Van Buren (W. H.) & Keyes (E. L.)

SELF-INJECTION

OF

THE BLADDER,

IN THE

TREATMENT OF THE CONSEQUENCES OF OBSTRUCTIVE ENLARGEMENT OF THE PROSTATE, AND THE BEST MEANS OF ACCOMPLISHING IT; TOGETHER WITH TWO CASES ILLUSTRATING ANOTHER METHOD OF REMOVING FOREIGN BODIES FROM THE URETHRA.

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I. *Plea for the Treatment of the Consequences of Obstructive Enlargement of the Prostate, by the Early Use of the Catheter.* By W. H. Van Buren. *Reprinted from the New York Medical Journal, July*, 1874.

II. *The Injection of the Bladder.* By E. L. Keyes. *Reprinted from the American Journal of Medical Science, April*, 1875.

III. *An Easy Method of removing Rounded Foreign Bodies from the Urethra.* By E. L. Keyes. *Reprinted from the Medical Record, March* 6, 1875.

IV. *Removal of a Pin from the Deep Urethra.* By E. L. Keyes. *Reprinted from the Medical Record, May* 1, 1875.

I.—PLEA FOR THE TREATMENT OF THE CONSEQUENCES OF OBSTRUCTIVE ENLARGEMENT OF THE PROSTATE BY EARLY USE OF THE CATHETER.[1] By W. H. Van Buren, M. D.

I take the opportunity afforded by your kind indulgence to lay before you the results of some years' experience in the management of the consequences of prostatic obstruction. This is a subject which gains in interest as we become familiar with it—I may add, also, in personal interest as we grow older—for, although the progress of surgical pathology has made it clear that enlargement of the prostate is not a physiological change incident to all of us, as Brodie taught, but that it depends upon a fibro-muscular overgrowth identical with that which occurs in its analogue in the other sex—the uterus—nevertheless, the diminishing number of men living after fifty renders the chances of urinary trouble from this cause unpleasantly large. But the true interest in the subject arises from the fact that familiarity with it gives us, in some degree, the power of prolonging valuable lives, and of saving those, to whom especially we owe service, from the most painful suffering incident to humanity.

I have been often impressed with the conviction that the occurrence of symptoms of prostatic urinary obstruction is pretty generally accepted, in our profession, as evidence that a man who has passed the prime of life is beginning to "break up;" that there is little use of undertaking measures for his systematic or permanent relief, and little duty is owed him beyond drawing off his water when positive retention overtakes him, and the judicious administration of opium to render his pains tolerable and soothe his downward course. To

[1] Substance of a paper read before the New York Academy of Medicine, May 7, 1874.

this mode of looking at such a case, I am compelled to place myself in antagonism. I have seen too many instances of relief from urgent symptoms, with arrest of progressive disease, and the gain of subsequent years of usefulness by proper surgical treatment, to admit that this is the right course. I have thought that Brodie's melancholy way of describing the old man's position in regard to urinary troubles was responsible for the general acquiescence in this policy of inaction. He says: "When the hair becomes gray and scanty, when specks of earthy matter begin to be deposited in the tissues of the arteries, and when a white zone is formed at the margin of the cornea, at this same period the prostate gland usually, I might say invariably, becomes increased in size." Now, since this great and good surgeon wrote in this manner, we have learned for the first time the histological structure, the physiological uses, and the true nature of the morbid change which occurs in the enlargement of the prostate; and we know pretty certainly that the latter is not "one of a series of natural changes which the system undergoes after the middle period of life," as he thought, but a distinct and well-recognized disease, which, as proved by the exhaustive researches of Henry Thompson, occurs obstructively in only about 12 per cent. of men living after the age of fifty. Suppose, then, that about this time of life a man, otherwise sound, with a right by inheritance to twenty years more of life, begins to develop an overgrowth of his prostate, which, by obstructing the free passage of his urine, starts a train of symptoms which experience teaches us leads pretty certainly to invalidism and premature death. Shall we accept this as a necessary result, or endeavor to avert it? Avert it, most assuredly, if we have the means. I believe that we have the means; but, for reasons which are not easy to understand, their employment is not regarded by the profession with as much favor as their merits would seem to deserve.

I may say, at the outset, that I have no medical remedy to offer whereby enlargement of the prostate may be checked or dissipated. Medicine has thus far proved as unreliable for this purpose as for curing fibroid tumors of the uterus. It is the results which follow when this enlargement, which we

have not the power to control, encroaches upon the outlet of the bladder so as to threaten obstruction to the consummation of a vital function, which will occupy us; and the best remedy we possess wherewith to palliate these results is to take measures to accomplish the removal of the urine from the bladder, just as soon as possible after the natural power has given signs of failing, by artificial means—preferably by the catheter. Commencing with this instrument early, it is to be persevered in with gentleness and judgment, regularly and systematically, until a tolerance of it is acquired by the patient, and until he has been taught to use it for himself—to be in this respect his own surgeon—and to rely upon it entirely for emptying the bladder. This is the course which, in my judgment, promises us the best results in arresting that otherwise inevitable train of symptoms which follows the growth of a mechanical impediment at the neck of the bladder.

These symptoms are caused by progressive morbid alterations, at first in the bladder itself, and later in the ureters and kidneys, due to the constantly acting obstruction to free escape of the urine; changes which succeed each other in slow but regular sequence, involving almost necessarily the formation of stone in the bladder, and leading to a fatal issue, attended by an amount of physical suffering we are called upon to witness in no other malady so common to our race. If we can give the patient the power to introduce a well-devised instrument through the natural outlet into the reservoir and effect the escape of the urine through it by the simple force of gravity, without effort and painful straining, we get rid at once of the main cause of the *serious* injuries to the urinary organs—for they are mainly produced by these painful efforts to overcome obstruction; and we thus simply substitute an ingenious resource of art, and the inconveniences which attend its use, for a failing function which Nature's efforts are hopelessly inadequate to restore.

This is an outline of the argument I would like to submit to you, if time allowed. I wish to make a plea for the earlier use of the catheter in these cases of urinary obstruction, and also for the practice of relying upon it entirely to avert bad consequences, rather than to let the case

go by default, as we do now, until retention has occurred and we have to meet it at a disadvantage. It will occur to you, probably, that there is nothing very new in this. I am aware of it—there is no novelty to be claimed. My object is to arrive, if possible, at a more just appreciation of the value of an old remedy, and to contribute toward a proper answer to these two questions: 1. How soon is it our duty to urge the adoption of the catheter, upon an unwilling patient, after he has given evidence of obstructive trouble? 2. At what stage of the case is it proper to advise a patient to give up trying to make water and to rely upon the catheter entirely?

Perhaps a glance at a case, still under my observation, will illustrate the bearing of these questions. A man of fifty-five communicates to me, with obvious reluctance and hesitation, that he is annoyed by too frequent calls to empty his bladder, especially at night. The symptom interferes with his daily work, which is important and engrossing. He asks for relief. I find very acid, clear urine, with defective power and volume of the stream; and an enlarged and knobby prostate. I explain to him the nature and cause of his trouble: that a dam is being formed at the outlet of the bladder, of a nature that medicine cannot remove; and that he must learn to use a catheter, or he will be liable to entire stoppage, and perhaps to get stone. The suggestion is obviously disagreeable. I see the patient only incidentally during the next two or three years, and learn from him that his trouble is no better—in fact, rather worse; he "must come and see me again about it." Some time later he is overtaken by an attack of acute disease, at the height of which retention occurs, and the catheter is required, and has to be used regularly for some days. After this occurrence, the obvious necessity of the measure induces the patient to consent to learn to use the instrument, and he shortly gets to introducing it for himself every night on retiring—except when there is a good excuse for neglecting it—and on the whole has better sleep. At the end of three or four years he has been on the average more comfortable, has held his own, and weighs more. But now there is evidence that, although he is making water twice as often as he should, he does not empty his bladder entirely—except by the cath-

eter at bedtime; and I am consulted as to whether he should not introduce the catheter more frequently. I advise this course, by all means; for, tolerance being in some degree already attained, a suitable injection can be used for the bladder, and in a short time its irritability may be so far diminished that the regular use of the catheter four or five times in the twenty-four hours will suffice; and this would save him both time and pain, and also from the danger which accompanies the ineffectual efforts he is still making.

Here is a result reached at the end of seven or eight years, by which this man's bladder is at last in the way of being regularly relieved without painful and damaging effort. I trust he will be saved from stone, although he did incur the danger of retention as I had foretold; for he can empty his bladder thoroughly now, and also wash it out with warm water at will, if necessary. But it is very clear to me, after observing his case through all these years, that if the patient had gone to work when he first applied to me for relief, and learned within the year to help himself with the catheter, he would have saved himself both time and torment, and that at this moment his bladder and kidneys would be in better condition to serve him for the next ten years.

I cite this as an average case, although it is proper to remark that the usual results which follow retention of urine from prostatic obstruction are more serious and urgent than those which followed in this patient. But it brings us face to face with the principal difficulty we encounter in endeavoring to carry out the practice I am advocating: the unwillingness of the patient to undertake what seems to him so difficult and painful an operation, and to bind himself to it for life, on such slender grounds as the very supportable inconvenience he has to bear at the beginning of his malady. In truth, he is vaguely ignorant of the meaning of his symptoms, and of what they threaten in the future. He comes, without suspicion of their serious import, expecting some skillfully-administered medicine that will promptly banish them. It becomes the responsible duty of his physician to explain to him their significance, to show him the dangers that await him, and how they are to be avoided. With a full knowledge of these, and the

conviction that art can avert them, it becomes also a duty, I think, that he should advise his patient to learn to use the catheter.

The fact that he does not receive unanimous and concurrent advice to this end, in consulting others, is often a stumbling-block to the patient; for there are some who are satisfied to recommend pareira brava and flaxseed-tea with an opium-suppository at night, and this sort of advice falls in much more readily with the patient's wishes. Those who hold this view object to the catheter that, after all, it is only a palliative remedy. But this objection could also be urged against the use of quinine in ague, mercury in syphilis, and opium in pain; and the catheter certainly fulfills accurately the indications presented by such a case when it secures the accomplishment of a function in which Nature is failing in consequence of mechanical obstruction.

As neither medicine nor operative surgery can remove this obstruction, it remains for us to obviate its effect in preventing the escape of urine. If this can be accomplished regularly and systematically, as Nature does it, by the aid of the catheter, then the sequence of damaging symptoms leading to textural change in vital organs could be arrested, and indefinite prolongation of life secured. This result, I should think, could be claimed for the catheter, and its employment would be more readily adopted by patients if the profession were in accord in recognizing the necessity of resorting to it *early* in all cases of urinary obstruction.

But for the fear of taxing your patience by enumerating the symptoms to which prostatic obstruction gives rise, and placing side by side with them the series of coincident pathological changes in the urinary organs by which they are explained, I might demonstrate that their sequence could be interrupted at once by any means capable of preventing the increased muscular effort or straining which the mechanical impediment compels the patient to employ each time he attempts to pass water.

There would be but one exception to this, namely, the greater amount of blood brought to the neighborhood of the neck of the bladder by the increasing bulk of the prostate, and

the effect of its peripheral pressure in causing defective circulation in, and varicose dilatation of, the veins of the vesical plexus—all of which favor inflammation at the neck of the bladder.

The use of the catheter, brought about in such a way as to occasion as little irritation as possible, would tend directly to arrest the progress of the other morbid changes, namely, the reflex nervous action caused by the presence of the impediment, which is constantly stimulating the bladder to muscular contraction or spasm; the consequent dilatation, pouching, and sacculation of the bladder, and muscular hypertrophy, from the increased force as well as frequency of extrusive effort—which bruises and worries the neck of the bladder very much as the constant straining in dysentery damages the lower end of the rectum; the secondary obstruction which grows up at the outlets of the ureters where they traverse for three-quarters of an inch the thickening walls of the bladder—giving rise to distention of these tubes, and threatening invasion of the kidney; and, sooner or later, retention of the urine, which converts the passive congestion at the neck of the bladder into positive inflammation, and leaves behind it a more or less extensive pus-secreting surface within its cavity, attended by symptoms of catarrh, which, when once established, never again entirely disappear. All these results, I repeat, could be prevented if the use of the catheter were adopted early, and relied upon entirely.

At the epoch of retention the surgeon's aid is invoked through absolute necessity, but too often the catheter is employed only in the emergency, and necessarily under the most unfavorable circumstances. It is not regarded as a remedy for the disease—to be adopted and used systematically; but only as a resource in extremity—to be abandoned as soon as the crisis of the retention shall have passed. Much damage has been done already, which might have been prevented; but, even at this stage, after retention has occurred, if the patient would consent to learn to use the catheter regularly, and rely upon it entirely, still greater evils in the way of pain and suffering might be averted. For, now, in the steadily-progressive sequence of patho-

logical changes a new source of danger presents itself: the alkaline pus, always now secreted by the bladder, gives up its soda to the lightly-held phosphoric acid of the acid phosphates of ammonia and magnesia of the urine; and these earthy substances, only held in solution by an excess of phosphoric acid, are precipitated in the cavity of the bladder as insoluble phosphates—exposing the patient to the danger and suffering of stone. The retained and altered urine, also, in cases of prostatic obstruction, readily falls into decomposition before leaving the body; and the free ammonia thus given off, besides adding to the intensity of the cystitis by its irritating qualities, reacts in a remarkable manner upon the pus, forming an adhesive gelatinoid mucus. This, acting as a cement to the earthy particles of the insoluble phosphates, singularly facilitates the formation of a calculous mass. Thus, stone in the bladder is a natural consequence of obstructive enlargement of the prostate.

The mode just described is perhaps the more common way in which it is brought about, for in old men with enlarged prostates calculi are usually phosphatic; but calculous disease also frequently occurs before the enlarging prostate has as yet caused any cystitis, by the simple detention in the bladder of a kidney calculus of lithic acid, which in a younger man, with a free outlet to his bladder, would have escaped at once. I have had recently several cases of this kind under observation, in one of which a gentleman, fifty-five years old, of gouty habit, with an enlarged prostate and a good deal of vesical irritability, but as yet perfectly clear though very acid urine, had three pure lithic-acid calculi in his bladder, from one-half to seven-eighths of an inch in diameter. He was relieved by lithotrity.

Not unfrequently also a nucleus of lithic acid from the kidney, which is prevented from passing off by a large prostate, becomes incrusted with phosphatic salts. This result, which is classical, involves necessarily the existence of a pus-secreting surface in the bladder.

I would remark here that, with the exception only of the dread of retention, I have found the fear of stone in the bladder to be the strongest inducement, among intelligent pa-

tients, to submit to the annoyances incident to learning the use of the catheter. And it is justly so, for, as I have shown, stone is a necessary consequence of urinary obstruction ; and it is fair to infer that obviating the consequences of obstruction will prevent the formation of stone. To accomplish this result effectually, however, the use of the catheter must be begun early, continued systematically, and accompanied in certain cases by the use of injections of warm water into the bladder—by which the consequences of suppuration and of decomposing urine may be promptly washed away.

I have still under observation a patient who, twelve years ago, at the age of fifty years, with difficult micturition, irritability of bladder, pain in the back, and the aspect of impaired general health, was in the habit of voiding insoluble phosphates. He had no stricture of the urethra ; and no enlargement of the prostate could be felt from the rectum. Later, a centric prostatic growth was suspected ; he commenced the use of the catheter, and, as soon as he was able to rely upon it entirely, all his symptoms disappeared. He is now in excellent health, and uses his catheter five times daily. I am cognizant of not a few similar cases in which a centric prostatic growth had been at first overlooked. In a case at present under treatment in which it was decided to subject the party to lithotomy, after removing two phosphatic calculi, the finger in the wound recognized a small tumor with a slender, flexible pedicle, growing out from the right side of the circular opening of the outlet of the bladder. It could be just reached by the finger, and could be distinctly pushed up, and also hooked down into the wound. It was seized by polypus-forceps, crushed, and twisted off. There is no peripheral enlargement of the prostate in this case ; and this little pedunculated tumor, by dropping into the internal orifice of the urethra like a ball-valve, had prevented the patient from passing a drop of water for four years. The true nature of the impediment, although suspected, was not certainly known, or it might possibly have been snared. I explored the bladder through the wound, during the third week of convalescence, in search of a cause for spasms which still persisted, and found flabby walls with prominent muscular bands, and, with other

evidences of prolonged overstretching, a pouched cavity toward the rectum in which some purulent ammoniacal urine was retained. Systematic washing out with tepid water was employed with a good result, and the patient now passes his water more satisfactorily. Here was a case in which stone formed in a suppurating bladder in spite of the use of the catheter, and I attribute it to the patient's inability to wash out his bladder, by daily injection of tepid water through the catheter, in consequence of excessive pain and nervous susceptibility.

A man, aged seventy years, was brought to me some five years ago with symptoms of stone, who had been using a badly-curved silver catheter three times a day, for thirteen years. At fifty-seven years old he had retention of urine, which, relieved only after a good deal of delay, had left him without the power of passing water—not even a single drop—but with little or no pain or irritability. After a little awkwardness at first, he had used the catheter without any trouble whatever, and had enjoyed good health to within a few months. The simple ease and *nonchalance* with which this man passed his catheter recalled the peculiar style in which we have all seen an old patient reduce a rupture which he had long carried.

I taught him to use a large-eyed silver catheter of a better curve, trained him to wash out his bladder himself, and then reduced his stone—which was quite as large as I could grasp with a lithotrite—to pretty fine powder, in about twelve operations. He got rid of the *débris* entirely through his large-eyed catheter, and was permanently cured. The calculus was phosphatic. I still see this patient from time to time, well and active. He washes out his bladder every night—at which he grumbles; I tell him it is the only way he can save himself from a return of the stone. This is his eighteenth year of using the catheter.

Would it not be much better, on the whole, if elderly men with symptoms of urinary obstruction should be advised to take the trouble to learn the use of the catheter before they get retention—instead of afterward; and, also, that they should learn to wash out their bladders, when necessary, be-

fore they get stone—instead of after they have been lucky enough to get cured of it?

Where suppurative cystitis has been brought about as a result of prostatic obstruction, the systematic use of the catheter and injections, medicated and otherwise, promises more benefit than internal remedies. But, unless the catheter has been commenced earlier, the excessive pain and spasm at the neck of the bladder, which often accompany a high grade of vesical inflammation, may render the use of the instrument at this time impossible. In an apparently desperate case of this kind I have known forced injections to be employed, under the influence of an anæsthetic, in the hope of bringing about a state of atony from overstretching, and the comparative quiescence which belongs to the atonic condition. The result was unsatisfactory.

But I have not yet spoken of the condition of atony, or loss of contractile power, as one of the regular sequences of pathological changes following prostatic obstruction. This condition, accompanied by its necessary consequence dilatation, occurs, sooner or later, in prostatic obstruction always, in some degree, although the spasms which not unfrequently accompany the complication with stone would seem to suggest the reverse. The hypertrophied muscular fibres of the bladder become worn out by overwork, and degenerate, more or less, by fatty atrophy. This allows the walls of the bladder to yield to the pressure of the urine, which tends to accumulate in its cavity in consequence of the difficulty of escape through its obstructed outlet. Hence its alterations in shape, especially by bulging toward the rectum at the *bas fond*, and its general dilatation.

When, in consequence of very slow and gradual formation of the obstructive growth, little or no catarrhal inflammation and consequent irritability have arisen, there is less hypertrophy and more dilatation of the bladder; and in these cases, through gradual failure of contractile power of its muscular coat, the condition known as atony is liable to be developed in a very insidious manner. The patient passes only a portion of the urine in his bladder, more or less remaining behind. The desire is gratified, the sensation

of relief is felt, the urine ceases to flow, and the patient thinks he has emptied his bladder—when, in fact, he has not. This state of things, described by Civiale as "stagnation," by Thompson as "overflow," may continue a good while before it is recognized, the excess only of the urine over what the dilating bladder can comfortably hold being voided at the regular calls, or by involuntary dribbling, and the remaining or residual portion very gradually increasing in amount.

Now and then this residual urine, which the patient is unwittingly carrying about with him, reaches a very considerable quantity before his sensations of discomfort and the general failure in his health lead him to seek relief. I cannot state the quantity of urine which may thus accumulate, as for some years I have adopted the practice of emptying a bladder very gradually when its water-logged condition has been discovered, through fear of exciting disorganizing inflammatory changes in its collapsing walls; but it must be very considerable—several quarts, certainly. In a patient consigned to me not long since by our president, the pressure was so great upon the iliac veins within the pelvis as to give rise to a bulky dropsical swelling of the lower limbs—all of which promptly disappeared when he had learned to relieve himself by the catheter. This gentleman was not aware of the cause of his condition, and was under the impression that he had been emptying his bladder regularly.

I will remark here that, in cases where the urine does not flow readily or freely, it requires not a little acumen to determine always just how much of the diminished force and volume of the stream is due to the mechanical obstacle of a prostatic dam at the neck of the bladder, or even of stricture of the urethra, and how much to defective expulsive power in the muscular walls of the bladder itself. The only sure way to determine the existence of atony in a given case is to take an opportunity, when the patient has just urinated to the best of his ability, to introduce a catheter into the bladder; the amount of residual urine that flows will indicate the degree of atony. It would be wise, where it is desired to lead a patient, who presents these symptoms, to think favorably of the use of the catheter, to

select a small, flexible instrument of proper form, warm it, oil it, and hand it to him with the suggestion that he should just slip it in himself—which he will generally undertake to do if judiciously encouraged. If he should succeed, and still more if he should find that, contrary to his expectation, any quantity of urine flowed through the catheter, he will be gratified by his success, and more ready to adopt the suggestion of its regular use—having had this demonstration of its necessity and feasibility. Cases of this kind, and they are more frequent than is generally thought, are usually managed with little difficulty. They take to the catheter readily through the obvious relief its use affords.

It is a noteworthy fact that the cases of prostatic obstruction, in which the condition of atony is developed early, suffer comparatively little pain. Such patients are not liable to the spasms which constitute so unpleasant a feature in the advanced stages of the alterations due to obstruction where there is full contractility, or only partial atony. It certainly has seemed to me desirable in many cases to favor the development of atony, and I have often wished for the means of bringing it about. I know of no better mode of doing this than the habitual use of the catheter and injections of warm water, pushing them very gently in the direction of over-distention. An analogous result follows the habitual use of tepid injections in the rectum.

And here, before I close, I desire to make a point which I deem of great importance to my case. It would seem as though Nature were disposed to offer us relief by using the catheter, for she has endowed the urethra with a singular degree of tolerance of contact with surgical instruments, and also with a capacity for an increasing tolerance by use. How otherwise do we explain the fact that we meet with hale and healthy old men who have been relying entirely upon the catheter for fifteen and twenty years to empty their bladders? Notice, if you please, that this tolerance of the urethra is not only for the temporary use of instruments, but for their use during an indefinite period. With the exception of trifling surface irritation, an occasional epididymitis, and, in one case from the country, a warty induration at the meatus, which I

at first suspected to be epithelial degeneration, but which disappeared promptly on substituting a smaller and smoother instrument for the one in use, I have never, in quite a number of cases, seen any harm from prolonged use of the catheter. I think we all know of cases in which it has been used for a long term of years without complaint of injury from it; and, generally, the longer it has been in use the less complaint we hear. I was in company with an eminent English surgeon, some eight years ago, when we were interrupted for a moment by the entrance of a hale, ruddy-faced old gentleman who had a question to ask. When he had left, my friend remarked, "I taught that man to use the catheter more than twenty years ago, and he is well yet." He was a man of note. I saw the announcement of his death several years afterward, in 1870, at an advanced age. This is one of the cases of longest duration that I have knowledge of. I think, if we had means to determine the question, it would be found that, in all the instances where the catheter had been used with advantage for a long series of years, its use had been begun early, and that it had been relied upon entirely. In part the truth of this surmise is self-evident, for the necessity for its use does not arise until after the age of fifty. And this tolerance can be almost invariably attained if sufficient tact and gentleness, with adequate perseverance, be employed from the first in training the urethra. Civiale was a great master of the art in this respect. He would never have established lithotrity as he did, if he had not thoroughly grasped the wonderful capacity of the human urethra for training. Of course the task is easier when commenced early—as it is very desirable that it should be; and it is proportionately difficult after inflammation has increased the sensibility of the parts.

And now a word in regard to the question of relying upon the catheter entirely—which implies that the patient gives up all attempt to empty his bladder by his own effort in the natural way, and tries to adopt regular intervals for the introduction of the instrument. If he is already making water too frequently, this involves a gradual and careful training from its use once a day up to about five times—which seems to mark Nature's limit of tolerance, with benefit, in most in-

stances; and, meanwhile, the employment of medicated injections for the purpose of allaying irritability, and, possibly, for a time, of anodyne suppositories.

The regular evacuation of the bladder, without effort, will of itself tend to relieve irritability; but, until tolerance of the catheter is reached, its introduction, by causing more or less pain, might seem to be doing harm. To reconcile this apparent incompatibility requires judgment and tact on the part of the surgeon, as well as a conviction that the measure is really necessary, and that it is the best practice that can be pursued. This conviction will be reached, I think, by any one who, realizing fully the inevitable results of prostatic obstruction unaided by art, will carefully weigh the pathological facts I have glanced at. If it be true that all of the consequences of enlargement of the prostate, up to stone in the bladder and uræmic poisoning—except the hyperæmia at the vesical neck from the pressure of increasing bulk—are due directly to the persistent effort of the bladder to empty itself in spite of the impediment at its outlet, then it is impossible to avoid the inference that the power of helping himself with a catheter cannot be acquired too early by a patient with symptoms of obstruction from this cause.

Again, if, after having learned to use the catheter once or twice in the twenty-four hours satisfactorily (and all the authorities justify and recommend this degree of reliance upon art), then, the patient's calls to urinate in the intervals are still too frequent, or if the act continues to be in any respect imperfectly performed, it is evident that the pathological changes being caused by the obstruction are still progressive, and that to arrest them definitely he must make up his mind to give up all effort to pass his water in the natural way, and work up to the entire substitution of the catheter. This is a decision which is usually unpalatable to the patient, but it is a legitimate deduction from experience, and the only safe course; he must be convinced that it is not the surgeon who asks him to give up a life-long privilege, but that Nature is actually depriving him of it, and that he is striving foolishly against the inevitable, and injuring himself fatally by his ineffectual efforts to help himself. And here the great fact of

tolerance comes to our aid, for the facility which has already come to him by practice in relieving himself predisposes the patient in some degree to rely more and more upon the catheter.

A few words concerning instruments and their mode of employment in training the urethra, and I have done.

Civiale's training of the urethra had for its object to beget a tolerance of the instruments with which he desired to grasp a stone in the bladder with the design of reducing it to powder. He always commenced with the old-fashioned wax bougie, made by dipping hempen threads into melted wax, which in former times surgeons made for themselves. A bougie of this kind, when warmed, is very soft and flexible. His habit was to introduce this very gently, and wait until all irritation had subsided—several days if necessary, before a second introduction; and to proceed systematically in this manner, gradually shortening the interval as the operation was well borne. I know of no better method of training the urethra to tolerance of the catheter. The skill of the instrument-makers, stimulated by the suggestions of surgeons, is constantly improving the style and quality of our urethral instruments, so that we have bougies now made to our hands of the most perfect finish. The softest and best to begin with is the French conical olive-pointed bougie, using a catheter of the same pattern only after the urethra has learned to tolerate the bougie. The French make these with a permanent curve for prostatic cases.[1] It is always wiser to induce the patient to use the instrument himself from the first, if possible, and for the surgeon to content himself with the position of teacher. Of course, where the urethra has become altered in shape or direction by the enlarging prostate, more skill will be required in selecting the best instrument to suit each case. The most common obstacle encountered by the beak of the catheter is the bar or third lobe which grows up out of the floor of the urethra at the very entrance of the

[1] My recent experience leads me, in all cases where it will pass, to direct the patient to use one of the soft-rubber catheters described in Article II., "The Injection of the Bladder," on account of the special qualities possessed by that instrument, as detailed in the article, and its entire safety.

bladder. To ride over this, Mercier devised his elbowed catheter, of variable angle, which is a useful instrument, as its beak must be kept always, of necessity, in contact with the roof of the urethra where there is no obstacle to its slipping into the bladder.

The English use more frequently a catheter made of firmer material which will receive an exaggerated curve at its beak while warm, and, after being dipped in cold water, retain it long enough to get into the bladder pretty certainly when properly guided. This instrument wears better, and is preferable to any other for permanent use, but more instruction is required to insure its successful manipulation.

Lastly, for some cases, a metallic instrument of large, peculiar, and exaggerated curve, as may be required by the peculiarities of the case, will be found more suitable; and, in the country, where flexible catheters are not always at command, it is often preferable.

In short, each individual case presents its peculiar features, and the best instrument for permanent use must be selected for it and fitted to it by the surgeon's skill and experience.

As in the somewhat analogous appliance, the truss, there should be always a reserve of instruments—at least a duplicate—to fall back upon in case of accident or breakage.

My remarks, it will be observed, are not designed to meet the wants of those difficult cases of catheterism which present themselves under the pressure of retention of urine—as happens, indeed, with too large a majority of the prostatic cases we encounter in practice—neglected prostatic cases we might call them; what I have said is applicable only to cases selected for training in the use of the catheter as a safeguard against danger from prostatic obstruction.

210 Madison Avenue, *May*, 1875.

II.—THE INJECTION OF THE BLADDER. By E. L. Keyes, M. D.

[*REPRINTED FROM THE AMERICAN JOURNAL MED. SCIENCE, APRIL*, 1875.]

Those members of our profession who, in modern days, have been brought into contact with many and varied forms of bladder-disease, have pretty generally come to incorporate injection into the bladder, in one of its many forms, into their treatment of chronic cystitis.

A given practitioner may have this or that substance which he injects in solution and to the action of which he attributes all the benefit derived, as silicate of soda, lead-water, solutions of zinc, chlorate of potash, carbolic acid, permanganate of potash, borax, etc., etc., perhaps nitrate of silver; or possibly he may vaunt a special method of topical treatment as being endowed with peculiar virtue; such as double-current catheters of one pattern or another, drainage, instruments *à demeure* with occasional injection, irrigation, etc.; some of which methods call for admiration of the patient tolerance of the bladder, and its willingness to get well, sometimes, in spite of obstacles, provided only it be kept reasonably clean.

Now, this modern tendency toward relying upon topical measures in treating chronic maladies of the bladder (often to the exclusion of the older-fashioned administration of the preparations of buchu, pareira brava, uva ursi, triticum repens, etc.) clearly indicates that experience has proved the value of the former measures; and the fact that many different substances in solution, and many different methods of getting urine out of the bladder and some fluid into it, are alike claimed as the chief agent in producing the good result—this fact shows there must be some one action, common in a greater or less degree to all the varied methods which, mainly, yields the good result sought for. An extended search is not necessary to decide what this one common action of all the methods is; essentially *it consists in emptying the bladder thoroughly, and then washing it out*, generally with a warm fluid.

Cleanliness, then, is a chief element in the cure of chronic

cystitis. Undoubtedly the heat does good by its soothing influence (nearly all injections are made warm). Unquestionably many astringents, and stimulants, and sedatives, do good at the proper time. They require some care in selection, and may greatly assist the general issue; but the main point must not be lost sight of, namely, that the element of first importance in the treatment of the bladder when in chronic inflammation is its hygiene, and that the corner-stone of hygiene is cleanliness.

In a broad way it may be stated, without fear of contradiction, that all chronic cystitis is due to and entertained by a mechanical and a chemical cause; the former, some obstruction to the free outflow of urine; the latter, carbonate of ammonia, liberated by the decomposition of urea, a decomposition sure to occur in any stagnating urine; and carbonate of ammonia has a high degree of power as an irritant of mucous membranes.

This very general view of the etiology of chronic cystitis will bear close scrutiny;[1] it can only be glanced at here, as the object of this paper is, simply, having established the value of injections into the bladder, to detail the best means of administering the same.

Nor can the mechanical treatment of the mechanical causes of chronic cystitis be more than alluded to here. When these causes can be removed in time, the cystitis gets well of itself; but, in the many cases where the cause cannot be eradicated (enlarged prostate,[2] stone too large for removal, neighboring growth pressing upon the bladder, etc., etc.), often the

[1] Another element of great value, and one not generally recognized, but which perhaps is important enough to form a trinity with the more conspicuous mechanical and chemical causes, is the nervous element, a certain hyperæsthesia of the deep urethra and vesical neck, probably always present in a greater or less degree, and of which a rather full account has been given by the authors in another place.

[2] Another effort toward radical cure of the enlarged prostate has been made by C. Heine, "*Ueber Radicalbehandlung der Prostatahypertrophie*," Archiv f. klin. Chir., 1874, i., p. 79, who claims considerable success (without risk) by means of interstitial parenchymatous injections of the prostate, with small quantities of tincture of iodine, and yet another recent effort, by a similar use of ergot, must be alluded to.

only real relief the patient is able to find, short of anodynes, is by injections into the bladder, and, indeed, the amount of good produced by this simple means is sometimes but just short of cure, although the treatment may have to be continued by the patient indefinitely.

Finally, the scope of this article does not allow a critical consideration of the relative value of the many substances used for vesical injection.

In reality, these are on the whole of much less value than the means now under discussion. Where a surface, for example, on any part of the body is discharging pus, the surgeon does not first bestir himself in the selection of a topical application, but the fundamental principle of action is to clean the surface and get rid of any thing which may act as an irritant, and then there is time enough to seek for further aid.

The rational treatment of all chronic disease is built upon the foundation of intelligent hygiene. The hygiene of the bladder, when in a state of chronic inflammation, cannot be encompassed except by thoroughly emptying and cleansing the organ, more especially if there be any atony, as is so often the case.

An efficient and easy method of injecting the bladder with warm water, by the patient himself—in short, self-injection—alone can meet the requirements of many cases of chronic cystitis.

Having thus briefly stated the value of vesical injections, and emphasized the fact that the patient must do his washing for himself, perhaps for a long series of weeks, months, or even years, in order to prolong his life and preserve his health and vigor, it becomes evident that the description of an instrument which a patient can easily manage, and which meets all the demands of the surgeon, is worthy of some care in being prominently brought before the medical public.

The instrument about to be described has nothing in any of its parts which is new. It is a soft rubber catheter, a two-way stopcock, and a fountain syringe; but it fulfills to a nicety all the many requirements of a vesical syringe, whether used by the patient or the surgeon. Dr. Van Buren and myself, after passing it through several modifications, have employed

it continuously for more than a year, and now rely upon it almost to the exclusion of the rubber-bag syringe, which was before the favorite. A number of patients are now using the instrument under our direction. In no case has it given rise to any inconvenience, while its application has been uniformly easy and productive of all the comfort that injections can afford. The most bungling fingers of the clumsiest old man can master its simple requirements in one or two lessons, and the expressions of gratitude for the relief it has afforded have been sometimes touching in their earnestness.

Before describing the syringe and its method of use, a glance at a few of the type instruments, both catheters and syringes, which have been commonly employed for making injections into the bladder, will expose the objectionable features of each—features which have led to a search for something better, and objections which do not hold against the present instrument.

All syringes having a piston-movement are faulty. The piston is pretty certain sooner or later to get out of order, and either to become too loose, admitting air, or too tight, requiring force to start it, and then moving in a jerking manner. But, even allowing that the instrument keeps in perfect order, many an old man cannot use it at all upon himself, to say nothing of comfort. Only with the utmost care can the surgeon drive the piston home without some shock; and any, the least, motion communicated to the catheter by the syringe is felt by the neck of the bladder—the most sensitive portion of the whole tract—the part it is especially desirable not to irritate. Vesical injections would lose half their value as a therapeutic measure, indeed would sometimes be actually harmful, were it necessary that during each injection the neck of the bladder should receive a slight shock. The gentleness with which the injection is executed is a large factor in the value of the procedure. When to this serious objection are added the others, the difficulty an old man experiences in using a piston-syringe upon himself with one hand, while he is holding the catheter in the other, and the necessity of refilling the syringe, or at least readjusting it for each injection, if several be required to clean the bladder, it becomes evident why the

piston-syringe, for use by the patient at least, has been so generally abandoned.

The injecting-bag does better, but it has its faults. It is difficult to impress an old man with the unadvisability of throwing air into the bladder, and harder still, in many cases, to teach him how to avoid it. The patient will persist in opening the stopcock too soon, or only partly filling the bag. The trembling hand, so inefficiently aided by the failing sight, makes clumsy work of introducing the pointed nozzle of the syringe into the small opening of the catheter, and the shrunken fingers will sometimes clasp the bag in vain in the effort to expel its contents—for it requires pretty steady and continuous pressure on a bag-syringe to make an injection through a small catheter. The injecting-bag, however, is so much more simple than the piston-syringe, that it has enjoyed a just popularity.

As for some other means of cleansing the bladder except by simple injection through a catheter, the fluid being allowed to flow out again through the same instrument, but a few words need be said.

Instruments *à demeure* (perhaps left open), through which occasional injections may be practised, inflict unnecessarily prolonged violence upon the neck of the bladder, and are at best desirable only in a very small minority of cases.

Any means of ordinary drainage, though better than allowing the urine to stagnate, is less good than where injections are employed.

Irrigation, besides the objection urged against instruments *à demeure*, may be accused of the fault which is conspicuous in double-current catheters; namely, that with them it is sometimes impossible to wash the bladder clean.

Double-current catheters of all descriptions have one cardinal defect, namely, that during their use the bladder does not at any time become distended. The stream rushes in through one side of the instrument and immediately out through the other without lifting out from each other the folds of a bladder, perhaps flabby, atonied, collapsed; and in consequence much of the pus and altered mucus lying in small sacculi, and

among the folds of the emptied organ, does not come into contact with the cleansing fluid.

To wash the bladder thoroughly it must be somewhat distended.

Fig. 1 shows the instrument in all its parts, with a soft-rubber catheter. This latter style of instrument is the best, on account of its softness, in all cases where it can be made to pass, and is eminently suited to most cases of enlarged prostate, that condition most often requiring a continued use of the catheter, and, consequently, of cleansing injections; the latter not only to keep down inflammation of the bladder itself, but also to ward off any tendency to the local formation of phosphatic calculus.

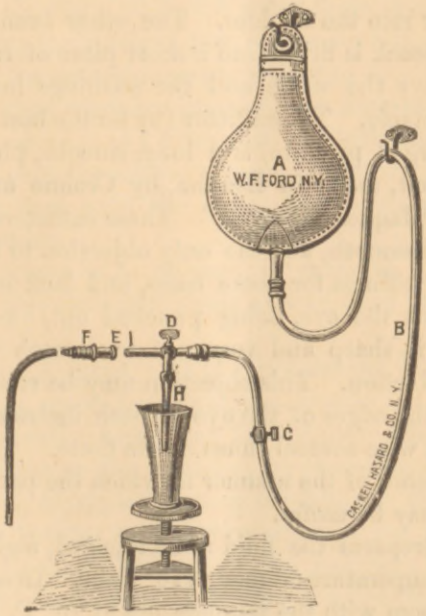


Fig. 1.

The simplicity of the instrument as figured is obvious. To the fountain-syringe *A B* with bag holding a pint, and tube of variable length, so as to allow, if desirable, considerable pressure by elevating the bag, is attached a two-way

stopcock *D*. Upon the tube is another stopcock *C*, only useful when it is desired, having thrown a medicated solution into the bladder, to retain it there for a certain length of time without either allowing the bladder to become over-full, or its contents to escape. The nozzle *I* of the nickeled stopcock *D* is very large, nearly a quarter of an inch in diameter, and fits snugly into the expanded conical (also nickeled) mouth-piece *E*. It is so large, and fits so easily, that the most clumsy fingers can readily adjust it almost unaided by sight. Upon this conical catheter mouth-piece is fitted a thin piece of rubber tubing *F*, covering its upper two-thirds. This allows the mouth-piece to be used with any metallic or other hard catheter, to prevent leakage. The fine conical point of the mouth-piece is to be screwed into any soft catheter before introducing the latter into the bladder. The other branch *H* of the two-way stopcock is fitted into a short piece of rubber tubing which conveys the urine and the washings into some convenient receptacle. The catheter (by far the best for ordinary cases of enlarged prostate) is a long, smooth, pink, soft, rubber instrument, made in London, by Crohne and Seseman, and marked "Jaques, patentee." These catheters are wonderfully soft and smooth, and the only objection to them (except their lack of stiffness for some cases, and lack of calibre for others) is that the eye, being punched out, has no beveled margin, but is sharp and very apt to scratch unpleasantly during introduction. This objection may be readily removed by beveling the edges of the eye of each instrument by passing a red-hot wire several times across them.

A brief detail of the manner in which the patient uses this instrument may be useful.

He first prepares the fluid to be injected, eight ounces or more, at a temperature of about 110° Fahr. In several experiments in a room with the temperature at 70° F. I have found that water loses from 15° to 20° Fahr. during the usual delays after its preparation, and while passing through the syringe into the bladder and out again. The bag filled with the warm fluid is hung up about six feet from the floor. The stopcock *D* is now turned on till all the air is forced out of the tube, and a jet of water follows. The instrument is now charged

for use, and no subsequent disturbance can make it possible for any air to be thrown into the bladder. Now, standing before a stool bearing some receptacle, the patient slowly introduces his catheter, dipped in vaseline,[1] and already attached to the large metallic mouth-piece *E*.

As soon as the urine begins to flow, the patient immediately couples the large nozzle of the stopcock *I* and the large metallic mouth-piece *E* with which his catheter has been provided, and the urine flows promptly through the short rubber-tube into the vase on the stool before him. When the urine has escaped, he turns the stopcock *D*, and the bladder slowly fills. As soon as the organ begins to feel distended, he turns the stopcock again. The simple motion of turning a well-made stopcock does not communicate the slightest jar to the neck of the bladder; while the water flows in and out of the body, obeying the natural law of gravitation, so slowly and quietly that the patient scarcely perceives it.

He may thus wash his bladder very thoroughly four, five, or six times without any change of the instrument or its adjustment, except the simple turning to and fro of a stopcock; and this he does until the water flows comparatively clear from his bladder.

If cold water is to be used, or pressure, or some medicated fluid, this syringe answers as well as in the case of simple washing.

When the surgeon uses the instrument he may roughly calculate how much goes into the bladder in a given time (and, consequently, how much to withdraw when he intends to leave a little in the bladder), by remembering that with the bag hung at six feet, about two-fifths as much fluid will run into the bladder as will flow through the same catheter held at the same height out of the bladder; and in my experiments it has made no difference whether the bladder was atonied or not, about the same amount flowing in a given time into the healthy bladder of a middle-aged man as into

[1] Vaseline is better than any other oily substance. It is unirritating, lubricates well, and never becomes rancid; moreover, it does not drop on the carpet or clothes.

the atonied bladder of an old man who could pass only the excess over a residuum of four and one-half ounces.

To sum up concisely, the following are the requirements of a good vesical syringe. The instrument described meets them fully.

1. Simplicity of structure; absence of valves or piston. In short, the instrument should be one which will not get out of order.

2. Capability of throwing a continuous, steady stream, without shock, at a pressure which may be regulated at will.

3. Some contrivance which renders any entrance of air into the bladder impossible.

4. A large nozzle to fit very easily into the catheter mouth-piece without leakage.

5. A smooth, soft, single-current catheter with a proper eye.

6. Capability of furnishing repeated successive injections without being refilled, without a reapplication of the instrument, or the necessity of imparting any motion to the catheter.

III.—AN EASY METHOD OF REMOVING ROUNDED FOREIGN BODIES FROM THE URETHRA. By E. L. Keyes, M. D.

[*REPRINTED FROM THE MEDICAL RECORD, MARCH* 6, 1875.]

I bring the following case before the profession, because I believe the suggestion it contains to be one possibly of novelty, certainly of value. As to the origin of the idea of using Thompson's divulsor in lieu of forceps, for the extraction of a foreign body, it may be old, but if so the fact is not well known. Personally I certainly stumbled upon it, mainly by accident, but the excellence of the method and its extensive applicability were at once apparent to me, as they must be to any one who has had any considerable experience in attempts to extract foreign bodies from the urethra.

The best of the instruments in ordinary use for this pur-

pose are the long urethral forceps, the crocodile forceps of Mathieu, or that of Collin & Cie., and the urethral scoop of Leroy d'Etiolles; but the first three of these are very apt to lacerate the urethra more or less, by pinching up a little of its mucous membrane along with the foreign body, or during the repeated and often fruitless efforts to seize the latter, while the last instrument named is apt to damage the urethra considerably by bruising its walls against the foreign body, which it extracts by forcing it along in front of its upturned extremity.

Only a short time before meeting the patient, whose history is about to be detailed, I saw another analogous case in consultation, where a smooth, round stone had been passed from the bladder and lodged in the urethra. It filled the canal completely, and although the forceps could be easily brought into contact with the anterior face of the stone, still it was found impossible to seize the latter, and after many fruitless attempts, in which considerable blood flowed from lacerations made in the mucous membrane, it was finally found necessary to incise the urethra in order to extract the stone. A fine probe was easily insinuated beyond the obstruction in this case, and nothing would have been easier than to have followed a tunneled divulsor over a guide past the stone, and to have thus extracted the latter, had the idea occurred to any one present, which it did not.

Other instances come to mind; but a self-evident fact requires no labored demonstration, and that a new and simple means of extracting foreign bodies from the urethra is a desideratum none will deny.

My case occurred at the end of August, 1874. Shortly afterward, while looking over a report read before the Georgia Medical Association, in April, 1874, by Dr. Westmoreland, Professor of Surgery in the Atlanta Medical College, on "Thirty-seven Cases of Urinary Calculus" (*Atlanta Medical and Surgical Journal*, October, 1874, p. 415), I was surprised to notice that this gentleman had removed three small calculi from the urethra of a patient with Thompson's divulsor—introducing the instrument the first time, however, not with a view of removing the stones, but for the purpose, it seems, of

dilating a stricture which detained them in the urethra. The case, in brief, was that of an old man, who had undergone external perineal urethrotomy for organic stricture at Dr. Westmoreland's hands. The patient had before passed gravel and continued to do so readily enough while he kept his stricture mechanically dilated. Discontinuing the use of his instrument, however, some gravel-stones came down and were arrested by the stricture. Stone could be felt through the integument, and was easily recognized by a sound passed through through the stricture. For several weeks attempts were made to dilate the stricture so as to allow the stones to pass, but to no purpose. Finally, a Thompson's divulsor was introduced through the stricture, screwed open, and, on being closed and removed, was found to have two gravel-stones between its blades. The doctor immediately reintroduced the instrument, opened it, and safely extracted another small stone.

Thus the priority in this manœuvre belongs to Dr. Westmoreland, or, perhaps, to another, although I have read of no similar case elsewhere. I adopted the same expedient, however, ignorant that it had been practised before.

My case needs no further comment beyond its report.

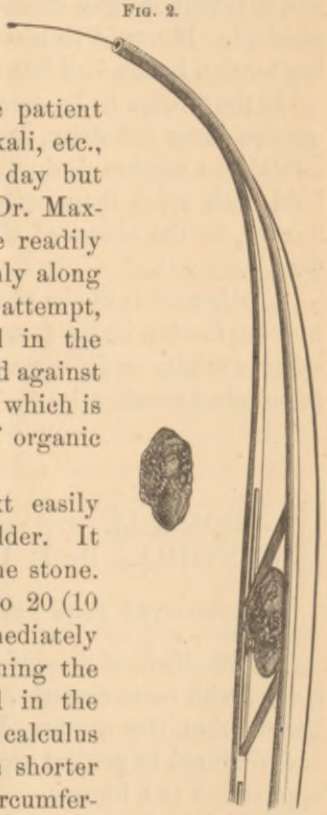
Dr. X., aged thirty-five, a practitioner in a neighboring town, married, and the father of healthy children, had renal colic five years ago, which terminated in sudden relief. He was not aware of passing any stone by the urethra. Three years and a half ago he had another similar attack, but could detect no stone in the urine voided. Two months before I saw the patient, he suddenly got retention without any previous diminution in the size of the stream of urine (he had never suffered from gonorrhœa). Retention lasted nine hours. A physician passed a catheter, but did not reach the bladder. On withdrawing the instrument the urine flowed spontaneously. Retention recurred with overflow, and relief was only obtained by again resorting to the catheter, although the latter again failed to enter the bladder.

During the two months there was continual trouble in urination. Sometimes the water would come in a small stream, more or less interrupted in a sudden manner, sometimes it would not flow at all for a time.

After seeing another physician, who diagnosticated tight organic stricture, the doctor came to New York and consulted Dr. E. A. Maxwell, who passed a whalebone filiform guide into the bladder, felt the grit of the stone on its passage, and referred the patient to me.

I introduced a blunt steel sound down to the point of obstruction, at the triangular ligament, but, not encountering any gritty feel, I concluded there was some fleshy obstruction to the passage of any calculus the urethra might hold. I decided, therefore, that the latter must be stretched, and sent the patient home to prepare himself by an alkali, etc., for the operation. On the next day but one, he called at my office with Dr. Maxwell. I passed a whalebone guide readily into the bladder. It grated roughly along the stone during its passage. On attempt, ing withdrawal, it was retained in the grasp of the urethral muscles pressed against the stone in that peculiar "bite" which is believed to be so characteristic of organic stricture.

FIG. 2.



Stone, of Natural Size, showing Position in which it was caught by the Divulsor.

A tunneled divulsor was next easily passed over the guide into the bladder. It grated still more roughly past the stone. The instrument was screwed up to 20 (10 mm. diam.) without ether, and immediately unscrewed and withdrawn, containing the stone in its grasp as represented in the woodcut. The dimensions of the calculus were $\frac{5}{8}$ inch long, $\frac{5}{16}$ diam., $\frac{3}{4}$ inch shorter circumference, $1\frac{1}{2}$ inch longer circumference. Weight 8 grains. Composition, oxalate of lime. Surface, very rough.

Entire relief followed the operation.

A full-sized blunt sound passed readily into the bladder one week subsequently, detecting a point of tenderness where the stone had been lodged, and causing the flow of a little

blood, but not meeting any obstruction like a stricture. The patient remains well.

Although rough, the stone was rounded, and I think it probable that no rounded object in the urethra can escape slipping above or below the narrow blade of a divulsor, which happens to be pressing against it in dilating the canal, and finally becoming lodged between the two blades, to be caught securely by them as they spring back on relaxing the screw; and this without any danger of the mucous membrane being pinched. It would be better if the divulsor used for extracting foreign bodies had but one cross-bar.

If the foreign body were a stone fragment impacted in the urethra after lithotrity, it might have angles which would scratch the urethra during removal; but this objection would hold with more than equal force against any other form of forceps, for the blades of the divulsor shield the urethra very well.

Further trials of the tunneled divulsor as a forceps for extracting foreign bodies from the urethra will soon establish its relative merits or defects as compared with other instruments. It promises excellently.

IV.—REMOVAL OF A PIN FROM THE DEEP URETHRA. By E. L. Keyes, M. D.

[*REPRINTED FROM THE MEDICAL RECORD, MAY* 1, 1875.]

In the *Medical Record* of March 6, 1875, I communicated a case, with some remarks, on the removal of rounded foreign bodies from the urethra, by means of Thompson's divulsor, and ventured to predict success for the instrument in its wider application as a forceps.

The following case is in point, and the brilliant result which attended the use of the same instrument, in extracting one of the longest and sharpest of the foreign bodies apt to find its way into the male urethra, justifies the publication of a note upon the subject before the memory of the older case grows cold:

——, a young man, was sent to me at my office, on the morning of April 16th, by a physician, with a note, stating that he (the patient) believed he might have a pin in the urethra. The doctor had found a stricture of large calibre at four inches, and with a steel instrument felt something gritty, which he believed might be a pin or calculus, "at five or six inches."

The patient's story was that he had been troubled in voiding urine for some time previously, and on the night of April 15th, while under the influence of liquor, had found himself unable to pass water at all; that he had consequently introduced a pin, headforemost, into the urethra, and "thought it might have dropped in;" that his retention was relieved later in the evening by a physician, who passed a catheter, and that on the following morning (April 16th) he had applied to the physician who sent him to me.

Examination of the urethra externally failed to detect any thing feeling like a foreign body. Pressure on the perinæum caused pain, but not a sharp pain as of pricking.

I passed a long whalebone filiform guide, and distinctly felt the grating against a foreign body in the deep urethra. Upon the guide, Thompson's divulsor (tunneled) glided smoothly into the bladder. The blades were separated widely, and were then again approximated, the entire instrument being rotated over about a quarter of a circle back and forth while the blades were approaching each other, as I believed this manœuvre well calculated to catch a pin.

On withdrawing the divulsor, closed, the pin was found within it, at a point corresponding to five and a half inches from the meatus. The pin was a stout brass one, one and an eighth inch long, and came out point foremost, but lying snugly between the hollowed blades of the divulsor, its point unable to catch the urethral walls.

The gratification of the patient may be better imagined than described.

An ordinary forceps would have encountered great difficulty in catching this foreign body in such a manner that the point would not have lacerated the urethra on its way out. The pin could not be felt from the perinæum or the rectum,

so as to have its point pushed through the integument, and then to be forcibly extracted by Dieffenbach's[1] method; and, had it reached the bladder, a stone and subsequent lithotomy would have been the least bad results; in short, it is hard to conceive of a method better adapted to such a case than the one used, and therefore it is now justifiable to extend the probable applicability of the divulsor as a forceps to the extraction of all foreign bodies from the urethra, long and sharp as well as rounded.

NOTE.—The following account of this patient is interesting, and completes the case. I first learned the facts on May 13th, two weeks after publishing the above in the *Record:*

The patient had no urethral fever, and no instrument was introduced after extracting the pin. He reported great ease in passing water, a full supply flowing in a large stream.

In a few days he complained of pain in the back, and loss of appetite, with constipation.

He had not looked well previously to the operation; was thin and badly nourished. I treated him for several days at my office, but finding that he did not improve, that he was becoming feverish (he had no chills), and could not be well fed at home, I had him, through a medical friend, apply at a hospital. Admission was refused, on the score that he was not sick enough. I made another attempt at another hospital, but again failed, and then advised him to apply directly to one of the city institutions. He promised, if successful, to send me word that I might continue to watch him, and, as he failed to do this and ceased to visit me, I concluded he had recovered, and published his case.

It appears that this man entered the fever wards on Blackwell's Island as a case of probable cerebro-spinal meningitis, April 24th. Soon after admission he became paraplegic, and died April 30th, the diagnosis still being spinal meningitis. He told his attendants of the extraction of the pin, but by a series of errors of omission, so common in our large institutions, I was not informed of the man's whereabouts, nor was the curator who made the autopsy furnished with the patient's full history; consequently the urethra was not examined, nor the spine, and it is now unfortunately only a matter of conjecture what part, if any, in the fatal issue, was played by the operation of extracting the pin, an operation which, at the same time, divulsed a deep stricture.

The *post-mortem* examination led the curator to record as the cause of death, "Typhus fever, with hæmorrhagic infarctions of the lungs and liver."

[1] "Ueber fremde in die männliche Harnröhre eingedrungene Körper," *Casper's Wochenschrift*, 1, 1843.

The body was covered with petechiæ and small ecchymotic spots, and with elevations of the cuticle full of serum, more or less mixed with blood and pus. The mucous membranes of the stomach and intestine were similarly studded with little hæmorrhages; the mesenteric glands were large and firm. Peyer's patches prominent and pigmented. There had been recent pleurisy, the pericardium contained some bloody fluid, and the serous membranes showed hæmorrhagic spots like the other membranes.

The bladder was distended, thin, and sprinkled with bloody spots; the latter were found also in the kidney pelves, with signs of recent pyelitis.

The brain was normal; cord not examined.

Numerous hæmorrhagic infarctions, of varying size up to one inch in diameter, were scattered through the lungs, the largest having one or more purulent centres.

The liver was enlarged and contained one similar infarction. Spleen enlarged and softened.

The kidneys were congested and studded with minute abscesses.

Such, in brief, is the history, the patient dying two weeks after the operation.

The signs at the autopsy, though not absolutely demonstrative, are strongly suggestive of pyæmia, although other interpretations might be given to them.

In any case the issue was affected by this man's stricture, and his death does not imply a defect in the means used to extract the pin, for doubtless the same result would have followed the employment of any other.

To the curator and house-physician I am indebted for all possible assistance and courtesy in working up the points of this history; its imperfections I regret.

210 Madison Avenue, *May* 20, 1875.