LESSON LXVI.

Clinical case illustrating the influence of spasmodic stricture in producing symptoms of enlargement of the prostate gland—Treatment addressed to the spasmodic cause successful in permanently curing the difficulty—Clinical case illustrating the influence of a contracted meatus urinarius in producing persistent spasm of the bladder and urethra—Simulating stone in the bladder and disease of the kidney—Eminent authorities at fault for more than twenty years—Final relief of spasm through division of the anterior contraction—Post-mortem appearances—Proving conclusively that the difficulty was due solely to the influence of a contracted meatus urinarius—Persistently recurring spasm of the bladder during a period of over twenty years, resulting in thickening of its walls, dilatation of the ureters, and hydronephrosis—Death from uræmia—Cause, a contracted meatus urinarius.

CASE III.—Mr. W——, sixty-four years of age, came under my observation December 25, 1876, with the following letter from his family physician: "Mr. W—— is suffering from enlarged prostate gland and the symptoms which usually accompany that condition of things, and his trouble has been coming on for some time past—difficulty in passing urine, pain, and straining, requiring use of catheter. Treatment has been: use of catheter, warm hip-baths, suppositories of opium and belladonna, laxatives, infus. buchu, mur. tr. iron, as the symptoms from time to time idicated, with regulation of diet, etc." From the patient I gleaned the following: Never had gonorrhœa. First trouble of urinary apparatus was an attack of dysuria March, 1875, without any apparent cause, except, perhaps, drinking largely of carbonic acid water; lasted nearly a day, and passed off without treatment. Second, four months after, similar to first; quite well in the interval. Again free for a month, when urinations became gradually more frequent during day, and obliged him to rise four or five times during the night; walking gave him relief. Finally had a retention of urine, lasting, with much suffering, for twelve hours. Introduction of catheter resisted. Dr. Stephen Smith (visiting physician to Bellevue and

St. Vincent's Hospitals), who was called in consultation, passed a catheter and drew off the urine. From this time, catheter used three times in twenty-four hours. No urine passed voluntarily; great urgency and frequent agonizing pain before passing catheter; great straining, involving diaphragm and abdominal muscles. This condition continued up to the date mentioned, December 25, 1876.

Examination of prostate by me shows but *slight, if any enlargement*. Ordinary catheter passes in without force. Urine drawn is thick with pus and mucus.

Examination of penis: Circumference, $3\frac{3}{4}$ inches; meatus, 32; size of urethra, 36 mm. from meatus to bulbo-membranous junction, as shown by urethrometer. Quiet and infus. triticum repens prescribed. January 2, careful examination made for stone; none found. Bladder irrigated with solution of borax twice a day. Examination of several specimens of urine showed nothing but catarrhal elements. No abnormal condition could be detected about the neck of bladder, and yet the patient could pass no urine voluntarily, and as soon as he made the effort, tenesmus of the vesical neck came on, which gave great distress.

Passing urine every two hours through catheter, which he had been taught to introduce. Having seen cases of somewhat similar character, and unable to find any cause for the trouble, except a spasmodic one, *I introduced with great care, bearing in mind the importance of such a procedure in a man of his age, and suffering with disease of the bladder*, a No. 32 solid steel sound, without force, through the entire urethra. I then followed it quickly with No. 34, in order to over-distend the membranous urethra, which I believed to be the seat of the trouble. A few minutes after, Mr. W—— was seized with his accustomed desire to urinate, rushed into an adjoining closet and introduced his catheter as usual. Returning somewhat hurriedly to resume conversation thus suddenly broken off, in two or three minutes he again felt desire to urinate, and believing that his bladder had been emptied, simply took up the chamber, without any idea of urinating, when, to his infinite

astonishment and delight, he passed with perfect ease over a gill of urine. This was the first passed voluntarily since first relieved of his retention by Dr. Stephen Smith. From this time Mr. W—— passed his urine *without the aid of a catheter*, on an average of every two hours for the next four days, introducing the catheter only night and morning for the purposes of irrigation. Great and rapid improvement in health and entire freedom from straining and tenesmus.

January 4th.—To carry out the treatment by *over-distention*, more fully, I incised the meatus to 36 mm., the pre-ascertained normal calibre of the urethra, passed a No. 36 solid steel sound with complete ease through the entire urethra and well into the bladder.

From that time the recovery from cystitis was rapid, and urine was passed voluntarily and in full stream up to October 18th (over nine months), when the patient called to say that he had remained quite well up to two weeks previously, not having in the interval to rise during the entire night to urinate; but that, since then, having taken cold by sitting on a cold stone, his urine had presented some sediment, and his urination was with increased frequency. The only treatment (aside from infus. triticum repens), was by introduction of a No. 33 solid sound.

October 19th.—Mr. W—— called to say that the irritation at neck of bladder, and referred to end of penis, disappeared at once on introduction of the sound the day previous. Intervals of urination increased to between three and four hours, rising only once during the night. Recovery from the vesical catarrh, which was but slight, was complete within the week, and Mr. W., who is still under under my observation in a general way, has been entirely well of his urinary trouble from that date to the present, over six years.

In this case, in the absence of any prostatic enlargement or discovery of any polypoid growth, the evidences of hidden stone were most marked until the passage of full-sized sound, which promptly demonstrated the reflex nature of the difficulty.

CASE IV.—Mr. Z——, fifty-seven years of age, had suffered from frequent, difficult, and more or less painful urination for over twenty years. His earliest trouble with the genito-urinary apparatus was an acute urethritis, which soon merging into a chronic form lasted for some years, during which he was treated for urethral stricture by several surgeons. Subsequently he came under the care of a distinguished physician of New York City. At this time he was suffering from frequent micturition and other troubles of the genito-urinary apparatus, which suggested possible presence of stone in the bladder, a search for which proving unsuccessful, the patient was referred to an eminent surgeon (this was in 1860), who also failed to find any calculus, and treated him for some time by local and general measures for his cystitis, with varying success. The frequent and painful urination continued, however, and he came under the of care various surgeons, and physicians, regular and irregular. He was at one time under the care of Sir Henry Thompson of London, who also examined him for stone in the bladder, but found none. M. Civiale, of Paris, also made a most exhaustive examination with the same negative result. The patient, in relating his experience with M. Civiale said: "I was unfortunate enough to arrive in Paris just after an important personage who had suffered from symptoms of stone, and had been examined by many surgeons without detecting any stone, had been referred to M. Civiale. After a long and careful search Civiale found and removed a very small, rough calculus. With this success fresh in his mind, he examined my bladder with such thoroughness that I was confined to my bed for six weeks after —but he found no stone." His frequent and painful urination continued unrelieved, and his urine, at times bloody and always with more or less pus, was passed every hour, or oftener, for several years. Treatment in great variety had been used under the advice of eminent surgeons and medical men of every school. Patent medicines, medicinal waters, and spiritualistic agencies had all been tried without avail. Everything, he said,

that had ever been attempted for his relief, instrumental, local, or medicinal, had signally failed, and for the few years past he had been under the general care of Dr. M——. His sufferings increased to such an extent, that surgical aid seemed imperatively called for. He was referred to a surgeon eminent in genito-urinary matters, who also failing to find any stone to account for the cystitis, treated it by repeated washings and the occasional passage of a No. 26 sound into the bladder; which latter procedure, the patient stated, was the only thing that had ever been done for him that appeared to do him any good.

After a time his sufferings increased and became complicated with malarious symptoms. He was then greatly debilitated, and in almost constant suffering with his urinary difficulty, when I was called to see him. His general appearance was that of a man suffering from malignant disease. His urination, which occurred regularly at intervals of about fifteen minutes, was one continued agonizing spasm for about two minutes at each act. The spasm, he said, was less frequent and less severe at night. He complained also of severe pain in the region of the left kidney. This, he said, he had had from time to time for a long period, and surgeons had universally attributed it to the presence of a stone in the kidney. Frequent examinations of his urine had failed to detect any organic disease of the kidney. A large quantity of epithelium from the bladder had, at one time, suggested the possibility of epithelioma of the bladder; cancer had also been suggested. The pains during micturition were always referred to the region of the neck of the bladder, pubis, and perineum. He had never had any pain in the glans penis, nor was his trouble aggravated by motion, or in a carriage. He suffered only during urination. He had long worn a urinal. Diet, chiefly of milk. On December 30, 1881, I was called in consultation by Dr. Lewis Fisher, the family physician, and obtained the following particulars of the case: On December 31, a careful examination failed to discover any evidences of organic disease in the thoracic or abdominal regions.

The penis showed a circumference of three and three-fourths inches and a urethral orifice of 25 French. Examination with the urethrometer showed a normal calibre of 37 French from the bulbo-membranous junction to within three-fourths of an inch of the urethral orifice, where the canal suddenly narrowed to 26 French, registering the same to the orifice, where it was 25 French. The repeated examinations of the bladder (some quite recent) by distinguished surgeons, together with the entire absence of pain in the glans penis, or any sudden stoppage of urine during the act of urination, satisfied me that if there was any stone in the bladder it was encysted, and probably would not be discovered by the use of the sound. The case seemed to me one where the spasm of the bladder, occurring with great frequency and severity through such a long period of time—then over twenty years—must have ended his existenee long before if due to organic disease of the spine or kidneys; and no evidence of any organic disease being present, I suggested the possibility of the difficulty being in a measure, if not wholly, of reflex origin, and due to the irritation of the contracted and thickened urethral orifice, and proposed to test the truth of it by dividing the meatus so as to make it correspond completely with the remaining portion of the canal. To this the patient finally consented.

Operation, Sunday, January 1.—Patient brought under the influence of ether by Dr. Bangs. I then made a division of meatus and tissues extending three-fourths of a inch back, from 25 mm. to 38 mm., and passed a No. 37 solid sound well in the bladder without the least force. Following this, there was absolute incontinence, the urine passing away without pain, and almost without consciousness. This condition of things continued without especial change until Wednesday, the 4th inst., when he had some slight power to retain his urine, and for the first time a twinge of pain. He remarked that the second night after the operation he had the best night's sleep he had had for ten years. His habitual hypodermic dose of morphia had been omitted up to

Wednesday, when, in the early evening, an attack of the kidney colic (left side) which he had previously suffered from, came on, and with such violence that Dr. Fisher was sent for, and administered ten drops of morphia hypodermically. A comfortable night's rest resulted. On Thursday morning, the patient appeared in good condition, passing urine without pain. Thursday night he had another attack of pain in the kidney requiring another hypodermic injection. Another comfortable night. The next day (Friday) he felt miserably, little or no appetite, consciousness of desire to urinate every half hour, some slight control and some pain, *now, and for the first time in the history of the case, referred especially to the end of the penis.* Never before had any pain at the head of the penis. The pain, previous to operation, was always and solely referred to the neck of the bladder. Took no morphia; staid in bed all day. Last night, suffered from pain in head of penis whenever he attempted to urinate, but, when he checked the effort, the urine would flow without pain. In all, had about six attacks of the pain referred to during the night. To-day, Saturday, January 7th, feels weak; no appetite; urinates about every half hour. Now, at 1.40, has not passed urine for forty minutes. Urine under better control. While dressing this morning he had two or three slight urinations during the hour, with quite sharp spasms of pain in the head of the penis. Since then the spasms of pain have been less in degree and frequency. Pus and mucus, which heavily loaded the urine at the date of the operation, have distinctly and steadily decreased up to the present time. Held urine for fifty minutes, and then urinated voluntarily without pain, but very slowly. After this, passed No. 37 bulb through the meatus only (and this simply to keep it patent), but with less pain than anticipated, and less that at any time before. The bladder, which was washed out with warm salt water twice a day before operation, has not been touched since that date. Advise to have this resumed to-day. Milk diet.

January 8th.—Had a poor night. Frequent and severe spasms extending from head of the penis to the bladder, was greatly weakened by them; occurring twenty or twenty-five times during the night. These lasted two to three minutes, and were always excited by the effort to pass water, passing only half an ounce at a time. Yesterday, washed out the bladder about 5 P.M. with no special effort. This pain in the head of the penis is quite new, and was not felt at any time before the operation, and not until five days after, when it came on suddenly. Much of the increased nervousness appears to be due to reaction from morphine. Spasms have been less for the last three hours, and has once passed water without spasm. Has taken no morphia since night before last, when he had ten drops of hypodermic injection. Now takes an injection of six drops. Says that effect of this will last to make him comfortable until to-morrow.

January 9th.—Has had a better night, only half a dozen spasms. This morning apparently under the influence of morphia, most probably uræmia, as he had only five drops last evening. Urine quite thick with pus, and has passed a full pint since 7.30 this A.M. Complains of great exhaustion, but is evidently so uræmic that not much can be inferred from what he says. At 2.50, he had a severe paroxysm, about one and a half minutes' pain in bladder. At 3.15, another. At 4.30 Dr. Fisher gave him rectal injection of peptonized beef. He continued in somnolent condition, but less profound. Frequency of urinations as follows, 10.5, 11, and 11.45, the last being accompanied by great pain.

January 10th.—Urinated with great pain every hour, sometimes oftener. After pain stopped, dropped off to sleep, but could be roused easily. Attempted to give beef enema, but he refused to have it.

Died uræmic on the 11th.

CASE IV.—*Autopsy by Dr. Welch.*—By request only the abdominal organs were examined. KIDNEYS.—Both kidneys are enlarged. The fibrous capsule is adherent to the surface of the organs. The cortical substance presents a grayish, nearly uniform appearance, with little trace of the normal markings. The pyramids are in a great

part encroached upon by the dilated calyces. No ab-

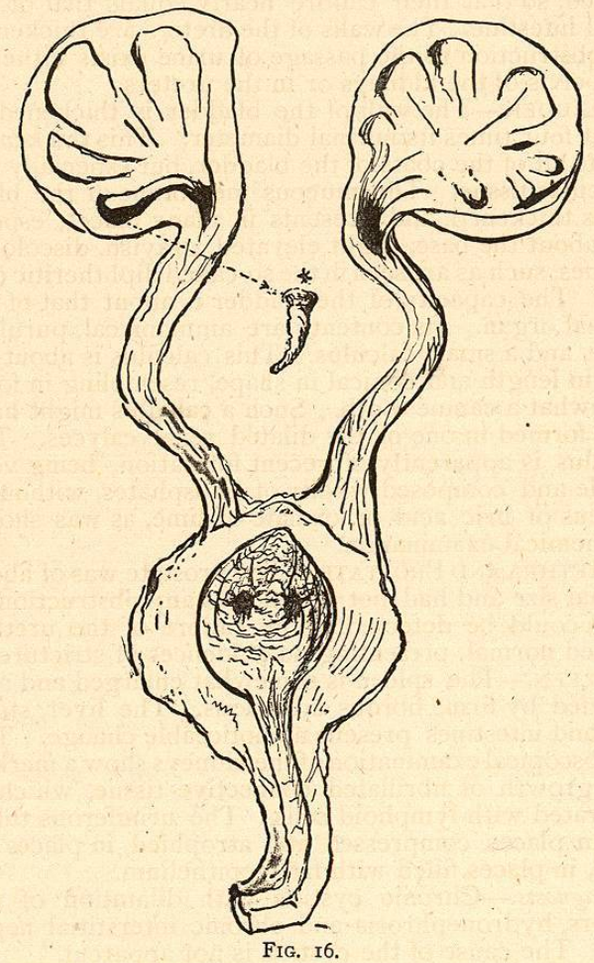

FIG. 16.
Outline sketch, from photograph of post-mortem specimen in case of Mr. Z.

scesses are present in the kidneys. The pelvis and calyx of each kidney are greatly dilated, and contain

turbid, ammoniacal urine. The ureters are likewise dilated, so that their calibre nearly equals that of the small intestine. The walls of the ureters are thickened. No obstruction to the passage of urine exists either in the pelvis of the kidneys or in the ureters.

BLADDER.—The wall of the bladder is thickened to about four times its normal diameter. This thickening affects all of the coats of the bladder, but especially the muscular tissue. The mucous membrane of the bladder is thickened, and presents in many places, especially about the base, slight elevated, grayish, discolored patches, such as are seen in the so-called diphtheritic cystitis. The capacity of the bladder is about that of the normal organ. Its contents are ammoniacal, purulent urine, and a small calculus. This calculus is about an inch in length and conical in shape, resembling in form somewhat a canine tooth. Such a calculus might have been formed in one of the dilated renal calyces. The calcalus is apparently of recent formation, being very friable and composed wholly of phosphates, without a nucleus of uric acid or oxalate of lime, as was shown by chemical examination.

URETHRA AND PROSTATE.—The prostate was of about normal size and had not occasioned any obstruction so far as could be detected. The calibre of the urethra seemed normal, presenting no evidences of stricture.

SPLEEN.—The spleen is somewhat enlarged and surrounded by firm, fibrous adhesions. The liver, stomach, and intestines present no noticeable change. The microscopical examination of the kidneys show a marked new growth of fibrillated connective tissue, which is infiltrated with lymphoid cells. The uriniferous tubes are, in places, compressed and atrophied, in places dilated, in places filled with fatty epithelium.

Diagnosis.—Chronic cystitis with dilatation of the ureters, hydronephrosis and chronic interstitial nephritis. The cause of the cystitis is not apparent."

We have, then, here conditions which are not explained by anything found in the kidneys, ureters, or bladder. The cause of the hypertrophy of the bladder walls, the dilatation of the ureters, the dilation of the kid-

ney, and the interstitial nephritis would have been plain had a mechanical obstruction to the flow of urine been discovered, but none was apparent: it was certainly not in the kidney, ureters, or bladder. At every period in the progress of the case, sounds passed easily into the bladder. There was therefore no apparent mechanical obstacle in the urethra, and yet the conditions were such as to demand a mechanical obstruction to the exit of urine from the bladder to account for their existence. It appears to me that the only possible solution of the difficulty is through the claim of a persistently recurring spasmodic closure of the orifice of the bladder, *as a result of irritation reflected from some point in the urethra*. The examination of the urethra on December 31st showed a normal urethral calibre of 38 mm., except at the orifice, where this and one-half inch of the canal was contracted to 25 French, thus showing an obstruction, practically a stricture of 13 mm. In this connection it is interesting to recall the fact that in the very early history of the case there was a persistent urethral discharge, and that he was treated for urethral stricture by several surgeons.

The possible influence of a contracted meatus urinarius in producing, in certain cases, disturbance more or less grave throughout the urinary tract has long been known, although not generally appreciated. M. Civiale in his "Traité Pratique des Maladies Génito-Urinaires." second edition, Paris, 1850, at page 160 says: "That which has struck me most forcibly in dividing a meatus, often only slightly contracted, is the sudden and complete change effected in the general condition of the patient. The constriction, which seemed hardly to impede the flow of urine, is no sooner divided than all morbid symptoms vanish—the urethral walls, which were rigid, hard, and inelastic, immediately recover the normal condition. The bougie, which at first passed only with difficulty and pain, slips into the bladder with ease, and in five or six days the slight incision at the meatus heals perfectly, and the patient finds himself in a state so satisfactory that it would be incredible but for the fact that the instances are again and again repeated; an

effect so prompt, through means of which the significance is plain, shows that the slightest obstruction in the urethra is able to produce the gravest symptoms, local and general." Again, in 1858, Sir Henry Thompsom, in the second edition of his work on "Stricture of the Urethra," page 249, says: "I have given complete relief to distressing symptoms of very long continuance, *the cause of which was not suspected*, by dividing an external meatus, which nevertheless admitted a No. 6 English catheter. I have met," he further remarks, "with three marked examples of a similar kind, in which the very simple operation necessary was followed by a complete disappearance of urinary difficulties, which had long been regarded as of an extremely obscure character." In 1874 a paper was read by me before the New York Academy of Medicine, on "Reflex Irritations throughout the Genito-Urinary Tract, resulting from contraction of the Urethra, at or near the Meatus Urinarius, Congential or Acquired." In this paper, nineteen cases of this kind were cited, in one of which, Case XVII. (page 26 of monograph on "Reflex Irritation," published by McDivitt, Campbell & Co., and republished in the Charleston *Medical Journal and Review*, of July, 1874), in which frequent micturition of ten years' standing, complicated finally by a grave and prolonged cystitis; this was promptly relieved by the division of a meatus, which readily admitted the passage of a 23 French bulbous sound. Further proof of the capacity of anterior urethral contractions to induce spasm of the urethra and bladder may be seen in my work on "Stricture of Male Urethra," second edition, Putnam's Sons, New York, 1880, page 301 *et seq.*, and in articles on "Urethrismus, or Chronic Spasmodic Stricture," in the *Hospital Gazette* of April 19, 1879, and June 28, 1879. In all the cases reported by Civiale, Sir Henry Thompson, and myself, immediate relief followed division of the contraction.

In the case of Mr. Z——, the subject of this report, relief to the spasm of the bladder supervened immediately, upon the complete division of the contraction at the meatus urinarius, followed by the introduction of a

sound, corresponding in size with the normal calibre of the urethra, as previously determined by measurement with the urethrometer. How much of this relief was due to the passage of the instrument may be a question, but not the least more force was used in its passage than in that of an ordinary sound or catheter through a healthy urethra, and not the least pain was subsequently felt which could be considered a consequence of this procedure. The only result which was in any way different from other cases where a similar operation had been performed was the complete incontinence which followed, and which continued until the fourth day, when slight power of retention was also accompanied by a slight twinge of pain. The recurrence of the spasm of the bladder soon after, as a distinct effect of the sudden advent of the calculus, renders the estimate as to the permanence of relief to the spasm through the operation entirely conjectural. It still remains, however, that the cessation of painful and frequently recurring spasm of many years' standing was immediate and complete, as a result of the operation, and practically so continued until an added mechanical irritation within the bladder reinstated it. The proof that the spasms which came on on the fifth day after the operation procedure were due to the sudden presence of the calculus were, first, that it was for the first time in the history of the case accompanied by a well-defined pain in the glans penis, which persisted until the termination of the case; second, that the calculus was recent, as indicated by its great friability. Its shape contra-indicated its origin within the bladder, but distinctly pointed to one of the calyces of the left kidney, into which it was subsequently shown to fit in the most perfect manner. In the absence, then, of any other means explaining the years of suffering endured by Mr. Z——, or any other way of accounting for the post-mortem conditions presented in his case, it appears to me reasonable to claim that the difficulty was of reflex origin, dependent chiefly, if not wholly, upon the contracted meatus urinarius, and I think we are warranted in believing that, if this condition and its possible effects had been appre-

ciated at an earlier period in his troubles, years of agonizing suffering would have been avoided, and that his life might have been saved through an operation, in a surgical point of view, of the most insignificant possible character. In considering the salient features of the foregoing cases, which I believe to be typical, it must, I think, be admitted that symptomatic evidences of organic idiopathic disease of the bladder and prostate, as well as of stone or other adventitious material in the bladder, should be received with the distinct understanding that such evidences are possibly due entirely, or in part, to sources of irritation quite outside of the organs apparently the subject of disease.