

CHAPTER XVII

SYMPTOMS AND DIAGNOSIS OF PROSTATIC HYPERTROPHY

SYMPTOMS

THE cardinal symptoms of prostatic hypertrophy are *frequency of urination*, chiefly by night, *difficulty in urination*, and *dribbling* from overflow, irritation, or incontinence.

Frequency of Urination (*Pollakiuria*).—Nocturnal frequency of urination is almost pathognomonic of hypertrophy of the prostate. That the urine is passed too often is due to the congestion of bladder and prostate, which, as a rule, makes them sensitive to a less distention than when in their normal state. We shall see later that increase in local irritability plays the chief part in causing this pollakiuria.

Nocturnal polyuria is, in my opinion, in no way related to the question of residuum. The nocturnal polyuria, which these cases also often manifest, is more an evidence of failing vital force than of dilatation or congestion of the kidney. Indeed, congestion of the kidney is more likely to produce diminution than increase of urinary flow. Surely there is no evidence that hysteria produces kidney congestion, or that anxiety induces it—both of which agencies occasion intense polyuria. If the patient is nervous he may, perhaps, urinate as often by day as by night, but, as a rule, this is not the case. The nocturnal frequency still predominates.

The polyuria—*increase in quantity*—seems to be uniformly distributed throughout the night; not so the pollakiuria, of which a distinct feature is its tendency to increase towards morning. The urinary intervals shorten as the night wanes, so that, while the early hours of the night may be passed in comparative comfort, the morning hours are constantly disturbed.

Difficulty in Urination (*Dysuria*).—When there is prostatic obstruction the act of urination is always a tedious, a difficult, and even a painful process. This prostatic dysuria has four striking features:

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1. The stream is very slow to start. Sometimes the sufferer struggles several minutes before his water will come.

2. The flow lacks force and body. There is no gush of water. It comes in a thin stream, the jet is not great, perhaps it only dribbles forth drop by drop.

3. The greater the strain the less the result. It is curious to note how often patients themselves remark that the more anxious they are to hurry the less they succeed. Their predicament is almost that of the young neurotic subject, to whom any hurry in urinating is an absolute preventive.

4. At the end of the act there is no sharp piston-stroke finish. The urine dribbles away by irregular jets and drops, and the act might be said rather to fade away than to terminate.

The amount of *pain* on urination and general uneasiness in the intervals depends upon the amount of congestion and inflammation.

Dribbling.—Of all the symptoms of prostatic hypertrophy, a constant dribbling is the source of greatest discomfort. Many other symptoms disturb the patient more acutely, but none is more constantly annoying. This dribbling may be due to three widely differing causes:

1. **Overflow**.—When there is complete retention the bladder fills until it can hold no more. Then, instead of bursting, it overflows. The mere elasticity of the bladder wall finally overcomes the obstruction, and urine drips away from the meatus at about the same rate at which it arrives in the bladder. The bladder remains full. There is no true incontinence. There is simply a continuous overflow.

2. **Irritability**.—In many cases, with but little residual urine, there is constant dribbling, not from overflow, nor yet from true incontinence, but due to unusual irritability of the neck of the bladder, whereby every few moments a drop or two of urine is expelled. This condition is rather an abnormal frequency of urination than an incontinence, since the urine does not drip away in spite of every muscular effort to control it, but is constantly expelled by a muscular spasm.

3. **True Incontinence**.—This is rare. Occasionally a patient is encountered whose persistent dribbling of urine suggests overflow. But his urethra readily admits a catheter and his bladder is found to be empty. This is true incontinence. It seems due to a distortion of the urethral orifice in such fashion that the sphincter cannot close, so that the urine is allowed to flow from the bladder as fast as it enters. In such a case the prostatic hypertrophy is confined to

the lateral or to the anterior lobes. There is no bar, middle lobe, or contracture of the neck of the bladder.

COURSE OF THE DISEASE

The patient may date the beginning of his troubles from an acute retention, from a tendency to dribble between the urinary acts, or, less frequently, from a hematuria. He may have simply noticed an increasing frequency and difficulty in urination; but close questioning will usually show that the malady has passed through three stages: 1. The stage of congestion without retention. 2. The stage of partial retention. 3. The stage of retention with overflow. The second and third stages may be introduced or interrupted by attacks of acute complete retention.

1. **Congestion.**—During a period of many months, perhaps years, ever since there began to be a little hyperemia around its neck, the bladder has been gradually becoming irritable. The patient does not readily notice this, and will never be able to fix a precise date for the commencement of his troubles. An old man does not sleep soundly nor pay the strictest attention to the performance of his habitual functions, and he so gradually acquires the habit of getting up a little earlier than usual in the morning to empty his bladder that he pays no attention to it. Soon he finds that he wakes up once at night, perhaps twice, with a feeling of fulness in his bladder. He passes water, and goes to sleep again. He is also troubled in the daytime a little more frequently than usual, but he looks upon this as a condition natural to advancing life. He has learned that the little ills of the flesh, if let alone, usually regulate themselves. He has passed water without trouble for fifty or sixty years, and he thinks that he ought still to be able to manage it without applying to the surgeon. He shrinks from acknowledging a weakness, which he must admit to be, if nothing more, a symptom of advancing age, and so he goes on lulled to security, making water at intervals which gradually, but steadily, become shorter, and constantly annoyed by a faint, obscure sense of weight and heaviness about the lower part of his belly, with, perhaps, a fulness in the rectum, and a dull pain behind the pubes. During this first period of the disease attacks of neuralgia of the neck of the bladder (p. 314) and surface prostatitis (p. 85) may occur from insignificant causes, and a sexual irritability almost amounting to priapism may prove very annoying.

2. **Partial Retention.**—The passage from the first to the second stage of the disease, unless marked by an acute retention, is quite insensible; but ultimately the time arrives when the *bas fond* is

formed and the bladder is no longer quite able to empty itself; only an excess above a certain residuum can be passed off, but the patient does not know it. He only notices that his urinary intervals are getting shorter and shorter; that he has to wait a little before the urine begins to flow; that the stream is small, and is not projected away from him with any force, and that, perhaps, a part of the urine dribbles down perpendicularly from the meatus, while the rest flows as a continuous stream. He cannot make the *coup de piston*, the final spasmodic clearing of the urethra, and finds that a few drops dribble away upon his clothes after each urinary act. He does not experience quite so much ease and relief as usual after micturition; but this has come on so gradually that he disregards it. He may notice the return of morning erections, which had long since ceased to trouble him.

At this juncture he dines out, and drinks a glass or two of wine, or he neglects a call to urinate, or gets a wetting, or his feet and legs get chilled (this is the commonest cause of trouble), and suddenly he finds that he cannot pass water at all. After vainly trying at intervals for a number of hours, if he does not seek surgical relief, at last the urine will begin to dribble away from him. The bladder has been distended to its utmost, the mouth of the urethra has been dragged slightly open, and the excess of urine trickles away involuntarily. This is overflow and not incontinence. Meantime the patient has been suffering the torments known only to those who have had retention, and he hails the overflow with delight, believing that his sufferings are about to cease. The hope is vain. The congestion of the bladder neck, brought on by the use of liquor, or by the chilling, and which, added to the already large prostate, has swollen it sufficiently to shut up the urethra entirely, may subside spontaneously, or be relieved by the catheter, leaving the patient little worse off than before, or it may continue, thus leading to the third stage of the disease.

During this stage of incomplete retention pressure begins to be exerted upon the kidneys; polyuria, especially by night, may ensue—nocturnal pollakiuria is certain.

3. **Complete Retention.**—Now the bladder is literally full all the time. During the day the patient may be able to prevent a continuous overflow by urinating a few drops every ten or fifteen minutes; but the bladder is now quite atonied, and, at night, at least, is quite unable to cope with the inflow of urine, which therefore dribbles away, disturbing the patient's rest and adding shame to his other sufferings.

By this time the ureters and their pelves have begun to dilate

and the kidneys to atrophy. The polyuria becomes considerable. Two, 3, or 4 quarts of urine are passed, chiefly at night, of a specific gravity of from 1.005 to 1.010, containing casts and albumin, and a very low percentage of urea and salts. There is a general urinary toxemia. The tongue is dry, glazed, and red at the edges, brown or gray in the centre. The appetite is poor, the bowels constipated and full of gas. The patient loses flesh and becomes feeble and worn.

Variations in the Course of the Disease.—While the above description applies to many cases, the progress from one stage to the next may not be so systematic. Appropriate treatment may carry the patient back from the stage of partial retention to that of mere congestion, or from complete back to partial retention; or an isolated acute retention may be relieved and be followed by a long interval, even an interval of several years, during which the patient suffers not at all, and there is no retention whatever; or there may be true incontinence (see above).

The *inflammatory complications* are, however, the chief agencies in modifying the course of the disease. These complications occur sooner or later in almost every case, and once the inflammation has set in it is almost impossible to get rid of it. *The inflammation is usually due to catheterism.* Spontaneous infection does occur (p. 357), but, as a rule, the complication is due to the surgeon's misfortune or fault.

Inflammation of the Prostate.—*Catarrhal prostatitis* is always present in every case of cystitis, and indeed the posterior urethra and the neck of the bladder are the places from which it is least possible to dislodge the inflammation. *Abscess and periprostatitis* (pp. 88, 90) are relatively uncommon. *Seminal vesiculitis* is common and usually unimportant.

Epididymitis.—Epididymitis may occur in acute attacks, spontaneous or following instrumentation, or it may appear as a sluggish, chronic induration at one end of the epididymis, with occasional subacute or acute attacks of recurrent inflammation.

Cystitis.—Inflammation of the bladder is the most common and important complication of prostatic hypertrophy. The cystitis is usually due to catheterism, less frequently it is spontaneous (p. 383). When due to the catheter, it usually begins acutely, often with a chill, while spontaneous cystitis is commonly chronic from the outset. Although the type of the inflammation may be severe throughout, the cystitis of prostatics is often of a mild and superficial type for many months, not causing any great pain or frequency of urination, or, at any rate, easily controlled by local treatment. The urine is usually alkaline, or, even if faintly acid, it has an am-

moniacal odour, and often a fetid, sickening smell, which occasionally disappears. When the urine is acid, and yet ammoniacal, it is so because it comes down strongly acid from the kidneys, and its acidity has not been neutralized by mingling with the ammoniacal residuum. Whatever urine has been alkalinized, deposits crystalline and amorphous phosphates, so that, even in those cases where the urine is still acid, it is murky, cloudy, filled with little strings and clots and clouds of pus, and with gouty of ropy muco-pus (pus agglutinated and made translucent by ammonia). A few blood-corpuscles will nearly always be found, and more or less amorphous urates or phosphates (perhaps both), with crystals of triple phosphate entrapped in the stringy mucus. This is the so-called catarrh of the bladder.

On the other hand, the cystitis may be intense and uncontrollable, with interstitial cystitis, pericystitis, etc. (For further description, see Cystitis.)

Pyelo-nephritis.—No prostatic can have cystitis for any length of time without extension of the inflammation up the ureters to the kidneys. The urinary stasis permits the bacteria to work up against the current, and the kidneys—already partly disabled—fall an easy prey to the bacterial invasion. The pyelo-nephritis often remains for years a mild catarrhal inflammation, recognisable only by a careful urinary examination; but, mild as it is, this inflammation is an aid to the urinary pressure in its work of debilitating the kidneys and slowly leading to the patient's death. (See Pyelo-nephritis.)

Stone.—Phosphatic stone is the natural result of a protracted ammoniacal cystitis.

One stone, or several, may exist under these circumstances without giving rise to any symptom. They are usually smooth, and do not greatly irritate the floor of the bladder, nor add much to the already existing pain. The fibres of the weakened detrusor cannot, during micturition, force a stone thus formed against the sensitive tissues at the neck of the bladder and produce the striking symptoms which characterize vesical calculus when found in a healthy subject (p. 435).

DIAGNOSIS

When a patient of over fifty comes to seek relief for frequent micturition, suspicion falls at once upon the prostate. It is rare that stricture causes trouble for the first time so late in life; moreover, with enlarged prostate, the inconvenience will, as a rule, have been first noticed at night—the reverse of what is observed in stricture. As the first step in the examination, a digital exploration should be made through the rectum (p. 242). By this means alone general

prostatic hypertrophy can always be demonstrated. In place of the soft, chestnut-like body, hardly recognisable except by the skilled touch, the finger will encounter a rounded, dense mass, smooth and symmetrical, or variously distorted and nodulated. The median fissure between the lobes may be more than usually perceptible, or may be wholly obliterated; while the finger passed up on each side, between the prostate and the walls of the pelvis, recognises a deepening of the sulcus, and any undue prominence in size of one or the other lobe. By forcing the finger well up the rectum, it may be possible to hook the last phalanx above the posterior margin of the enlarged prostate, where the seminal vesicles can sometimes be made out on each side, partly embedded in the general hypertrophy.

Perhaps rectal examination may reveal no positive evidences of enlargement, median hypertrophy existing none the less. In such a case the finger readily detects the bladder, if it be distended, beyond the prostate; the latter apparently not at all or but little larger than normal. Pressure through the rectum upon an enlarged prostate does not cause pain, unless there be some inflammation about the neck of the bladder, but it often provokes a desire to urinate.

The next step in the examination is to make out the condition of the bladder by palpating and percussing the hypogastrium. Usually this gives no hint of the condition of the prostate, unless it is exceedingly large, when pressure upon it through the rectum may be recognised by the hand upon the hypogastrium. This same resistance may be felt in severe cases of concentric hypertrophy of the bladder with excessive hypertrophy of the walls and contraction of the cavity. As a rule, hypogastric palpation only excites a desire to urinate from transmission of the force to the sensitive neck of the bladder. Sometimes, however, an oval tumour is found, as large as a child's head, filling up the lower part of the belly, perhaps as high as the umbilicus, flat on percussion, and causing a desire to urinate when pressure is made upon it. This tumour, formed by the overdistended bladder, may often be plainly seen, but the patient is usually unconscious of its existence. If the finger in the rectum can reach beyond the posterior border of the prostate, fluctuation can be felt between it and the other hand pressed upon the hypogastrium.

The patient is now asked to stand up and to pass water into a glass vessel. A little gleet discharge may often be found at the meatus, originating from the congested surface of the prostatic urethra. Occasionally, if questioned, the patient will confess that he is troubled with frequent erections, the cause of which lies in this same congestion. Sometimes, on the other hand, erections are absent.

As the urine is flowing off, it will be noticed that it commences tardily, and in a small stream, which gradually enlarges. There is very little force to the flow. There may be two streams, the one projected, the other dribbling perpendicularly from the meatus, indicating an obstacle to the escape of urine at the outlet of the bladder. If there is retention, the urine will not flow at all, or comes away only by drops. While the stream is flowing, if the patient be requested to strain, instead of becoming larger or flowing with greater force, it may be diminished in size and power. If the bladder be inflamed, there may be severe tenesmus and pain during the attempt to urinate, and the rectum may protrude or feces be passed during the act. Hernia may be occasioned by the violent straining. At the end of urination the stream gradually dribbles away in drops, and often the final jet is wanting, although this may be perfect or even exaggerated.

If the urine which has been voided be now held up to the light, it will be found cloudy, perhaps bloody, often ammoniacal, and containing white flocculi of pus, or perhaps stringy muco-pus, or again, it may be perfectly clear. The condition of the urine indicates the amount of cystitis present, while its quantity (in residuum) and the force of its flow, after the catheter has been introduced, measure the degree of atony. Yet there may be considerable irritability, with little or no cystitis, and in such cases the urine is nearly or quite clear, generally strongly acid, and of high specific gravity.

When the patient has voided all the water he can, he is again placed upon his back, and a soft-rubber catheter (18 French), previously sterilized, is gently introduced into the bladder. If it will not enter, a woven catheter, of the elbowed (Fig. 76) or double-elbowed pattern (Fig. 77), is sterilized and introduced. No force should be employed in introducing these instruments. Dexterity and patience will succeed where brute force will only light up inflammation or open a false passage. The elbowed catheter is especially designed to ride over the prostatic obstacle, and can almost always be introduced, if properly and patiently manipulated, and aided by a finger on the perineum or in the rectum, unless there is a stricture of the urethra, which arrests the catheter before it reaches the prostate, or unless the hypertrophied organ has been damaged by previous rough attempts at catheterization.

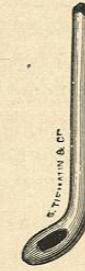


FIG. 76.
ELBOWED
CATHETER.

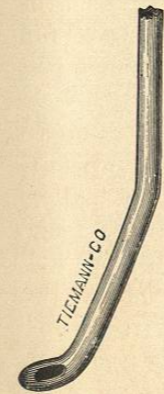


FIG. 77.—DOUBLE-
ELBOWED CATHETER.

When the elbowed catheter fails to pass, the olivary woven instrument (Fig. 43) may succeed; but, as a rule, it, too, will fail. In this event, two courses are open to the surgeon: he may send the patient home, with directions to employ such measures as may tend to diminish the prostatic congestion, or he may persist in his manipulations. In examining a patient for the first time it should never be lost sight of that he is an old man whose urinary passages are in a more or less irritable condition, and probably unused to local disturbance. Any examination at all rough or too prolonged is pretty sure to be followed by some aggravation of the symptoms, and, unless the condition be urgent (retention), it is often advisable to make only a partial exploration at the first sitting, leaving the rest for another day. If made worse by his first examination, the old man becomes far less docile for future management. If, however, there is retention with or without overflow, it becomes the surgeon's duty to make judicious use of all available means to enter the bladder with a catheter. But such persistence is justifiable only for the purpose of relieving the patient's retention, not for diagnosis. (See Treatment.) A large silver instrument with a very long curve will sometimes find its way when nothing else will enter.

When the catheter reaches the bladder the urine will jet from it. The *atony* of the bladder may be estimated by the force of the stream. If atony is complete, and the patient recumbent, no urine may issue from the catheter, even though the bladder be quite full. Pressure on the hypogastrium, or catheterization in the erect position, will start a sluggish stream. *The amount of residual urine* measures, in a general way, the depth of the *bas fond*, though a strong bladder will almost empty a fairly deep *bas fond*, while an atonied organ can only spill off the upper layers of fluid. Finally, a third point is estimated by the catheter—viz., the urethral length (urinary distance). The catheter having been introduced until water is drawn, is immediately withdrawn until the flow stops, then introduced until it comes again and the eye thus placed accurately at the orifice of the bladder. The catheter is then grasped at the point where it issues from the meatus, and the distance from this point to the eye of the instrument measures the length of the urethra. This measurement is simplified by having the catheter marked in centimetres with nitrate of silver beforehand.

In thus emptying the patient's bladder two rules must ever be borne in mind:

1. *Close the operation by a mild antiseptic irrigation*, with hot boric-acid solution if the bladder is clean; with nitrate of silver, 1:8,000, if it is infected.

2. *If the bladder contains a pint or more of fluid the patient must lie down while his urine is being drawn, and the bladder must be immediately refilled to one half its former capacity with boric-acid solution.* Neglect of this precaution has caused syncope and instant death. A more common result from the sudden relief of pressure is an acute congestion, which may terminate in profuse hemorrhage (*hematuria ex vacuo*) or in cystitis.

After the first passage of the catheter the patient should remain warm and quiet, but not necessarily in bed, for some hours—preferably for an entire day. After a few days the process may be repeated, and presently the bladder may be entirely emptied and left empty.

Further discussion of this subject, notably of the dangers of urinary fever and cystitis after catheterization, is deferred to the chapter on Treatment.

Diagnosis of the Shape and Size of the Prostate.—The size of the lateral lobes having been estimated by *rectal touch* and the intravesical projection by the *urinary distance*, no more accurate diagnosis need be attempted until the surgeon has familiarized himself with the temper of the patient's organs and put him in the best possible condition to undergo a more thorough investigation. The best implement for this purpose is the Thompson *stone-searcher* (Fig. 105). With it all irregularities in the urethra, the presence of bar or of middle lobe, and the existence of *stone* may be at once determined. But its use involves some damage to the neck of the bladder, for which reason it is rarely to be employed, unless there is distinct evidence pointing to the presence of stone.

The bladder should contain about 100 c. c. of urine or boric-acid solution. The instrument is sterilized, lubricated, and introduced gently into the urethra. It will sink into the canal by its own weight, guided only by a light touch of the finger, which is thus able to appreciate the obstacles to its progress. At the bulb some difficulty may be experienced in entering the membranous urethra; but a little patience will overcome this obstacle. The instrument now slips easily into the prostatic urethra, where its beak may be thrown to one side or the other by some projecting lobe. But it has not yet reached the bladder. It may be turned a little from side to side, but until it has definitely met and overcome the obstruction at the neck of the bladder it is not within that organ. The instrument, which up to this point has entered by its own weight, now meets a very definite obstacle. To overcome this the handle must be still further depressed. Perhaps all that is required is a firm crowding down of the suprapubic fat and a light touch upon the handle of the searcher; per-