomfortable, he does not experience the severe pain of complete retention. Such a case should always be treated in hospital and requires urgent admission. He should never be catheterized outside an institution, as it is highly improbable that he will re-establish normal micturition.

Chronic Retention

Chronic retention is rarely an emergency and should never be treated outside a hospital. A catheter should never be passed in such a case; any instrumentation outside hospital is meddlesome. If renal function is adequate, as can be gauged by the clinical condition of the patient—especially if he has a clean tongue and a clear concentrated urine—he can safely be sent to hospital as an out-patient for investigation and later treatment by operation of election. If, on the other hand, there is evidence of renal insufficiency, as shown by a furred tongue, constipation, lack of concentration, and polyuria with urine of low specific gravity, he is a medical emergency and the retention will require careful handling, probably by drainage and correction of the electrolytic imbalance. He therefore requires admission to hospital as an emergency.

Acute Retention from Carcinoma of the Prostate

The diagnosis of carcinoma of the prostate in the presence of acute retention is not always easy and indeed may not be made until after the gland has been removed. It may well be that even if the general practitioner is fairly sure of his diagnosis he will require a second opinion before starting the patient on a permanent oestrogen regime, and it is probable that he will send the patient to hospital. After diagnosis the condition should be treated by catheterization and the administration of stilboestrol, 15 mg. being given eight-hourly. About 10% of cases do not respond to hormone therapy and will require surgical intervention of some sort, usually endoscopic resection.

Acute Retention from Stricture of the Urethra

If this diagnosis is made it is wise to send the patient to a hospital with an adequate urological department. The calibre of a stricture in a case with acute retention is necessarily small and will probably require a filiform instrument to negotiate the canal. Such instruments are rarely found in a general practitioner's armamentarium, and indeed are not available in many general hospitals. The methods of treatment which may be employed at hospital will depend on the facilities. The condition can be relieved by passing a filiform guide of Phillip's pattern, screwing on a catheter, and emptying the bladder by this means. If this instrument is not available a filiform bougie may be passed and should be tied in. The patient can then drip urine alongside the bougie, which will dilate the opening of the stricture and permit the subsequent passage of a larger instrument. If it is not possible to pass an instrument an external urethrostomy or suprapubic cystostomy will be necessary.

Next article on Emergencies in General Practice.—"Acute Anxiety and Hysteria," by Dr. Gerald Garmany.

Refresher Course Book.—Copies of the second volume of collected articles from the Refresher Course for General Practitioners are still available at 25s. (postage 1s.) each. The first volume is now sold out.

Clinical Pathology Book.—"Clinical Pathology in General Practice," a collection of 39 articles on clinical pathology that appeared in the *Journal* as part of the Refresher Course for General Practitioners, is now available, price 21s. (postage 9d.).

Both these volumes are obtainable from the Publishing Manager, B.M.A. House, Tavistock Square, London, W.C.1, or through any bookseller.

**THE CHILDREN'S HOSPITAL OF
PHILADELPHIA**

[FROM A SPECIAL CORRESPONDENT]

As briefly noted in our issue of June 11 (p. 1436), the Children's Hospital of Philadelphia, the first hospital for children in the United States, has been celebrating its centenary. The celebrations took the form of a convocation at which distinguished members of its staff, past and present, together with visitors from other parts of the country and from overseas, read scientific papers. Delegates from the Hospital for Sick Children, Great Ormond Street, had been invited to assist at the ceremonies of their young sister, and brought with them as a gift a block and gavel made from the wood of the plane tree that used to grow in Dr. Mead's garden in Great Ormond Street. At a banquet, which was the highlight of the social events, Dr. BERNARD SCHLESINGER spoke of the Great Ormond Street-Uganda scheme, and Professor ALAN MONCRIEFF sketched the historical background of the development of paediatrics in Britain from Armstrong in the eighteenth century to Charles West in the nineteenth, with the opening of the hospital in Great Ormond Street in February, 1852. Mr. CLAUD RAINS gave a moving reading of passages from the famous appeal by Charles Dickens for funds for Great Ormond Street.

The hospital in Philadelphia owes its origin to the visit to Britain of Dr. Francis West Lewis. He was appalled by the deaths of children in hospitals for adults, and at Great Ormond Street he recognized the answer to his problems. On November 23, 1855—the day after Thanksgiving—Lewis, then a young man of 30, saw the opening of a twelve-bedded hospital in the southern part of the city. To-day, with 160 beds and after two moves, the Children's Hospital of Philadelphia is a world-famous institution under the skilful guidance of Dr. Joseph Stokes, Jr.

An analysis of drug addiction in France is made by Charles Vaille, President of the U.N. Commission on Narcotic Drugs, and G. Stern, Chief of the French Bureau of Narcotics, in the U.N. *Bulletin on Narcotics*, Vol. 6, No. 2. Because Paris addicts account for 57% of the French total and have an illegal market, the authors give detailed figures for the Department of the Seine 1945–52. They studied 768 addicts, excluding the North African and Chinese element, and found a reassuring absence of juvenile cases: the peak years for women were 35–39, for men 45–49. Of the 412 women studied, 40% were of therapeutic origin, 33% were recidivists, and 12% engaged in the traffic. Of the 356 men studied, the figures were 34%, 15%, and 27% respectively. In both sexes the incidence was highest among those who worked in medical and artistic circles. 253 of the women and 100 of the men did not work; 25% of the women were divorced. Heroin, with morphine, accounted for two-thirds of the cases, and while cocaine consumption had dropped to 3%, dihydro-oxycodone, recently introduced but proving dangerous, accounted for 11.5%. Injection was found to be the prevalent method of absorption used in 84% of the cases, but during the last three years suppositories have been used. The authors stress the responsibilities of the medical profession: "Disagreeable as the admission may be, it must be recognized that the real origin of many cases of drug addiction is the incompetence of the attending doctor." Of the 768 Paris addicts, 275 were supplied by medical prescription, yet 52 only were sick, and a mere 10 justified the prescribing of drugs. The authors emphasize the role of the pharmacist in the struggle against addiction, for he can inform the inspector of any suspicious prescription for narcotics, or when a client is having such prescriptions from several doctors. They also state their belief that "previous mental disease is not an invariable feature of drug addiction."