

## **Bladder-drainage / by John Chiene.**

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# BLADDER

By J.

WILSON, M.D.

*Read before the Medical-Chirurgical  
Society from the Library*

In August 1876 a case of pyelitis was in the Royal Hospital of St. George, had formed a fistula, through which all urine passed. It was evident that from previous experience it seemed to me to be due to the wound dry. If a catheter were used, which the patient resists, it is that on the day following the urine passing along the side and interferes with, or altogether averted, the urine being allowed to pass the same result. The patient's legs, the same result.

The problem seemed to be one time, and thus placed. The method adopted, after a while, was a gum-elastic catheter with sticking-plaster. The catheter is just within the urethra, and the tube is fixed, being secured over the side of the body. The bottle and tube are secured by the apparatus. The glass tube is at a right angle to the floor. In order to prevent the glass tube from being in the bottle a piece of glass is placed in the bottle. If the glass tube extends into the bottle a siphon will be created and a siphon



## BLADDER-DRAINAGE.

By JOHN CHIENE,

SURGEON, EDINBURGH ROYAL INFIRMARY.

*(Read before the Medico-Chirurgical Society of Edinburgh, November 3, 1880, and  
Reprinted from the Edinburgh Medical Journal for December 1880.)*

IN August 1876 a case of perineal fistula was admitted into the clinical wards in the Royal Infirmary. A large opening, the result of sloughing, had formed in the floor of the urethra behind the scrotum, through which all the urine passed at each act of micturition. It was evident that a plastic operation was necessary. From previous experience in such cases, the great delay in healing seemed to me to be due to the difficulty experienced in keeping the wound dry. If a catheter is tied in the usual way, and a plug worn, which the patient removes at each call to micturate, the result is that on the day following the operation, during micturition, the urine passing along the sides of the catheter reaches the wound, and interferes with, or altogether prevents union. Even if no plug is used, the urine being allowed to drip into a basin between the patient's legs, the same result follows, to say nothing of the damp, uncomfortable condition of the bed.

The problem seemed to be, How can the wound be kept dry for some time, and thus placed in favourable conditions for healing? The method adopted, after various experiments and trials, was as follows:—A gum-elastic catheter is introduced and fixed to the penis with sticking-plaster. Care is taken that the eye of the instrument is just within the neck of the bladder. To this catheter an indiarubber tube is fixed, of sufficient length to reach without being strained over the side of the bed to the floor. It then passes into a bottle. The bottle and tube are filled with carbolized water before attaching the apparatus to the catheter. Care is taken that no air can get in at any of the joints. It is well to introduce a piece of glass tubing at a convenient part for observing the direction of the flow. In order to keep the indiarubber tube steady in the bottle a piece of glass tubing is attached to its extremity. If the glass tube extends beyond the neck of the bottle, any folding of the indiarubber tube at this point will be prevented. It will be evident that a siphon action is in this way established, with



a suction power the strength of which depends on the height of the column of water, and which will draw the urine into the eye of the catheter as it passes drop by drop from the openings of the ureters into the bladder, and a constant slow current of water will pass along the tube into the bottle. The bottle is allowed to overflow into a basin, which, as it fills, can be emptied by the nurse without any risk of displacing the apparatus. The bladder is kept constantly empty, with the exception of two tiny streams of urine from the ureters to the eye of the catheter. Care must be taken not to have too great a fall, or the suction of a piece of mucous membrane into the eye of the catheter will cause uneasiness and plug the catheter. The height of the hospital bed is generally sufficient, and in some cases even a less height is all that is required.

It will be evident to the experimental therapist who may desire to study the action of diuretics that by this apparatus much will be learned. The bottle being graduated, the rapidity of action can be easily studied. Since using the instrument on the human subject I have learned that Professor Goltz of Strasbourg has used a similar apparatus in an experimental research requiring an accurate estimate of the exact amount of urine secreted in a given time. In the first case the apparatus did not act perfectly, and on the sixth day the wound became wet with urine. The result was only an improvement. Still, the success was so marked that I tried it in the following year in another case, in which the floor of the urethra was destroyed for an inch and half by injury. The result in this case was a complete success. After the plastic operation the apparatus was applied, and the wound kept perfectly dry until it was soundly healed.

Since 1877 this method has been used in a case of recto-urethral fistula with much advantage; in 1879, in four cases of chronic persistent perineal fistulæ (which had resisted the usual means of treatment). In three of these cases a stricture, in the fourth a perineal abscess, the result of cold, started the condition. In all a permanent cure resulted. In these cases the instrument was kept in continuously for periods varying from a week to a fortnight. It was occasionally removed in order to readjust it. During the time it was removed for cleaning, the patient was instructed not to make his water. I have never found any bad results whatever follow its use. It is also of value in hastening healing, and keeping the patient dry and comfortable during the healing of the wound after external division of a stricture.

Let me, however, more particularly direct attention to bladder-drainage in chronic cystitis. It will, I think, take a most important place in the treatment of that troublesome and common affection. The two great symptoms are frequency of micturition ("irritable bladder"), and excessive quantities of mucus in the urine ("catarrh of the bladder"). The first symptom is at once relieved by the use of the instrument, and in some cases its use even only



during the night gives the patient unspeakable comfort, but in the majority of cases it is best kept in the bladder continuously. The difficulty is the choking of the instrument with mucus; this will be prevented by having a double eye in the catheter, and by raising the bottle night and morning in order to make a back-flow, which clears the instrument. The patient can very soon tell when the flow ceases, and the bottle can then be raised slightly above the level of the patient. At once the plug of mucus is displaced. It is very interesting to observe the effect of rest to the bladder as indicated by the decrease in the quantity of mucus. In one case of perineal fistula, complicated with chronic cystitis, this improvement was very marked. The systole and diastole of the bladder are excessively increased in irritable bladder. No heart would stand such an increase in its pulsations. This, in my opinion, is one of the reasons why chronic cystitis is so intractable, and any means by which we can prevent the periodic rise and fall of the bladder, the incessant unrest of the organ, will always be of the greatest value in relieving inflammation of the viscus. For its value in chronic cystitis alone I would be inclined to recommend a careful trial of bladder-drainage. By some means or other let it be carried out; the method matters not. What is important is to come to a conclusion as to the value of the principle involved. Its main value in chronic cystitis, in my opinion, is to give the bladder rest. It acts as a drainage-tube in a wound or in an abscess cavity. It has, however, a value in urethral fistulæ; in those requiring plastic operations it keeps the wound dry and allows speedy union to take place; in those requiring only that the urine which is abnormally passing along the fistulæ and keeping them open should be prevented from so doing, by being drained off immediately on its entrance into the bladder. *To give the bladder rest and to keep the urethra dry*, I know no better means than that which I now advocate. I am not aware that the idea of keeping up a constant suction power which draws off the urine as it drops into the bladder has been previously recommended in surgical practice. It is certainly a very different thing from the use of the catheter tied in and used in the ordinary way. That the means recommended are simple is self-evident; they can be applied by any one. That no harm is done to the patient is the result of my experience; that all operations on the urethra are treated more certainly by the use of the apparatus, and that it is of great use in many cases of chronic cystitis, relieving the symptoms in all, and giving permanent relief in others. That the symptoms of chronic catarrh are in some cases very intractable is evident, when we remember that chronic cystitis has been treated by the lithotomy incision in order simply to rest the bladder. Such are the reasons why I have introduced this means of treatment to the notice of the members of the Medical Chirurgical Society of Edinburgh.



*Note.*—In the discussion which followed the reading of the paper several points were raised to which it may be well to allude:—*1st*, Its use in catarrh of the female bladder. I have tried it, but found the siphon did not work. I believe, in consequence of the short urethra, air passed into the bladder and destroyed the siphon action. *2d*, The use of the red rubber catheter instead of the gum-elastic instrument. The red rubber catheter is not so easily fixed in position. *3d*, Its use in enlarged prostate and malignant disease of the prostate. I have not used it in these diseases. In one case of enlarged prostate I tried it, but it did not work efficiently; it might, however, be of use. For my own part, since Mr Jonathan Hutchinson directed my attention to the value of the red rubber catheter for drawing off the urine in prostatic cases the disease has been robbed of many of its terrors. *4th*, The danger of phosphatic deposit on the point of the catheter. This has never given me trouble. I suspect the reason is that the point of the instrument is not lying in urine, but is practically dry, the urine being drawn off into the eye of the instrument by the suction power, to which, I believe, the value of the instrument is to be attributed. *5th*, I have never had occasion to use it in rupture of the membranous urethra. In such a case I should most certainly try it. It would be of great assistance in preventing extravasation of urine. *6th*, The habitual night and morning raising of the bottle is, in the majority of cases of chronic cystitis, sufficient to keep the catheter clear of mucus and prevent plugging of the instrument. *7th*, How the catheter should be fixed to the penis. In tying in a flexible catheter, which adapts itself to the curves of the urethra, the best way, in my experience, is to fix a strip of sticking-plaster to the catheter firmly with silk. This strip passes down either side of the penis. A piece of boracic lint is wound round the catheter at the meatus urinarius, under the strip of sticking-plaster. Another strip of sticking-plaster is wound round the penis, over the strip passing down the sides of the organ. After it has been round twice, the strip passing along the sides of the organ is turned back towards the point of the penis, and then two more turns are applied over it; it is then turned down again, and two more turns are applied. In this way the catheter is practically incorporated with the penis. I have always used common sticking-plaster; the rubber plaster might, however, I think, with advantage take its place.





