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SYMPTOMS OF URETHRITIS
in the male
AND ITS TREATMENT IN GENERAL PRACTICE.

A T H E S I S

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by

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THE TREATMENT OF URETHRITIS IN THE MALE.

There is probably no disease the treatment of which more frequently calls for the utmost patience on the part of the practitioner than Gonorrhoea.

There is little difficulty indeed in dealing with an acute uncomplicated attack, but when from any cause the disease becomes chronic - the so called "gleet" - it is far otherwise. The patience of sufferer and physician alike may be tried to the utmost, as the case drags on from month to month, or even from year to year. Cases of this kind, however unpromising they may seem to be, are nevertheless sometimes curable, but others appear to resist every kind of treatment. Even in such apparently hopeless cases, however, there is always a possibility of getting rid of the infecting organism, as I shall endeavour to show later on.

Nothing strikes one more than the nonchalance with which many sufferers regard this trouble - deeming it of no more consequence than a common cold. Others again may be apprehensive enough, but are ashamed to consult a physician. Probably they seek assistance from some quack remedy, and only when this fails and the case has become so aggravated that their/

their fears are thoroughly aroused, do they summon up courage to "see the doctor". When the dread results of the disease are considered it would seem in the highest degree desirable that parents should take an early opportunity of warning their sons of the dangers that beset their path. No false delicacy should be allowed to come in the way; if they cannot undertake the needful but unpleasant duty, they should certainly get their medical adviser to act for them. It is pitiful to see the many ruined lives which might have been saved by a timely warning.

I. SIMPLE URETHRITIS.

Before making a diagnosis in any case of Urethritis a microscopical examination of the discharge is absolutely necessary, if serious error is to be avoided.

Although the Gonococcus of Neisser will usually be found to be the cause of the discharge, nevertheless it not infrequently happens that the organism in question is absent even when the patient has been exposed to infection.

SIMPLE MECHANICAL URETHRITIS.

I have seen this set up from riding a bicycle/

bicycle on a badly fitting saddle. The discharge ceased in a few days when the cause of irritation was removed. I have also seen a discharge set up after the passage of bougies in a case of stricture.

GOUTY URETHRITIS.

Several cases of this nature have come before me. They reacted to antigout treatment, but three to four weeks elapsed before the trouble entirely disappeared. In none were the symptoms severe - a little mucco-purulent discharge and some slight burning on micturition being all that was experienced. No local treatment was used. All the patients were men in middle age.

SIMPLE INFECTIOUS URETHRITIS.

I have met with several cases which come under this heading. Two of these were lads who had never before been infected, and in each case the symptoms were similar. The incubation period in one was three days and the lad came for advice because of slight burning during micturition. No gonococci were detected after repeated examination. Beyond dieting I gave no treatment, and in ten days he was free from all symptoms. The other lad came to me six weeks after connection, and only because he had noted a slight/

slight discharge that stained his linen. No gonococci were found after several examinations although there were numerous organisms including Staphylococci and the Bacillus of Friedländer present. It was summer and the lad had been cycling much and the mechanical irritation I thought had probably helped to keep up the discharge. He improved when ordered to stop it; but required a course of irrigation with Potassium Permanganate before the discharge ceased.

Another case was that of a married man who had had a discharge for six weeks. I found no gonococci but it led me to enquire into his wife's health, and on examining her I found she was suffering from cancer of the cervix. She had never complained of any Uterine symptoms and it was her husband's complaint that led to the discovery of her disease.

Another patient had two years previously suffered from gonorrhoea which had reached the chronic stage and persisted for eighteen months. For six months after this he had been entirely free from discharge, when he again exposed himself to the risk of infection. Three days later he came to me suffering from a renewed discharge. Repeated examinations showed no gonococci - numerous cocci and some large diplococci being the only organisms observed. The discharge did not increase, and there were no complications./

complications. Under local treatment the discharge disappeared in three weeks. This may have been a case of simple urethritis, but I was inclined to regard it rather as a recrudescence of a latent gonorrhoea - for I strongly suspect that any attack of gonorrhoea that persists longer than six weeks must involve the prostatic urethra, and this cannot but affect the prostate to a greater or lesser extent. It seems to me highly probable, therefore, that many of the cases of so called simple urethritis are to be explained in this way. Under the belief that he has quite recovered a patient has connection, and the congestion engendered in an infected prostate starts the discharge again. In such cases however the discharge may result from the presence of ordinary pus-producing cocci, which, were the urethra in a normal condition, would have no congenial soil for growth and development. But when the epithelium has been damaged, or when a condition of slight catarrh remains the cocci find a suitable habitat and urethritis supervenes. It is probable also that in cases where gonorrhoea has not previously occurred simple urethritis may be set up, from the fact that such individuals may react more easily to a pus-producing organism than the normal man.

Although simple urethritis is as a rule acquired/

acquired during connection, yet I have notes of a case of combined urethral and bladder infection by *Staphylococcus Albus* and *Aureus* in which this means of infection could be excluded.

The patient, an Anglo Indian, age 33, had never suffered from venereal disease. He was returning home on leave and the first night on board ship had a sharp attack of malaria. This was treated by the usual remedies and the attack subsided in a day or two. The patient did not however regain his usual health and was an invalid most of the voyage, suffering from gastric and intestinal derangement. He lost over a stone in weight on the voyage, but began to pick up after he reached England. All went well with him for three weeks or so; but he then began to suffer from bladder symptoms, - frequency of micturition, pain on passing water often referred to the point of the penis, the pain continuing in spasms for some time after the act. There was also a little pus in the urine. Rest in bed and urinary antiseptics relieved the symptoms, and the attack, after continuing about a week, passed off, only to return again some three weeks later. When he came under my care he had had three or four such attacks.

I had a cystoscopic examination made which showed/

showed an area of inflammation at the base of the bladder. The examination of the urine showed the presence of Staphylococcus Albus and Aureus

He was put on 31 doses of Borocitrate of Magnesia, 4 hourly, and in a few days everything cleared up. He was free from an attack for three weeks and then had another. This time I had the urethra examined, when several well marked patches of inflammation were found in the posterior urethra, together with a single patch in the anterior urethra. The patches were exquisitely sensitive to touch, especially those in the posterior urethra. A vaccine was made from the organisms discovered in the urine, and this was injected every 10 or 12 days in doses of 250,000,000 of each. Along with this instillations of Silver Nitrate into the posterior urethra were ordered, beginning with an $\frac{1}{8}\%$ solution and gradually working up to a 2% solution: these instillations were given every second day and continued for some three months. The vaccine was continued for six months. The patient has had no recurrence of his trouble. I have included this case in my paper, as, although the patient had no noticeable discharge from his urethra, yet on urethroscopic examination a well marked posterior urethritis was discovered, and it was the inflammation/

inflammation in this portion of the urethra that gave rise to the most distressing of his symptoms.

ETIOLOGY.

True gonorrhoea is a urethritis produced by the gonococcus of Neisser. Infection usually arises during sexual intercourse. Patients are of course always ready with theories to account for the presence of the disease - such as a "rack" or a strain. I have never met with a case however, in which any explanation but the ordinary one was called for. Some individuals would seem to be immune from the disease. This is suggested by the fact that of several men who have had intercourse with the same infected female, some have contracted the complaint while others have escaped. The owner of a long foreskin runs more risk of infection than one whose prepuce is absent, for the obvious reason that in the former case the secretions are retained in contact with a wider extent of glans. A very patent urethral orifice may also in some cases favour infection. There can be no doubt that one attack predisposes to a second, and with a second the chance of complications is increased. This is due to the fact that almost invariably in such cases there is an extension to the/

posterior urethra.

Following infection there is an incubation period of from three to seven days. I have seen cases, however, in which the incubation period was fully a fortnight, and in one case even twenty-four days. That however, is quite exceptional.

ACUTE ANTERIOR URETHRITIS.

Having gained a lodgement, the gonococci rapidly multiply and induce an acute catarrhal inflammation, which extending backwards along the urethra reaches the bulb. At this point the spread of the infection is checked by the compressor urethra muscle, which acts in the way suggested by the term to prevent the passage backwards of fluids and germs into the posterior urethra. The earliest symptom of the disease is a burning or itching of the point of the penis accompanied by an increased desire to urinate. In a few hours a slight serous discharge issues from the swollen and everted lips of the meatus.

This discharge rapidly becomes muco purulent-changing soon to a copious emission of pus, which keeps dropping from the urethra. The desire to urinate increases - the passage of the acid urine causing/

causing an acute burning sensation as it comes in contact with the inflamed urethra. When the foreskin is long it may in twelve hours become so swollen and oedematous that it cannot be retracted. The lymphatics of the penis are inflamed, and can be felt traversing the dorsum of the organ like a thick cord. The inflammation extends to the inguinal glands which become likewise inflamed and tender. Distressing sexual symptoms are usually present - erections which in the inflamed condition of the organ cause great pain. The most agonising form of erections is that known as chordee, when the highly inflamed urethra and corpus spongiosum have lost their elasticity, thus causing the erect penis to bend forwards and downwards in a curve. At night seminal emissions annoy and distract the sufferer, and these local symptoms are usually accompanied by more or less constitutional disturbance, such as slight fever, malaise, and loss of appetite. On the whole however there is less disturbance than might have been expected considering the acuteness of the inflammation. The inflammation is at its height for ten days or a fortnight; after which the discharge gradually decreases. Should the case proceed favourably the discharge becomes muco-purulent, and then gradually diminishes, until/

until in five or six weeks it altogether ceases and the patient has recovered. In the case of a first attack should the discharge persist for a longer time, it is apt to become chronic, and the probability is that the disease has penetrated to the posterior urethra.

The foregoing is the description of a typical attack of gonorrhoea, but the disease does not by any means always present the same symptoms and run the same course.

Not infrequently the only symptom may be the discharge, and this may be meagre. Unfortunately cases exhibiting few acute symptoms are often more difficult to treat than those in which the attack is severe. An attack in which the local reaction is so slight as to cause little or no discomfort may for months or even years resist all methods of treatment. My experience may have been unfortunate, but I have had more trouble with such cases than others where there was a sharp local reaction to start with. Doubtless the very mildness of the symptoms may not infrequently lead to carelessness or neglect on the part of the patient. But even when due care has been exercised and the case has been under observation and treatment from the/

the first I have known the case persist for two or three years.

ACUTE POSTERIOR URETHRITIS.

During the course of acute anterior urethritis the disease may at any time extend back and affect the posterior urethra. This complication is most likely to occur about the end of the second or during the third week. One of the symptoms in such a case is increased frequency of micturition - the desire to urinate often being constant, even although the bladder be empty. Considerable pain, described by the patient as coming in "stounds" or severe throbs, accompanies the desire to pass water. Haematuria which rarely characterises anterior urethritis, is a more common symptom in the disease now under consideration. The blood often follows micturition and is mixed with pus from the posterior urethra. The patient's rest is also disturbed by seminal emissions. A simple means of ascertaining if the posterior urethra has been affected is as follows. The patient as soon as he awakes in the morning is required to pass the contents of his bladder into two glasses. If the case is one of anterior urethritis only the contents of the first glass will be cloudy/

cloudy with the products of the inflamed urethra, but the fluid in the second glass will be clear - the compressor urethra having acted as a bar to the passage backwards of pus from the anterior urethra. But if posterior urethritis be present then the second glassful will be turbid with the discharge from the posterior urethra which has gravitated backwards into the bladder during the night. This test is useless, however, if the urine be taken during the day. The reason is obvious, because any secretion that may be lying in the prostatic urethra has had no time to pass back into the bladder. Consequently the urine in the first glass contains the contents of both portions of the urethra, the second glassful being clear. It may be added that when an attack is at its height this test cannot be relied upon, for under such conditions both glasses may be cloudy, although only the anterior urethra is affected.

Just as in the case of anterior urethritis so in that of posterior urethritis we may have a mild insidious form which may show so few symptoms that unless the two glass test be employed it may be impossible to say that the disease in question is present. With posterior urethritis the risk of complications is gravely increased - prostatitis, cystitis, epididymitis, etc., may supervene. When the extremely/

extremely close connection between the prostate gland and the posterior urethra is borne in mind, it is perhaps not surprising that prostatitis so often occurs as a complication in cases of posterior urethritis. Although an acute attack of posterior urethritis can hardly be overlooked by the physician, the milder and more insidious type referred to is not so readily detected. In this form the inflammation penetrates to the gland substance, without inducing any violent symptoms, and there it may persist, baffling all efforts to dislodge it.

TREATMENT OF ACUTE ANTERIOR URETHRITIS.

The question of abortive treatment of gonorrhoea has received considerable attention especially on the continent. In my own practice I have had little experience of it; for as a general rule the disease has got a good hold before the physician is consulted. On several occasions patients have come to me the day after they had run the risk of infection, and in such cases my treatment has been to disinfect the glans thoroughly with a strong solution of Potassium permanganate, and thereafter to instil a few drops of a Protargol solution 10 grains to the ounce into the meatus. Patients so treated/

treated escaped infection, but I do not know whether they had actually been infected. In these cases I took films - simply pressing the cover slip over the meatus - but no gonococci were detected. If patients only came in time this simple treatment would in the majority of cases prove effective. But few seek advice so soon.

When the patient is seen at an early stage, and slight itching at the point of the penis is felt, it seems at first reasonable to suppose that a strong injection should kill the gonococci and abort the attack. I have tried in such cases a solution of 5 grains of protargol to the ounce of distilled water as an injection; but so far have not succeeded in aborting an attack. If one could get at the gonococci with this injection before they have penetrated the urethral epithelium one would probably succeed; but by the time they have made their presence felt by their inflammatory action, they have advanced so far into the epithelium that it is impossible to reach them. Janet's abortive treatment has been much in favour on the continent and has met with some measure of success. He believes that permanganate of Potash has a peculiar action upon the urethral mucosa producing a condition of oedema, and while this oedema lasts the gonococci are unable to grow upon it. Hence if this condition of the urethra can be maintained by repeated injections the microbes will die out. The urethra/

urethra is first irrigated throughout with a solution of 1 in 2000 potassium permanganate. Five hours later the anterior urethra alone is irrigated with 1 in 1500, and after the lapse of other five hours with 1 in 1000. For the succeeding five days a solution of 1 in 1000 should be applied once a day. But as I have never tried this treatment in my practice I can say nothing as to its efficacy.

The sufferer from acute urethritis should if possible keep to his bed while his symptoms are very acute. Could this plan always be followed I am convinced that complications would be much less likely to occur, and the disease would run a shorter course. Unfortunately however, he often either cannot or will not remain in bed. When such is the case he should be advised to wear a suspensory bandage, to abstain as far as possible from much exercise, and to rest with his feet elevated on a chair or sofa as often and as long as he can. For the first week or ten days the more nearly the diet approaches to an absolute milk one the better. But as this also is often hard to carry out, one has to be content with forbidding all red meats, and highly spiced dishes, as well as alcohol and strong tea and coffee. Sometimes a patient, not wishing to attract attention by/

by any sudden change in his habits, will ask what stimulant he may take that is likely to be least harmful. In such a case whisky much diluted with potash or other aerated water is the safest. Beer is to be condemned outright. I advise my patients to imbibe large quantities of such innocuous beverages as milk and potash water, barley water, or, what is just as good, tepid water - for the more frequently the urethra is washed out the sooner will the disease be cured. Medicines by the mouth I hardly ever prescribe, for often they cause considerable gastric disturbance. The patient is as a rule sufficiently depressed without such addition to his misery. Moreover when large quantities of fluid are being taken, doses of medicine, to have any marked antiseptic effect would need to be enormous. However there are many drugs which can be given by the mouth if desired. We may select either sandalwood oil, copaiba, or one of the many urinary antiseptics, such as salol, urotropin, boracic acid, etc. The general opinion of practitioners is in favour of copaiba and sandalwood oil. Often, too, the latter is to be preferred as it causes less gastric disturbance, and the exhibition is not as in the case of copaiba, so often associated with a rash. It is usually prescribed/

prescribed in capsules. It is important that the patient should wear some dressing to absorb the discharge. For this purpose Hartmann's gonorrhoeal woolbags are excellent. Or a pair of bathing drawers may be worn - the penis being surrounded with absorbent cotton wool. If the foreskin be long it should be kept rolled back. On no account should lint or wool be packed under it as a dressing. This simply causes the discharge to be dammed up in the urethra. In some cases where there is much oedema it may be necessary to incise the foreskin to the corona, otherwise a condition of paraphimosis may supervene when it is rolled back. Patients ought always to be impressed with the necessity of keeping the parts as clean as possible by constant bathing with some warm antiseptic lotion, so as to prevent the retention of the discharge between the foreskin and the glans. In neglected cases which have passed into a chronic state, I have found ulcerations all round the base of the glans, due undoubtedly to the retention of foul secretions. It is also exceedingly necessary to warn the patient of the danger of infection, from the discharge, and to put him on his guard, lest he infect other mucous surfaces.

Next comes the question of injections. When
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the inflammation is very acute - the penis being swollen and the foreskin showing some oedema - it is better to avoid injections for a day or two. The parts should simply be kept clean by bathing with some warm mild antiseptic such as a solution of potassium permanganate. Hot hip baths are also very soothing, two or even three being taken during the day, and one just before going to bed. This treatment materially lessens the chances of chordee, and tends to prevent erections which are common and very painful in this stage of the disease. Should chordee or painful erection be a prominent symptom, 30 grains of bromide of potash taken at bed time is often of much benefit. After a few days when the first violence of the inflammation has subsided an injection may be ordered. The ideal injection would be one that should destroy the gonococcus, and penetrate to, and allay the inflammation in the urethra. Not only so, but by its mechanical action it should wash away the dead cocci and the products of inflammation. Unfortunately no known drug can do all this. The gonococci penetrate the lining of the urethra, passing into the cells and also into the necks of the glands whose/

whose orifices open in the urethra. In these positions no injected fluid can possibly reach them. Certain preparations tend to coagulate albumen, which is not the case with some of the newer organic silver compounds. These last moreover are said to have a greater power of penetrating the epithelium: but notwithstanding this one finds that the cure of the complaint is no more rapid with them than with some of the older injections. Such experience as I have had leads to the belief that success depends rather on the method of using an injection than in any inherent property the solution may possess. In the treatment of the disease I place most reliance on potassium permanganate, which answers well in most stages of the complaint. If after three weeks the discharge is not disappearing I then use protargol. When the disease is confined to the anterior urethra these means will in most cases bring about a cure in from four to six weeks. Should the discharge continue after the lapse of this time, it will usually be found that the posterior urethra and probably the prostate also are involved. But the treatment of such cases I will consider under the head of chronic urethritis. If during an acute anterior urethritis symptoms arise that point to an extension of the disease backwards, then irrigation of the posterior urethra with potassium permanganate should be practised.

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The details of this treatment I will give later on. As to the syringe to be used, a simple, cheap, and quite efficacious instrument is a common glass one made to hold four ounces. The nozzle of a syringe this size will be found to fit the average urethra, and the instrument has the advantage of being readily kept clean. I order the patient an ounce of potassium permanganate crystals, and direct him to put 8 or 9 crystals in a tumblerful of warm water, which when the crystals dissolve should assume a bright pink colour. After washing away any pus that may be present and passing water, he is to draw about one ounce of the solution into the syringe and inject about half the quantity - repeating the process four or five times. The first three injections are allowed to run out at once, while the last two should be retained for about one minute. This treatment should be carried out twice daily to begin with; and if it is borne well it may be increased to three times a day. The physician would do well to carry out the first injection himself, so that the patient should understand exactly how to proceed. He should be warned not to make the solution too strong at first, and to see that no undissolved crystals are drawn into the syringe. There is little danger of the latter happening/

happening if the syringe is not dipped to the bottom of the glass. To avoid all mistakes however it is just as well to pour the solution into a second tumbler, taking care to keep back any dregs that may appear. After a day or two if the injections are well tolerated, I increase the strength of the solution, making it a dark purple, but not so dark that when held up against the light it cannot be seen through. If great irritation of the urethra follow an injection, or if there be any increased inflammation, the solution must at once be weakened. Should the discharge not begin to clear away after a fortnight or three weeks, I usually prescribe a $\frac{1}{2}\%$ solution of protargol, and gradually increase the strength in a week or so to 1% but not more. The protargol injection is ordered twice daily, and should be retained in the urethra for five minutes. This solution is less irritating than silver nitrate, but many patients complain of the pain it causes, and it is advisable therefore to begin with a weak solution. In a week or ten days the profuse purulent discharge changes its character, becoming muco-purulent, and it may then gradually diminish and disappear. Should the discharge continue longer than six weeks, it becomes less purulent/

purulent and assumes rather a mucoid character. It is this latter condition (known as "gleet") which is frequently so hard to get rid of. When all discharge has apparently ceased it is still advisable to make several examinations of the urine first passed in the morning, in order to be sure that no urethral threads are present. It is quite useless to examine water passed during the day, for repeated micturition has usually washed the urethra clean, while the urine passed in the morning may be expected to contain the traces of any secretions that have been formed over night.

Sometimes protargol, instead of diminishing, increases the discharge, and when such is the case this solution ought to be discontinued. Recourse may again be had to Potassium permanganate, or a zinc injection may be tried. Should the discharge still show no improvement, the urine must be carefully examined with the view of ascertaining whether the posterior urethra has become infected. The patient should be asked to come to his physician, and to refrain from passing water for some hours previous to his visit. A rubber catheter (preferably one with a back flow) is passed down to the compressor urethra muscle, and by means of a syringe the/
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the anterior urethra is washed out with boracic lotion, and any discharge it may have contained is thus removed. The patient then passes urine into two glasses, the first of which will hold the contents of the posterior urethra, and show any traces of disease that may be present. The second glass may be clear, but, if the posterior urethra be inflamed, the evidence of this will appear in the urine. As already remarked a first attack of gonorrhoea which has lasted longer than six or seven weeks, generally points to involvement of the prostatic urethra, and if the attack be a second or third his posterior urethra never escapes. The present paper was mostly written before I had an opportunity of trying vaccine therapy, and as yet I have not treated a sufficient number of cases to come to any conclusions. In two cases that came under my care the one of five weeks, the other of six weeks duration, a course of three injections of Burrough & Wellcome's gonococci vaccine proved a cure. The injections were given at intervals of ten days and for a couple of days after the injection the urethral discharge was increased; but after this it diminished. These cases received no other treatment. In one treated from the first the vaccine seemed to do no good. Another case of two months' /

months' standing cleared up with five injections. As all of these cases might have recovered without treatment one cannot say much. I am inclined to place more faith in a vaccine made from the patient's organism; but it is too expensive a treatment for the average patient. The preparation of a vaccine from the patient's organism or organisms should certainly be carried out in chronic cases that have resisted other methods of treatment. One such case I will touch upon under the treatment of chronic urethritis.

CHRONIC URETHRITIS.

Chronic urethritis or what is commonly known as "gleet" is sometimes a most troublesome condition to cure. With modern methods of diagnosis and treatment recovery is more frequent and rapid than was formerly the case. Much however depends on the patient himself. If he will not undergo and does not persist in thorough treatment he has himself to blame for the consequences.

DISCHARGE.

This varies in amount. Sometimes a drop may be seen at almost any hour of the day except just after micturition. At other times the only sign may be a drop squeezed out immediately after washing in the morning. Occasionally however it is impossible/

impossible to squeeze out even a drop - a slight stickiness being all that is observed. The drop may be yellow, white, or clear, or it may vary in this respect from time to time.

URINE.

The examination of the urine is of the utmost importance, as on this, one's diagnosis and prognosis can be largely based. It is well to see the patient before he has made water in the morning. Then as before mentioned the anterior urethra is washed out with boracic lotion, and the washings examined. The remaining urine is voided into two glasses. The first will contain the contents of the posterior urethra. The second will contain any of the contents that have regurgitated into the bladder and also any secretion which may have been squeezed out of the prostatic portion of the urethra by the contraction of the compressor urethra muscle expelling the last few drops of water.

There is one symptom often present that is apt to annoy and worry a patient. This is a white sticky discharge coming from the meatus immediately after defaecation. It is simply the prostatic secretion - practically massaged from the prostate by/

the passage of the faeces. Although often present in a state of good health, it is much more frequent in posterior urethritis when the prostate is involved.

A. Having ascertained whether both anterior and posterior urethra are affected or only the former, we next endeavour to ascertain roughly the extent of the infection.

Should there be a good deal of pus, and many short yellow threads, which soon settle at the bottom of the glass, this is a pretty sure indication of the presence of much sub-acute inflammation. If many of the threads are comma shaped it is an indication that there is inflammation in the prostatic urethra. The prostatic urethra has many large glands that open into it, in the region of the caput gallinaginis. When inflamed, their ducts are filled with muco-purulent material, which is squeezed out in comma shaped masses by the compressor urethra muscle at the end of micturition.

B. The presence of much mucus and slender white threads (sometimes an inch or two in length) composed chiefly of mucus and epithelium, together with a few pus cells, points to a healing/

healing condition of the urethra, and suggests, therefore, that treatment should be stopped.

- C. Should the urine show little mucus and numerous minute flakes of epithelium along with a few long threads of mucus, it is often well to stop treatment.
- D. Long after an ordinary acute attack of gonorrhoea has passed off, and similarly after a gleet has been cured, flakes of epithelium may be seen floating in a clear urine. In the case of a gleet there is generally some mucus and a few mucous threads.

As long as the discharge contains gonococci, active treatment must be carried out, while similarly active interference is called for so long as the urethral threads show numerous pus cells. But when gonococci cease to appear in the discharge and are not to be found in the threads, while pus cells are practically eliminated, it is better to arrest all treatment, even although a slight mucous drop may still be squeezed from the penis in the morning.

If there be any doubt as to whether a patient has completely recovered from his trouble - and especially if the question of his/

his marriage arises, I insist on injecting the anterior urethra with a $\frac{1}{4}\%$ solution of Nitrate of silver, and take films from the purulent discharge that is soon set up.

The same is done for the posterior urethra, and if after two examinations of the prostatic and seminal vesicle secretions, no gonococci be found, the patient is passed free from the disease. An interval of two or three weeks should elapse between the examinations.

In my experience I find that often long after the gonococci are eliminated, a slight mucus catarrh may remain, which can be squeezed sometimes from the meatus. One of my patients had this slight catarrh after two and a half years from the date of infection. He passed the foregoing tests, did not infect his wife, and she subsequently bore a healthy child, and had a perfectly normal puerperium. Another patient who also passed the test, had suffered from a gleet for three years, and his wife had a simple labour and a fine infant.

Having learned all we can from examination/

examination of the urethral discharge, and the urine, the next step is to examine the urethra. Externally by palpation we endeavour to detect any thickenings or tender spots. The condition of the prostate and seminal vesicles should also be ascertained. This having been done, the presence or absence of a stricture must be determined. For this purpose I generally employ an olivary-headed gum elastic bougie. Any tender spot is noted during the passage of the instrument, and if a stricture is found this of course has to be treated. Should there be no stricture an examination by means of the urethroscope will give us a general idea of the condition of the mucous membrane. This however is not necessary in every case, as a fair idea of the extent and nature of the inflammation can be gained from an examination of the urine.

TREATMENT.

Irrigation is the best treatment to commence with, and if properly carried out frequently brings about a cure. If the anterior urethra is alone affected, irrigation will be confined to it; but/

but this is not often the case. Usually the posterior urethra is affected, and some chronic prostatitis will probably also be present. In most cases of gleet, indeed, the prostate is involved, which considering the proximity of the prostatic urethra to the gland substance, is not surprising.

As regards the method of irrigation I prefer an arrangement of my own to the usual douche can with rubber-tubing and nozzle. An ordinary enema syringe is employed - one that can stand boiling may be obtained from the instrument makers. It ought to have a blunt glass nozzle which should fit closely into the meatus. For this purpose it is well to be provided with several short pieces of glass tubing, of various sizes - the ends being properly bevelled and smoothed. A solution of 1 in 6000 to 1 in 10,000 is used to begin with, and it ought to be as hot as the patient can bear it. He is then requested to stand and pass water. The syringe should be completely filled with fluid, so as to avoid the injection of air, but no harm is done even when a little air is passed into the bladder. The patient still standing, the nozzle is inserted into the meatus, and we begin very gently to fill the urethra. As soon as the anterior urethra is charged we feel the resistance offered by the compressor urethra/

urethra muscle. The patient is now told to relax himself, just as if he were going to pass water, while we keep up a steady pressure. Very soon the fluid begins to pass into the posterior urethra, and the bladder, and the injection is continued until half a pint or thereabouts has been disposed of. The nozzle is now withdrawn, and the patient allowed to empty his bladder. At first once daily suffices for this treatment, but if it be well borne it should be increased to twice a day. The strength of the solution may also be increased, but a very strong solution is not advisable - 1 in 4000, being the limit. Should the anterior urethra alone be affected, the solution can be allowed to escape whenever the urethra is fully distended. This can be repeated five or six times.

After the patient has been shown the whole process he has no difficulty in carrying out the treatment himself, and experience has shown that it works admirably. The apparatus is less cumbersome and more readily managed than the douche can, while it is not so conspicuous.- An important consideration with most patients. In two or three weeks a great improvement is observed, and not infrequently/

infrequently a cure is effected. Should the latter not be the case, instillations of silver nitrate are administered every fourth day. The strength of the solution I use is 1% and an ordinary rubber catheter is employed, lubricated with glycerine, which is passed into the bladder, and then withdrawn until the urine just ceases to flow, when half a drachm or thereabouts of the silver solution is injected. Should the disease be confined to the posterior urethra this is sufficient. If the anterior also is affected an instillation of a few minims of the solution may be left there before the instrument is finally withdrawn. Sometimes a 1% solution cannot be endured, and the strength must then be reduced. A preliminary injection of a 1% cocaine solution often enables one to give instillation treatment which otherwise could not be borne. The patient should endeavour to retain the injection in the posterior urethra as long as possible. If the instillations are doing good the strength may be increased up to 2%, which as a rule is quite strong enough. As silver nitrate stains white clothing badly, the patient should be warned of this.

While such instillations are being given, the irrigation treatment should be continued. It is convenient/

convenient to give the instillation after the irrigation has been carried out. As the treatment with silver nitrate often induces a somewhat sharp reaction it is well to warn the patient that he may expect a yellow discharge to follow. But this disappears in twenty-four hours or thereabouts. If the patient is not making the progress that one hopes for with the previous treatment, there is another method that often furnishes good results. This is dilatation of the urethra by Kollmanns urethral dilators, followed immediately by an injection of a $\frac{1}{4}\%$ solution of silver nitrate. The instrument consists of four blades which can be expanded by means of a screw in the handle; a pointer indicates on a dial the amount of dilatation produced. Before use a thin rubber cover is slipped over the dilator, and as it fits tightly, the blades are dusted with French chalk to permit of its easier adjustment. The instrument can be boiled but it is preferable to disinfect the cover. After use the cover is washed and finally cleansed with spirits of wine, but petrol is just as good. It is best to lubricate the instrument with glycerine which does not prevent the subsequent injection/

injection coming in free contact with the walls of the urethra. The physician should be provided with two forms of dilator - one of which must be straight for the anterior urethra, and the other curved for the posterior urethra. As the process of using the dilator is necessarily protracted, it is well to do only one portion of the urethra at a sitting. If it be desired however, both portions may be undertaken - one after the other. In this case the posterior urethra should be treated first, for it need hardly be said that the passage of an instrument through the anterior urethra, after it has already been treated is exceedingly painful.

Let us suppose that the anterior urethra is to be dilated. After lubricating the instrument, it is passed right down to the bulb. The process of dilatation is then commenced and carried on at an extremely slow rate, until the pointer reaches the figure 28 on the dial. It should take seven or eight minutes to accomplish this, and that is as much as should be attempted the first day. The instrument is left in situ for a few minutes, and then after being very slowly unscrewed is gently withdrawn. The silver nitrate solution is now injected. At each sitting/

sitting the dilatation is advanced by one or even by two points, if the pain is not very great, until eventually the point 35 on the dial is attained, which for the average urethra is far enough, although in some cases a point or two further may be reached. The operation is repeated every fourth day, which is quite sufficient. The cover must be carefully examined to see that it is not cracked. It is as well too, before using the instrument to screw it up so as to test the soundness of the cover. For should the latter break during the process of dilating the urethra, it is apt to shut in a fold of the mucous membrane while the instrument is being unscrewed and withdrawn.

The posterior urethra is dilated in precisely the same way, but the dilatation can be carried further on - say to 40 on the scale or thereabout.

In cases where the prostate is involved, the dilatation of the urethra enables one to squeeze out the contents of the prostatic ducts. The subsequent injection of silver nitrate has then some chance of reaching these ducts and favourably affecting them. Such treatment I consider much superior to prostatic massage/

massage, and less objectionable to the patient when he becomes used to it. There is of course one danger to be guarded against - the tearing of the urethra by too rapid dilatation. But with proper care this may be avoided. There is some risk of it happening, however, when we are dealing with a very sensitive urethra, which it has been necessary to render anaesthetic with cocaine before attempting dilatation. I therefore never use cocaine unless absolutely necessary. If no cocaine has been used, the patient will soon let the operator know when the dilatation is too severe.

With the instrument in situ, the breaking of a rubber cover is only likely to take place when the curved instrument is in the posterior urethra. In this position, especially, a portion of the mucous membrane may be caught up when the instrument is being unscrewed. Should such an accident happen, the dilator must be opened so as to free the enclosed tissue, and then by slightly shifting the position of the instrument, and gently closing it, the danger may be overcome. It is well from time to time to make a urethroscopic examination, and occasionally when the inflamed area is small, a 2 to 10% solution of nitrate of silver may be applied directly on a swab.

On/

On the whole however, the urethroscopy is more suitable for diagnosing the extent and character of the inflammation than for the actual application of remedies.

STRICTURE

When a stricture complicates a case of chronic urethritis it must of course be treated. If the passage be too narrow for the introduction of the dilator, bougies must be employed at first. When these have sufficiently opened the passage for the introduction of the dilator, the stretching is completed by the latter. But before treating a stricture any subacute inflammation that may be present ought to be subdued by means of irrigations. Now and again in posterior urethritis we may encounter a much enlarged vascular veru montanum. On one occasion when I was dilating a deep stricture with bougies, I could pass them quite readily through the stricture, until at last ~~on~~ a number 10 Lister's bougie caught somewhere at the neck of the bladder. Trying as gently as possible to get the instrument further in, after one or two attempts it passed easily. Unfortunately this was followed by profuse bleeding. Owing to the bladder being filled with blood clot the patient/

the patient had retention afterwards, which, as the blood could not be withdrawn by a catheter I had considerable difficulty in overcoming. After many efforts, however, the patient succeeded in passing all the clots. That the bleeding came from the verumontanum was subsequently verified by urethroscopic examination.

Should the methods already enumerated prove insufficient to bring about a cure, daily massage of the prostate may be added. As patients frequently object to this treatment, I do not often advise it. The best method of performing the massage is to stroke the prostate gently with the fingers per rectum, and thereafter we get the patient to pass water which clears away the secretion. He should be advised not to pass water for sometime previous to the massage, thus ensuring that there is urine in the bladder to wash away any secretion which may be expressed. Sometimes an instrument is employed for massage. Quite a good and serviceable instrument may be constructed by the physician himself. For this purpose he takes a piece of thin rubber tubing - twelve inches long - a soft rubber catheter does very well. Then he passes through this tube a stout wire, as shown in the figure/

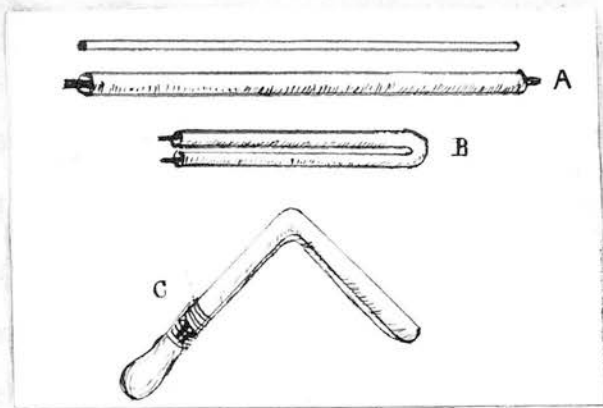


figure at A. He now bends the tube with its included wire, double, as indicated at B. Taking the doubled tube he next bends it again - so that one part stands at right angles to the other. Finally he lashes the free ends to a handle as shewn at C. This simple instrument will be found to work just as well as the more elaborate article which one can purchase. Massage does not interfere with any other treatment and should be repeated daily. It is always worth trying when other means of cure are not proving effectual.

Should the above methods fail in producing a cure or marked alleviation of the discharge it is well worth the physician's trouble to have a vaccine made from the organisms present in the urethral discharge. There may be considerable difficulty in saying definitely that gonococci are present even after repeated microscopic examination. In such cases the determination of the opsonic index gives great help. In chronic cases it is often low, .3 to .6, but it may be higher than this. In such cases a course of injections of a gonococcic vaccine may quickly cure the patient.

I have had one case of four years standing, in which all treatment had proved futile, clear up entirely after three injections of a gonococcic vaccine. Should the gonococcic vaccine not bring about a cure, then if other organisms are present in the discharge, a vaccine should be prepared from them, and injected along with the first vaccine. In like fashion, should no gonococci be found and the opsonic index to this organism be high, 1.3 or 1.6, then a vaccine must be prepared from the organisms found present, and injected.

GENERAL TREATMENT.

It is most important to keep up the spirits of the patient, by assuring him that he will by and by get over his trouble. Tonics, fresh air and exercise all do good. In many cases alcohol need not be forbidden; taken in moderation it seems to do no harm. But it should at once be cut off when its use is found to increase secretion. If a patient has been for sometime treated with dilatation and irrigation until his discharge has practically ceased, it is not a bad plan to get him for once to dine well and drink wine freely, and then to see whether the discharge returns. Perhaps beer is the drink that should be especially abstained from by the patient, as it seems to surpass all others in bringing on the discharge. Mechanical irritation/

irritation of the urethra should be avoided, and therefore cycling and riding are to be forbidden. Dieting does not apparently influence the disease, and it is needless to add irksome restraints when those do not seem called for.

If a patient has been under treatment for some two or three months and the discharge still continues, - if, say from motives of economy it is impossible to get a vaccine made, it is well to stop all treatment for six weeks or thereabouts. After such cessation of treatment, it not infrequently happens that the discharge sooner or later disappears.

There are, indeed, no hard and fast rules to be laid down for treatment. One must be content to watch day by day to see how a case progresses. The state of the urine is our safest guide, and it is only experience that teaches one when to push treatment and when to leave it alone. When, after sometime, the discharge appears to be free from gonococci, it is well, now and again, by injecting a strong solution of silver nitrate to set up an artificial urethritis, and to examine films from it in order to ascertain whether gonococci have returned or been stirred from their lurking places. Should none be found we can relax the treatment, but if/

if they re-appear, we know then that the disease has still to be eradicated. When no gonococci are present but the discharge shows numerous other organisms, these may sometimes be rapidly reduced by irrigations with a weak solution of mercuric chloride.

Neisser arranges chronic urethritis in three stages:-

1. Gonococci present.
2. Mixed infection.
3. An Aseptic Urethritis.

The first two stages are readily recognised, but I have never observed the third, although of course it may quite well occur. There can be no doubt that in a case of gonorrhoea the gonococci gradually diminish in numbers, and in course of time disappear entirely, and this process of elimination can be hastened by treatment. Some authorities maintain that a person once infected, retains the infection for years, and continues to be infectious. This statement in many cases I am inclined to doubt. From my point of view the gonococci gradually die out, but from the lesion caused by them some discharge continues to come. This discharge may sometimes, indeed, be the result of a mixed infection; but/

but on the other hand, it may be only the evidence of a lesion produced as I have indicated by the formerly active germs. At all events, as mentioned on a previous page, I have known cases in which, although a discharge remained, the patients nevertheless begot healthy children and did not infect their wives. After the repeated careful examinations to which these patients were submitted, it was obvious that although a slight discharge continued the gonococci had been entirely eliminated.

QUESTION OF MARRIAGE.

When the question of a patient's marriage arrives, we can usually settle it after an exhaustive examination.

I.

Our decision must obviously be in the negative, should gonococci be present in the discharge.

II. When the discharge shows no gonococci, but the urethral threads are largely composed of pus, an artificial urethritis must be induced by a strong injection of silver nitrate. The discharge will in most cases now show gonococci, and our decision is of course unfavourable.

Hydrogen peroxide may be used instead of silver nitrate as an injection to stir up and detach the lurking gonococci.

III./

III. If no gonococci appear in the discharge, and few or no pus cells appear in the threads, the following examination should be made.

- a. The prostate secretion to be examined for gonococci.
- b. The spermatic secretion to be examined for gonococci.
- c. The anterior urethra to be injected with a 1% solution of silver nitrate, or a solution of Hydrogen peroxide, and the discharge examined for gonococci.
- d. The posterior urethra to be in like manner injected but upon another occasion, and the discharge to be examined for gonococci.

If all these tests are negative the patient can be pronounced free from infection.

Although a patient who passes the previous examination can I think be passed as free from gonorrhoeal infection, still if it is possible he should have his opsonic index examined. It is not of course a certain test; yet if it were very low, say .3 to .6, one's suspicions as to a possible gonorrhoeal focus somewhere in the urethra or neighbourhood would be aroused. At any rate an attempt to raise the index by a vaccine might be attempted.

When/

When such an important question is under consideration it is only fair that we should use every means in our power.

MICROSCOPIC EXAMINATION.

The detection of the gonococci in the acute stage of the disease is a very simple matter. A drop of pus smeared on a cover slip ; dried by heat, and then stained for a minute or so with an alkaline solution of methylene blue is all that is required. The film should be examined by 1/12 oil emersion lens. The pus cells will be seen faintly stained with blue, their nuclei more deeply stained, and within the body of the pus cells the cocci will be seen lying stained a very dark blue. The gonococci are in pairs, and they are further grouped in fours or multiples of four. They never form chains. The cocci are kidney shaped and lie in pairs with their concavities facing each other. There is no differential stain to distinguish them from other organisms. The gonococci, unlike the majority of the other cocci found in the urethral discharge, does not retain Gram's stain, and this is an aid in making a differential diagnosis. In chronic cases it is not such an easy/

easy matter to find the gonococci, as now they may not be present in the pus cells but free in the discharge or adherent to the pus and epithelial cells. The threads in the urethral discharge should be searched for them, and if they are not found at one examination they must be looked for again and again. Before giving a negative report it is well to produce an artificial urethritis by nitrate of silver and examine the discharge thus produced. If the urethra has previously been dilated by Kollmann's dilator so much the better. The gonococcus will not grow on gelatine or agar. For clinical purposes a drop of human blood rubbed on the surface of an agar tube makes a suitable medium for cultivation. The tube is then placed in an incubator at 37° C. and at the end of twenty four hours the cultures are seen dotted on the surface like drops of dew. After three days they cease to grow and soon die.

In the foregoing pages I have endeavoured to show in what manner the general practitioner may hope to deal with the various cases of urethritis that come under his charge.

A careful examination of a patients urine will in most cases enable the physician to localise the lesion and treat it accordingly. Most of the instruments/

instruments he may need are ready to his hand - such as those required for irrigation and instillation. Should he wish to add a urethral dilator to his armory, he may take note that the German makes are more reasonable in price than the native article. It is as well but not absolutely necessary, that he should possess a urethroscope, or he can from time to time send his patient to a surgeon and get the latter's report as to the progress of the disease. But as I have already indicated this instrument is more useful in diagnosis than treatment. Lastly the help of a bacteriologist may be called in to aid in the preparation of a vaccine. May I be excused for adding that however troublesome and unpromising a case may be the physician should never lose heart. If he does the patient will certainly follow suit.