Chronic diseases of the urethra and prostate : with special reference to their treatment by irrigation / by F.W. Stokes.

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OF THE

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WITH SPECIAL REFERENCE TO THEIR

TREATMENT

BY

IRRIGATION

BY

F. W. STOKES, M.R.C.S.

SECOND EDITION

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PREFACE.

In writing the following remarks on the treatment of the more intractable forms of chronic urethral disease, I have wished to indicate those methods which have in my own practice been most successful.

IRRIGATION in catarrhal conditions of other mucous tracts is a well recognized mode of treatment, and I have endeavoured to show, in the following pages, its adaptability to chronic diseases of the deeper portions of the urethra.

F. W. STOKES.

453, Strand,
Charing Cross,
LONDON, W.C.

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CHAPTER I.

INTRODUCTION.

From the time I gave my attention more particularly to the study of Genito-Urinary Diseases, I was struck almost from the first with the large number of cases which would come, medically speaking, under the head of Chronic Gleet, Prostatorrhœa, or Spermatorrhœa; or of Nervous Debility, which is simply a constitutional condition resulting from, or accompanying one of the above mentioned diseases long continued. Not only did the number of these cases seem excessive, but, what to me as a surgeon was still more important, their extreme chronicity, and the great difficulty patients suffering from these disorders experienced in obtaining any relief, piqued, first my curiosity, and,

secondly, my professional instinct, to endeavour to discover the determining and evidently persisting cause of these diseases, and then to enquire why the usual methods of treatment were so ineffectual as regards curative effect, and whether other methods might not be tried which would be more successful.

With this in my mind I gave more than usual attention to this class of diseases, with the result that I found, in the majority of cases, that the seat of the disorder was that portion of the urethra which passes through the prostate, and known as the prostatic urethra.

In these cases the penile portion of the urethra was free from disease, but, in most of them, on passing a full-sized bougie, the prostatic urethra was found to be encroached upon, the bougie passing with difficulty, or, the walls of the urethra in this situation were felt to be abnormally rough. In all there were unusual pain and difficulty in passing the instrument along this portion of the canal.

Gouley—an American surgeon—speaking of chronic urethritis, says: "In some cases the only perceptible lesion is congestion of the mucous membrane. This congestion is generally diffused over a space of two or three inches, involving the bulbous, membranous, and prostatic regions. It rarely involves the whole length of the urethra."

Again, Ultzmann, Professor of Genito-Urinary Diseases in the University of Vienna, is still more explicit:

"A Gonorrhœa which runs a normal course, begins at the orifice of the urethra, and ends at the beginning of the sphincter vesicæ externus. If, however, an abnormal course sets in, if the gonorrhœa extends beyond the isthmus urethræ, then, in the first place, the prostate is involved by sympathy, it becomes catarrhal, and if prostatic catarrh once becomes chronic, then various nervous symptoms gradually arise, now in the urinary, now in the sexual system. Likewise, localized hyperæmia occurs, and even prostatic catarrh after gross excesses in venery and after masturbation."

Gross was the first to accurately describe prostatorrhœa as a sub-acute or chronic inflammation of the prostate.

From these and other facts, I think we may reasonably conclude that it would be by direct treatment of this portion of the urethra that we should have the best chance of a successful result in curing these obstinate diseases: how this can be effected I hope to show in the following pages.

CHAPTER II.

ANATOMY OF THE GENITO-URINARY ORGANS.

To have a clear understanding of the results and the treatment of the various diseases of the genito-urinary organs, it will be necessary to briefly describe the structure and relations of these organs. The following description, though accurate so far as it goes, is not minute or exhaustive, but is meant to be only such a sketch as will enable the unscientific reader to properly understand the subsequent chapters. The urine is excreted by the kidneys, from which organs it flows down the ureters into the bladder. After its detention in that organ for some time it is finally expelled through the urethra.

The genital portion of this system consists of *the testicles*, where the spermatozoa or

spermatic animalcules are formed. *The vasa deferentia* or *spermatic canals,* serve for the conveyance of the secretion of the testicles, and, after joining the ducts of the seminal vesicles, open by the common seminal or ejaculatory ducts (right and left) in a slit on each side of the floor of the prostatic portion of the urethra.

The *seminal vesicles* are two dilated tubes, bent in a zigzag manner, about two inches long, and situated on the under surface of the bladder. Posteriorly, their dilated extremities are situated about two inches and three-quarters from each other, but, anteriorly they converge, and, becoming smaller and straighter, they are joined by the spermatic canals on their inner sides, and so form the common seminal ducts. They serve as reservoirs for the storage of semen, which they also dilute by the secretion of a clear mucoid substance. The seminal animalcules are not fully developed when they reach these glands, but, after a more or less lengthy sojourn in these sacs, become fully mature.

The *Prostate* in size and shape resembles a

horse chestnut. It is situated at the lower part of the bladder, the neck of which it partly surrounds. Its broad part or base is directed towards the bladder, and its apex is directed forward away from that organ.

Its under surface is supported by the rectum, with which it is in close contact, so that, in enlargement of this organ, a finger passed into the rectum can easily make out the extent of its deviation from the normal. The prostate consists of three divisions or lobes, two lateral ones which make up the greater part of its substance, and a small median one which joins the two lateral ones together, and is situated between the neck of the bladder and the seminal ducts.

Running through the gland from base to apex is a part of the urethra—the prostatic urethra—and the two common seminal ducts also pass through a portion of its substance to open into the urethra.

The structure of the prostate is chiefly muscular and glandular, and although its exact function is not perfectly known, it appears to secrete some substance of im-

portance in the elaboration of the semen, and its secretion, along with that of Cowper's and the urethral glands, is of service in lubricating the lining of the urethra previous to ejaculation, and so facilitating the passage of the semen along that tube.

It is richly supplied with nerves, and Ultzmann considers it in part homologous to the neck of the womb in women, and the numerous disorders to which it gives rise when diseased, as analogous to those hysterical affections which occur in women as the result of uterine congestions and displacements.

The *Urethra*, or pipe, extends from the bladder to the meatus or opening in the end of the penis. It is anatomically divided into three portions, the penile or spongy, the membranous, and the prostatic. The total length of the urethra is stated to be, on an average, eight inches, but in the ordinary or relaxed condition of the parts, its extreme length is about seven inches. The portion which is enclosed by the penis, or the *spongy part*, is from five to six inches in length. It is about a quarter of an inch in

diameter and flattened from above downwards. Its walls, upper and lower, are in close apposition ordinarily, becoming separated only by the passage of urine or semen along its course. The external opening, or *meatus*, is a narrow slit placed vertically, and is the most contracted portion of the tube.

Traced backwards from the meatus, the urethra dilates somewhat in passing through the *glans penis* or nut, this elongated dilatation being known as the *fossa navicularis*. Another dilatation—the *sinus of the bulb*—exists at the posterior portion of this division of the urethra, which is situated just in front of the second part of the tube, and is enclosed in that section of the penis known as the bulb. Into this bulbous portion of the urethra the ducts of Cowper's glands open.

The second, or *membranous part of the urethra* is three-quarters of an inch in length, and extends from the apex of the prostate posteriorly to the bulb in front. It is the narrowest portion of the canal (with the exception of the meatus) and is surrounded by muscular fibres—the *compressor urethræ*—

which being always in a state of tonic contraction, except when they are relaxed for the passage of urine or semen, offer a certain amount of obstruction to the passage of bougies or catheters along the pipe, and effectually prevent the injection of fluids by an ordinary urethral syringe further back than the bulbous portion of the urethra.

The *prostatic urethra* is an inch and a quarter in length, and runs through the prostate gland from its base behind, where it opens into the bladder, to the apex of that gland in front, where it is continuous with the membranous urethra. It is the most dilated portion of the tube, and is spindle shaped, being broadest at its middle.

Running along its floor is a longitudinal ridge called the *crest of the urethra,* which has on either side of it a depression—*the prostatic sinus*—into which the numerous ducts of the glands of the prostate open. The crest of the urethra has passing underneath its fore part a small excavation known as the *prostatic vesicle* or *utricle,* on each side of which opens the common seminal duct, and, when

the crest is dilated, as occurs during coitus, it partially blocks up the urethra and prevents the semen passing backwards into the bladder. The prostatic vesicle is the representative in the male of the female uterus.

A few words may be said here as to the ordinary situation of stricture. Organic stricture of the prostatic portion of the urethra never occurs: by organic stricture I mean a contraction due to the result of inflammatory action in the mucous membrane. The crest of the urethra may become enlarged, and commonly is in those who have practised masturbation for some considerable time, and this enlargement may offer an obstacle to the passage of a bougie or catheter.

Again, the caliber of the tube in this situation may be encroached upon by an enlargement of a portion of the prostate itself, an affection common to elderly men; or, a calculus may partially or wholly block up the urethra here; but these are not cases of true organic stricture. The membranous urethra, though commonly the seat of spasmodic stricture, is very rarely affected with organic

stricture. The penile or spongy portion of the urethra is, then, that part most commonly affected with organic stricture, and it is the anterior two-thirds of this structure in which stricture is usually situated.

CHAPTER III.

CHRONIC URETHRITIS OR GLEET.

THIS is a condition of the urethra, or of some ducts or glands immediately opening into it, which is characterized by a more or less constant slight muco-purulent discharge. It cannot be strictly called a disease, it being really only a symptom, and the actual disease on which it depends may be one of several disorders. Thus, it may be, as is most often the case, the result of Gonorrhœa, and, again, when such is its originating cause, the immediate lesion may be a chronically inflamed or granular condition of a part of the urethra, a stricture, or the result of the extension of the gonorrhœal inflammation to the small glands of the urethra, to Cowper's glands, to the seminal vesicles, or to the

prostatic follicles, and the resulting discharge may arise not in the urethra itself but primarily in those glands or ducts.

Why Gonorrhœa is followed by chronic urethritis in some persons and not in others is probably due to the more or less improper treatment, hygienic, medicinal, and local, undergone, particularly during the acute stage. Briefly, we may say that chronic urethritis is more likely to result from gonorrhœa, if our patient indulge immoderately in alcoholic beverages, improper food, or much exercise, and particularly if he allow himself to have sexual intercourse, or have his sexual system excited in anyway whatever. Too active treatment of the disease during the acute stage, as by strong injections, or too large doses of "Specifics," may have to answer later on for the presence of gleet.

But gonorrhœa is not the sole cause of chronic urethritis, any long-continued irritation of the urethra may be an exciting cause. Thus, the passage of sand or gravel or other irritating substance in the urine, too frequent intercourse, masturbation, a

stricture, a too small meatus, and chronic inflammatory conditions of neighbouring parts, may each give rise to it.

SYMPTOMS.

Practically the only objective sign of this disease is the occasional oozing of a little matter, thin and viscid, or perhaps turbid and milky, from the external opening of the urethra. The quantity of this discharge varies greatly; it may be a continuous flow, it may make its appearance only at the termination of urination or when a motion is passed, it may be expressed from the urethra only when the penis is squeezed, or it may be only just sufficient to glue the lips of the meatus together.

Various vague pains in the loins and back, in the groins, in the perinæum or crutch, or in the penis itself, are complained of by the patient, but they are probably only reflex or subjective.

The most constant and persistent symptoms to which the disease gives rise are a feeling of nervous apprehension, anxiety, and

mental depression. The sufferer is constantly worrying himself concerning his complaint, to which he attaches a most exaggerated importance, and which he is apt to become convinced is absolutely incurable. To quote Gouley,—"Nothing is too absurd for the conception of some of the sufferers from chronic urethral discharges. They listen credulously to the ignorant and mendacious dicta of crafty and rapacious charlatans, while they are suspicious of honest physicians, and obstinately discredit rational advice and correct views. Many change their medical adviser as often as they do their erratic notions of the ailment which, owing to their own perversity, is destined never to be well."

To the surgeon the most important sign is an excessive sensitiveness of some portion of the urethra, usually the prostatic, on the passage of a sound or bougie.

This is seldom or never absent, and not only assists the surgeon in the diagnosis of the disease, but enables him to locate the exact seat of the mischief.

The physical character of the discharge

itself, also, is an important aid to the diagnosis of the seat of the disease. Thus, if it contain spermatozoa, it comes from the seminal vesicles; if it be turbid and milky, from the prostate; if it be clear like white of egg, from Cowper's glands; if thick and muco-purulent, it is probably due to persisting inflammation of the urethra, the result of gonorrhœa.

It is a common error to think that the presence of a persistent gleet following gonorrhœa is proof positive of the presence of a stricture. That such is often the case cannot be denied, but, that it is not so in many cases is equally true. Of course, the exploration of the urethra by a large-sized bougie will settle the question at once, and this proceeding in all cases should be the one first resorted to.

Is the discharge contagious? This is a question invariably asked by patients, and is one which, very properly, causes them much anxiety. A definite answer, yes or no, cannot always be given; we must in each case take into account the duration of the complaint, the character of the discharge itself,

and whether it be the result or sequel of simple irritation of the urethra, or of gonorrhœa.

If gonorrhœa has preceded it not very remotely, say within the last month or so, we shall at least be on the safe side by assuming that the discharge *is* contagious; but if it be the result of simple irritation of the urethra, or other diseases excluding the so-called specific ones—gonorrhœa and syphilis, or if, should it have followed gonorrhœa, that disease has not been characteristically present for several months, and, lastly, a most important point, if the discharge be free from matter or pus, we may with perfect justness and safety assure our patients that their disease is *not* contagious.

The treatment of chronic urethritis will be fully described along with that of chronic prostatitis.

CHAPTER IV.

CHRONIC INFLAMMATION OF THE PROSTATE.

CHRONIC Prostatitis or Prostatorrhœa may be the result of acute inflammation of the prostate, but is more commonly insidious in its onset and is originated by long-continued irritation of the deeper portion of the urethra by excessive sexual intercourse, masturbation, chronic urethritis, calculi, or by frequent catheterism.

SYMPTOMS.

Here, as in chronic urethritis, there is the constant presence of moisture at the end of the penis, and, when the penis is pressed, a slight discharge oozes from the meatus. This discharge occasionally makes its appearance

in some quantity when the patient goes to stool, and, as it is often milky in appearance, and has the characteristic smell which semen has, it is commonly, and erroneously, thought by the patients themselves to be that secretion. Much stress is laid on this idea by nervous patients, and quacks are in the habit of making considerable gains by encouraging the fallacy, and by asserting the many terrible consequences which must result from this "loss of seed" as they term it.

Why the discharge should be more copious on passing a motion is explained by the anatomical relations of the prostate, the stool in its passage out of the rectum presses on the posterior surface of the prostate and squeezes the secretion out of its ducts and sinuses.

A microscopical examination of the discharge is the best proof as to its source of origin. It is usually milky, though occasionally clear and viscid; if dried, and examined under the microscope, *no spermatozoa are to be found in it*, but only crystals of common salt, and small round or oval bodies made up of

superimposed layers arranged concentrically.

If the urine of a patient suffering from prostatorrhœa be examined it will be found to be cloudy, and, when held up to the light, numerous long cylindrical bodies like small pieces of thread are seen to be floating in it; these are probably casts of the ducts of the prostate.

If the finger be passed into the rectum the prostate can usually be felt enlarged and tender. Besides the presence of the discharge, the patient usually complains of a feeling of weakness and aching in the loins and back, and in the legs. There is a frequent desire to make water, though little is passed at a time, and the last drops are expelled with some difficulty, and drip from the end of the penis. Itching and burning in the crutch and around the anus are common symptoms, as also are piles and eczema in this region. If sexual intercourse be attempted, ejaculation occurs too quickly, and the passage of the semen along the urethra causes considerable pain. Actual impotence may result if the disease be allowed to continue its course unchecked.

If an instrument be passed down the urethra much pain is experienced when it passes along the prostatic portion of that canal, and the surgeon may have some difficulty in reaching the bladder.

As is the case in chronic urethritis, sufferers from chronic prostatitis commonly get into a condition of nervous depression. They become morose, sullen, incapable of concentration, easily fatigued, avoid company, and become entirely absorbed in the contemplation of their own miserable condition. This state, if not roused from, leads to yet more serious disorders: dyspepsia, with its hundred and one symptoms, constipation, heart disease, anæmia, and even organic disease of the brain and spinal cord.

These are of course extreme stages in the uninterrupted course of the malady, and sufferers need have no dread of them providing they retain but a moderate amount of self-control, and are willing to assist the surgeon all in their power in his efforts to eradicate the disease.

Lastly a common symptom, or rather a

complication, is subacute inflammation of the neck of the bladder. This is characterized by more or less constant pain deep down in the pelvis, *i.e.*, in the bladder, and pain at the posterior end of the urethra on making water, or, if a sound be passed, just when it enters the bladder.

CHAPTER V.

TREATMENT OF GLEET AND PROSTATORRHŒA.

It will be seen from what has gone before that I am of opinion that the seat of the mischief in these diseases is in the prostatic urethra or its immediate neighbourhood, and I believe that the difficulty experienced in the cure of these conditions is due to the fact that it is no easy matter to act *directly* on the particular portion of the urethra involved.

Before describing the plan of treatment I have found most effectual, I shall enumerate the ordinary methods by which a cure of these diseases is sought, and shall indicate those reasons which, I am of opinion, render them usually so ineffectual.

MEDICINAL TREATMENT.

Whether there are any drugs which act directly on the deeper portions of the urethra I am quite unable to say. One reads in medical works of a number of medicines which are asserted to have a beneficial action on these diseases, but they seem to me to exert their action rather indirectly than directly on the prostatic urethra. Along with chronic catarrh of the prostatic urethra there are in most cases, as has been shown, certain concomitant affections of the generative and nervous systems, and it is by alleviating these, and by improving the general bodily health, that these drugs are occasionally of service. Far be it from me to underrate the usefulness of drugs, but I have found, as I am sure others must have done, that after assisting towards a cure up to a certain point, their efficacy seems to halt and to stop short just of that cure which both patient and surgeon believed was about to be attained.

MORAL TREATMENT.

This also, though occasionally of assistance, only too frequently fails. It is all very well to tell the patient that his disease is curable, trivial, and need cause him no anxiety, but, unless the disease be cured he cannot altogether be blamed for paying little attention to this counsel. This much may, however, be insisted on, that (providing a microscopical examination of the discharge demonstrates the absence of spermatozoa) he is not suffering from "loss of seed," that he is not impotent, that his disease *can* be cured, and that to bring this about it is absolutely necessary that he give up any bad habits he may have contracted.

Lastly, he must occupy his time with rational healthy work and enjoyment, and avoid allowing his mind to dwell too much upon the character of his ailment.

CONSTITUTIONAL TREATMENT.

Under this head are included all means

which help to restore the general health of the sufferer to a sound state. To this end tonics may be serviceable by improving the appetite and aiding digestion.

The bowels should be kept moderately well open by laxatives, and the urine rendered as unirritating as possible by the administration of alkalies. Cold bathing of the penis, scrotum, perinæum and spine, followed by moderate friction, will also be found of considerable benefit.

LOCAL TREATMENT.

This is by far the most important, and in most cases the only one likely to be of permanent service. The means by which the deeper portions of the urethra can be acted upon directly are not many, and the depth from the surface of the seat of the disease, and the narrowness of the passage leading down to it, make all means of active local treatment difficult of application, and, unless considerable care be exercised, positively dangerous. This is particularly the case in

the application of caustics: these may be applied either in solution by means of injections, or in the solid form by means of the *porte caustique*.

Injections. These are certainly preferable to the employment of the solid caustic, as their strength can be regulated, and the fluid reaches all the crypts and recesses in that portion of the urethra to which it is applied.

Of course, it is absolutely necessary that the injection be passed into the prostatic urethra, which an ordinary syringe with a short nozzle cannot possibly effect, owing to the muscles surrounding the membranous portion of the urethra being in a state of tonic contraction. It is therefore requisite to employ a syringe with an outlet tube eight inches in length, this should be pierced around its extremity with openings directed backwards, so that when the fluid is injected into the urethra it flows back along that canal at the sides of the syringe and out at the meatus. This method of treatment is all very well in theory, but in practice several difficulties present themselves. In the first

place these deep urethral syringes are usually made with straight flexible tubes, and it becomes a matter of great difficulty even for the surgeon, much more then for the patient, to pass them down past the membranous urethra into the region of the prostate. This certainly can be obviated by having the tube of the syringe stiff and curved, but, to place such an instrument in the hands of a patient and tell him to use it himself is calculated to lead to disastrous results. Again, providing the point of the tube be passed through the membranous urethra into the prostatic, the same obstruction which prevented the injection reaching the deeper urethra (the compressor urethræ muscle) will just as effectually prevent the injection flowing back and out again, so that it will either painfully and even dangerously distend the urethra, or flow on into the bladder. Should the latter occur, it is possible that the fluid will come in contact with but a small portion of the urethra, and that not the diseased part, as the prostatic urethra is but an inch and a quarter in length, and it

is a matter of some difficulty to estimate exactly where the point of the instrument is at any moment. On account of these difficulties I now make it a rule to use the injection myself in all cases, and to employ the irrigator tube which is described further on.

The use of *solid caustic*, as by Lallemand's *porte caustique*, is a method of treatment which has, undeservedly I think, fallen into disuse. It has the advantage of allowing the direct application just to that portion of the urethra which is diseased, the intervening portion not being acted upon, but, the caustic being in a solid state can only reach the superficial part of the mucous membrane, and the follicles and grooves remain untouched.

The frequent passage of bougies is easy of application, and often will alone cure gleet and prostatorrhœa. To carry it out, as large a solid metal bougie as possible should be passed down the urethra and retained in position for several minutes, and this process should be repeated every three or four days. This method seems to effect a cure by distending the canal, separating diseased surfaces,

and by stimulating the parts. As a preliminary method of treatment it may be tried in every case, but should it not effect a cure in a reasonable time, other means must be had recourse to.

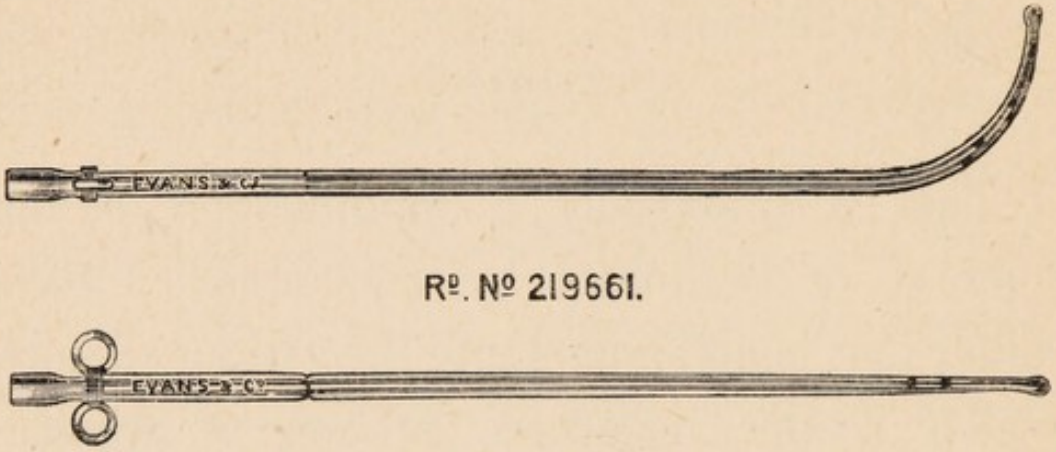
IRRIGATION.

This is practically a modification of the method of treatment by injections. I have under that head enumerated the various reasons which render injections difficult of application, and why they often fail to bring about a cure, and I will now describe an instrument* which I have myself designed with a view to overcome these objections.

The *irrigator* consists of a metal tube, ten inches in length, shaped like a catheter, the posterior end being bulbous. It is hollow, and pierced near, but not at, its extremity by ten apertures directed backwards. These apertures are at the bottom of grooves, five in number (two openings being in each

* This instrument has been made for me by Evans and Wormull, of Stamford Street, whom I have to thank for their assistance in working out my idea.

groove) which extend the whole length of the instrument except within half an inch of its posterior extremity, and are produced by welding on to the original tube five metal flanges or ribs.



The instrument is oiled and passed into the urethra, until the exit of urine along its central tube marks its entrance into the bladder. It is then withdrawn to the extent of half an inch, when it is known that the openings in the grooves at the posterior end are in the region of the prostatic urethra. The anterior or external end of the instrument is then fixed to the tube of an ordinary irrigator can or syringe charged with the particular solution to be used, by which means the fluid is forced down the central canal, out at the apertures, and back again along the

grooves on the outside of the instrument, and so makes its exit at the meatus.

The first effect of the solution, caustic or astringent as may be the case, is directed on the prostatic urethra, but also on the membranous and spongy portions of that tube, so that the whole of the urethra from behind forwards is acted upon by the injection. Should the tube be passed too far down the urethra, part of the fluid injected may pass backwards into the bladder, but this is in no ways harmful, as I have not found it necessary to use any powerful caustics which would be likely to injuriously affect the bladder, and it can easily be stopped by immediately withdrawing the instrument half an inch or so when the liquid ceases to make its exit at the meatus.

The solutions I am in the habit of using are those of boric acid five per cent., carbolic acid a quarter to one-half per cent., also *weak* solutions of sulphate of zinc, tannin, and nitrate of silver.

Should much of the injection pass into the bladder, before withdrawing the instrument, after all the solution has passed out of the

irrigator can or syringe, the instrument should be passed right down into the bladder and the contents of that organ drawn off.

The advantages of this method of injection are obvious;—

1. The whole length of the urethra is acted upon by the solution, so there is no question of missing the actual seat of disease, as may occur in using the ordinary injection or the *porte caustique*.
2. Dangerous distension of the urethra is prevented, the grooves on the outside of the instrument allowing of the ready exit of the solution.
3. A large quantity of the solution can be used at one sitting, and, therefore, the diseased surface is played on by the injection for some considerable time, so allowing the first portion of the fluid to wash away any accumulated discharges on the surface, and the latter portion to act upon the cleansed raw surface.
4. A weak injection only being used, there is no fear of injuring the healthy mucous membrane.

CHAPTER VI.

STRICTURE.

STRICTURE, or narrowing of the urethra, is one of the commonest affections to which this passage is liable, moreover, it is also one of the most difficult to permanently cure. I say permanently, because, though the contraction may be dilated, and the immediate symptoms relieved, it is only too commonly the case that the relief is but temporary, and that the stricture, with its resultant complications, reappears at some future time more or less remote. Two kinds of stricture—spasmodic, and organic, may narrow the urethra.

SPASMODIC STRICTURE.

This is due to spasmodic contraction of

some of the muscular fibres surrounding the urethra. It is most commonly situated in or near the membranous portion. It is usually produced by reflex action, the exciting cause being situated in the urethra itself, or in its immediate surroundings, or, it may be more remote, as in the rectum or anus. Moreover, it is usually associated with a certain amount of congestion.

The *causes* then of spasmodic stricture are: —organic stricture of the urethra, stone, injury to the urethra by the passage of instruments, or the mere presence of an instrument in the canal, excessive drinking, holding the water for too long a time, immoderate sexual indulgence, and exposure to cold and wet. More remote causes are fissure of the anus, worms, piles, and constipation.

Symptoms. Spasmodic stricture announces its presence suddenly. The usual history is that a man, suffering from organic stricture, the presence of which he may or may not be aware, and which up to this time has probably caused him no discomfort, suddenly discovers, after indulging somewhat too freely

in alcohol or in sexual intercourse, that he cannot pass a drop of urine. The more forcibly he endeavours to empty his bladder, the greater his inability to relieve himself; in fact his efforts serve only to increase the spasm. If an instrument be passed, beside an organic stricture usually situated in the anterior portion of the urethra (which organic stricture is not by any means a necessary concomitant), an obstruction, which more or less easily gives way and allows of the passage of the bougie, is met with in the deeper portion of the urethra. The most characteristic signs of spasmodic strictures are the suddenness with which they appear, and the equal celerity with which they yield.

ORGANIC STRICTURE.

This may be defined as a permanent contraction of the urethra due to structural changes in the mucous membrane lining that canal, or in the tissues immediately surrounding it.

Causes. By far the most common cause

of stricture is gonorrhœa, particularly if that complaint be injudiciously treated, or be followed by a persistent gleet. So much is the latter the case, that many medical men have asserted that where there is a gleet, there also is a stricture, which is its cause. That this is often the case cannot be denied, but the assertion is far too sweeping, and other causes than stricture may undoubtedly manifest themselves by a gleet. Next to gonorrhœa, direct injury to the urethra is the commonest cause of stricture; this is usually brought about by blows, kicks or falls on the perinæum. Although this cause is nothing like so frequent as gonorrhœa, the stricture resulting therefrom is far more serious and much more difficult to cure. Another cause of stricture, though not a common one, is syphilitic ulceration and its resulting cicatricial healing; stricture due to this cause is usually situated in the anterior portion of the penile urethra near the meatus.

Pathologically a stricture is really a cicatrix or scar: as the result of injury or inflammation there occurs a breach of continuity

in the wall of the canal, this is filled up by the exudation of inflammatory lymph which becomes organized and developed into scar-tissue. This scar in the urethra has the same character peculiar to scars on the external surface of the body, that is, a tendency to slow and progressive contraction, and to this peculiarity is due the fact that a stricture, the result of gonorrhœa, may not make its presence noticeable for several years after the causative gonorrhœa. It is to be borne in mind that an organic stricture is usually accompanied with a certain amount of congestion of the tissues in its immediate neighbourhood, and that this surrounding congestion is liable to be increased by various exciting causes, as, by coitus, drinking, and exposure to cold and wet; so that a slight organic stricture of whose presence the patient is quite ignorant, may make itself known, as the result of one or other of these excitants, by the sudden onset of complete inability to pass water, and, when an instrument is passed in order to relieve the bladder, the patient is surprised to learn from the surgeon that a stricture is

there, and must have existed for some considerable time.

Symptoms. The symptoms of organic stricture are:

1. The presence of a gleety discharge, though one of the commonest symptoms, is not always present, and, as has been already mentioned, its presence is not proof positive of a stricture. The discharge comes from the congested tissues in the vicinity of the stricture, and from the stricture itself.
2. Loss of control over the bladder, so that the patient is unable to retain his water so long as he used to, and he is obliged to relieve himself more frequently.
3. Pain and difficulty in making water. The patient finds that he has to exercise a certain amount of straining to pass his water, and the amount of muscular force necessary to empty his bladder becomes gradually greater and greater.

   Along with this is a sensation of pain, not only in the penis itself, but in the testicles, groins, back, and behind the

pubes. The necessary straining to which the sufferer is put may give rise to piles, prolapse, rupture, and hypertrophy of the bladder.

4. Changes in the character of the urinary stream. This is gradually diminished in fulness, it is forked, twisted or divided; instead of shooting out well in front of the patient it may only dribble from the end of the penis. Moreover, after he has apparently finished, a few drops of urine dribble away and wet his clothes.

Other symptoms of stricture, less marked than those already mentioned, but nevertheless of frequent occurrence, are: pain and difficulty in the ejaculation of the semen during coitus, instead of spurting out in jets it oozes from the meatus by degrees; chordee, or a bent condition of the penis occasionally occurs during erection; the patient may acquire a habit of handling and pulling the penis so that the foreskin, and even the penis itself, may become longer than natural.

The *seat* of stricture, as already mentioned,

is most commonly the penile or spongy urethra, and of this portion of the urethra, the anterior two-thirds is the part most commonly involved. Many authors state however, that stricture of the urethra is of most frequent occurrence in the membranous or the bulbous division of the canal. Organic stricture of the prostatic urethra is of the rarest possible occurrence, though, of course, the canal itself may be encroached on by partial enlargement of the prostate gland itself.

The *number* of strictures may vary, there may be one or two as is most often the case, or there may be five, six, or more.

Usually accompanying an organic stricture of the spongy portion of the urethra, there is a spasmodic one in the membranous region.

The *form* and *degree* of the stricture may vary greatly. Thus, it may consist of only a few fibres encircling the urethra, it may not pass wholly round that tube but consist of a thickening of the mucous membrane on one side of that passage only, it may occupy a small portion of the length of the urethra, or it may occupy an inch or more

of its extent. It may allow of the passage of a moderately large sized instrument, or may be so contracted that, though it allows the passage of a few drops of urine, it cannot be made to yield to the smallest instrument. Usually the older the stricture is, the more contracted and the harder it becomes, and the greater the difficulty in passing a catheter or bougie through it, until ultimately, if treatment be not had recourse to, it may become absolutely impassable.

CHAPTER VII.

TREATMENT OF STRICTURE.

The various methods of treating strictures are so many that the exigencies of space will only allow me to briefly mention those which are most useful, and most commonly employed with the sanction of the profession.

All strictures are not necessarily diseased states requiring treatment, they may be but the definitive stage following an injury to the urethra, as scars resulting from a process of healing, and, if not offering marked obstruction to the exit of urine, and, if not tending to rapid contraction, they do not call for any active treatment.

CONSTITUTIONAL AND MEDICINAL TREATMENT.

This, though usually ignored, or but indifferently carried out, is of considerable service in many cases. The general health should be improved in every possible way, and attention particularly paid to rendering the urine as free and unirritating as possible. To these ends moderation should be observed in the consumption of alcoholic drinks, highly seasoned foods, and those usually considered difficult of digestion. Drugs which modify the acidity and acridity of the urine are of considerable service, as the alkaline salts of potash and soda, benzoic acid, boric acid, tincture of hyoscyamus, small doses of tincture of cantharides, buchu, &c.

DILATATION.

This, the simplest method of treatment, and the one most easily carried out in many cases, is that one which should be first tried in every case possible. It is particularly adapted to the early stage of stricture, where

a moderate sized bougie can be passed, and where the new cicatricial tissue has not yet become firmly organized.

The process consists in passing through the stricture as large a bougie as possible, leaving it in for a few minutes, and repeating the operation at longer or shorter intervals. The distention of the stricture by the instrument undoubtedly promotes the absorption of the new scar tissue. This plan of treatment is usually carried out by passing an instrument at intervals of every three or four days, the frequency of the repetition of the process being gradually diminished.

A sub-variety of this method is *continuous dilatation*, in carrying out which, a bougie or sound is passed through the stricture and retained for several days. Its presence sets up a good deal of inflammation, and a quantity of purulent matter is discharged from the urethra, the passage becomes enlarged, and another instrument of a larger size is passed in place of the one originally used, and this process repeated until the canal is thoroughly dilated. The advantages of this

process are that the required degree of dilatation can be rapidly brought about, and that in those cases in which it is extremely difficult to introduce a bougie, the improbability of its re-insertion after being once withdrawn is not risked. It is, however, a method of treatment hardly to be recommended, as it produces considerable inflammatory reaction, and the stricture exhibits after this method of dilatation a strong tendency to re-contract.

It is then from *gradual dilatation* that we can hope for the best results, and this is the first active method of treatment we should endeavour to make use of in all cases.

RUPTURE.

Forcible dilatation, rupture, or Holt's operation. This is carried out by means of a special instrument consisting of two grooved blades welded together at their points and separated at their handles, between them is a wire also welded to their points, and over this glides another tube; which, passing down between the two grooved blades, separates them and

so dilates or ruptures the stricture. The method of using the instrument is obvious; the central dilating tube is withdrawn and the two dividing blades in close apposition are passed down through the stricture, the dilating tube is then rapidly pushed down between the blades and the stricture ruptured. I myself am much in favour of this operation, particularly in strictures of the subpubic portion of the urethra, and in those which exhibit a strong tendency to contract after being put through the process of gradual dilatation, and I believe it is one in which the risks run are trivial, providing due care be observed in performing it.

INCISION.

Next to gradual dilatation and rupture this is by far the best operation for the radical cure of stricture. The operation is in no way dangerous and is specially adapted to strictures situated within three or four inches of the meatus. It consists in passing a guarded lancet down through the stricture,

then, by some mechanical contrivance, causing the blade of the lancet to protrude, and by withdrawing the instrument the stricture is divided from behind forwards. Various forms of instruments—urethrotomes—have been invented for this purpose, those in ordinary use being *Civiale's* which is straight, with a bulbous extremity containing a cutting blade; but, as this bulb is about the size of a No. 8 catheter it will be seen that this instrument is not adapted for tight strictures: *Maisonneuve's*, which consists of a straight staff with a groove in it along which glides a triangular blade with sharp cutting edges but with a blunt apex, so that it slips along the healthy urethra without injuring it, but cuts through the stricture on coming in contact with that constriction: *Otis's urethrotome* is both a dilator and a cutter; it consists of two parallel bars one of which is traversed by a thin narrow cutting blade which is concealed in a slot, but made to protrude by withdrawing the handle of the instrument. The two bars are passed down the urethra in apposition, when through the stricture they are made

to separate and the knife cuts through the stricture while it is thus held on the stretch.

Although the dangers resulting from the performance of the operation are in competent hands almost *nil*, yet it is one not lightly to be undertaken without due forethought and care, as there are certain complications,—hæmorrhage, urethral fever, septicæmia, &c., which may arise and possibly lead to serious or even fatal consequences.

IRRIGATION.

This, alone, cannot be looked upon as a method of treatment of stricture, but, after the employment of dilatation, rupture, or incision, it is one which helps to bring about absorption of effused lymph, keeps the stricture dilated, and prevents its re-contraction.

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