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RHOEAL INFECTIONS IN THE
FEMALE BY PERMANGANATE
OF POTASSIUM.

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A CLINICAL LECTURE DELIVERED AT THE SUFFOLK DISPENSARY

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The Treatment of Gonorrhœal Infections in the Female by Permanganate of Potassium.

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GENTLEMEN:—This little girl of ten years of age has been brought to us on account of vaginal discharge, which, according to the child (and in these cases you always should be prudent in accepting the statements of children), came on a week ago without any cause. Her health is fairly good, but the weak condition of her eyes and build lead me to consider her as lymphatic. She complains of no pain on urinating and no pruritus or burning sensation about the vulva.

On examination, we perceive that the hymen is intact, that the orifice of the vulva is in a condition of active hyperemia. A little yellow pus is seen coming through the orifice of the hymen, but when I ask her to cough it gushes out in great quantity.

Now, gentlemen, what did I do in this case? I did not push the child with questions, for she probably would have lied about the cause of this condition of affairs and I might by so doing put ideas into the child's mind that were not already there, if she has not been abused by some boy or man.

I simply took a drop of pus on a platinum needle, made a cover-slip

preparation stained with Loeffler's methyl blue solution and examined it under the microscope, with what result?

I found the gonococcus in considerable numbers and the diagnosis was made.

This is the course that I strongly advise you to employ in these cases, as you thus avoid useless questioning and arrive at a positive and speedy diagnosis of the nature of the affection present.

This case is most interesting in the pathological and medico-legal point of view, but these questions I shall leave aside today, as I desire to speak to you of a special treatment of gonorrhœa, namely by permanganate of potassium, which has been put forward recently by several French physicians, notably by Dr. Janet.

I have employed this treatment for some time in gonorrhœa of the male, and lately since reading the reports of its application in gonorrhœal infections in women, I have put it to test in several cases with excellent results.

You are all aware that gonorrhœal infections in women present a very considerable gravity. The great number of orifices and glands about the vagina and urethra make good

hiding places for the gonococcus to locate and multiply. The communication with the peritoneal cavity by means of the uterus and tubes from the external genital organs exposes the patient to extremely serious complications.

When you are consulted for a trouble which you suppose to be gonorrhœa, you should make a most careful examination in order to determine the parts that are invaded by Neisser's organism, for if you intend instituting an antiseptic treatment, your antiseptics must be complete, or else do not undertake it.

To overlook the treatment of an orifice is to put yourselves in the unhappy position of seeing all those that you have treated reinfected by this remaining neglected focus.

Your treatment should be methodically applied, and, following Tixeront, you will proceed as follows: firstly, disinfection of the urethral and periurethral glands; secondly, disinfection of Bartholin's glands; thirdly, disinfection of the vagina and uterus.

Up to within a short time, gonorrhœa in the female was considered as very infrequent. The older writers thought that the malady resided in the vagina, and on account of the considerable discharge from this cavity the accompanying discharge from the urethra was overlooked. The urethritis was not noticed because the acute symptoms are not complained of by the patient, probably on account of the little urethral surface in the female and also because the duration of the acute stage is always of short duration in the weaker sex.

But the researches of many authorities in France and Germany have established in an unmistakable manner that in more than 50 per cent. of the cases the urethra has been invaded.

The chronic form is far more frequently met with, the proportion being, according to Chéron, about five of the former to one of acute urethritis. The external orifice of the female urethra is surrounded by follicles and minute tubular glands, the so-called Skenés glands, and it is precisely in these glands that the gonococcus becomes established.

In 1864 Guérin had already described the inflammation of the periurethral glands, and of late quite a number of memoirs have appeared regarding this pathological condition.

In making a differential diagnosis of these various affections, microscopical examination of the discharges is of greatest value, as the gonococcus will be discovered if it be present in the slightest secretion; consequently I think it would be well for you to carry out my plan as you have seen me do in the case of our little patient.

The symptoms of gonorrhœal urethritis are well known to you, as they are practically the same in women as in men, with the exception of a much less intensity and general reaction in the former. Now, I have told you to examine microscopically the discharges, and my reason, among others, is, that by this means you will correctly determine the stage at which the affection has arrived. For example, in the first stage you will find the gonococcus, in the second there

will be various organisms present, while in the third you will only find altered anatomical elements. Consequently your treatment will vary according to the stage of the disease, and I will now trace it out for you.

Treatment of the stage with the gonococcus. When you have found the organism in question, a urethral and vesical irrigation should be made with a solution of permanganate of potassium. The strength of the solution must vary from 1 per 1000 to 1 per 2000, according to the given case, and the quantity at each irrigation should be at least one litre. The irrigation should be practiced every day, the usual duration of treatment being from ten days to two weeks or thereabout.

You will notice that the discharge passes through successive changes before completely disappearing. During the first few days it becomes opaline and more watery, while the gonococcus generally is no longer to be found after the fourth or fifth irrigation.

The patient should then be carefully watched for the week following treatment, as is recommended by Dr. Janet, and after this lapse of time he advises testing the cure by a slight reaction on the mucous membrane of the urethra, in order to ascertain if the gonococcus has entirely disappeared.

This reaction is obtained by the instillation of a few drops of a 1 per cent. solution of nitrate of silver into the urethra, or by allowing the patient to drink several glasses of beer. If the reaction which takes place shows the gonococcus to be ab-

sent in the resulting discharge a cure may be considered as obtained.

We now come to the treatment of the second stage, in which many varieties of organisms may be present in the discharge. On account of the proximity of the vagina with the urethra, the latter is continually bathed in the mucous secretions of the genital organs, and, as you probably know, these secretions afford a most excellent culture media for infectious bacteria; consequently it frequently happens that it is infected by this means, the infection showing itself by a slight discharge, in which, microscopically, you will be able to make out a number of varieties of bacteria.

This form of urethral infection is easily controlled by a 1 in 20,000 solution of bichloride of mercury, with which the bladder should be irrigated.

The third and last stage is, as I have already said, that in which the microscope reveals only anatomical elements, such as round epithelial cells, leucocytes, glandular *débris*, iodophile cells, etc.

In this case the object of your treatment must be to modify the mucous membrane of the urethra, and I consider, with Tixeront, that a 1 per cent. solution of ichthyol is the best preparation for accomplishing this. It should be used in the form of injections, a glass syringe being used.

The treatment of infection of the peri-urethral and Bartholini's glands should be directed in such a manner that the antiseptic will penetrate inside the gland. In order to attain this result you should begin by press-

ing out with the fingers the contents of the gland. When this is accomplished, you introduce the needle of an Anel's syringe, such as is used by oculists, into the orifice of the gland, and the solution of permanganate of potassium, which should be strong, say 1 per cent., is to be quickly and forcibly pushed in. The quantity of solution for each gland is one cubic centimetre.

If after a few trials the gonococcus does not disappear from the secretions the gland should be destroyed by a galvano-cautery, as advised by Dr. Janet. To do this, a small platinum needle is inserted in the gland and the current turned on.

I have now finished with the treatment of urethritis and will now pass to the important chapter of gonorrhœal infection of the uterus.

This organ possesses many glands, which are especially deep seated in the cervix and beside the endometrium in rich infolds. All these anatomical conditions offer excellent soil for Neisser's organism to develop in.

Gonorrhœal metritis may develop without a præexisting vaginitis or urethritis, by direct inoculation in the cavity of the cervix. This is an important fact for you to bear in mind, as this form is met with often in young married women, and, from my personal experience with gonorrhœal metritis, I am inclined to believe that it is produced by *gleet* in the husband, so that although his urethral discharge may amount to only a drop or two in the twenty-four hours, the constant inoculation of perhaps only a trace of mucus from

the urethra at each coitus, ultimately results in a more or less complete infection. I have many personal cases of this description, mostly occurring among the better class of people, which I have carefully examined, both as to the condition of the husband as well as the wife.

The spreading of the disease to the tubes and pelvic peritoneum should always be present in your mind when making your prognosis, and the treatment of a gonorrhœal metritis, which, when the lesions are not advanced, is not very difficult, may become extremely so, when the adnexa are invaded, because the gonococcus from the tubes may reinfect the uterus when this organ has been cured of the disease. Thus the infection after being ascendant becomes descendant.

This possibility must not discourage you in your treatment. Continue your disinfection of the uterus, for the tubes do not contain glands and the gonococcus cannot live long in them, at least in most cases.

As the uterus communicates freely with the vagina, which is always the home of many infectious organisms, the uterus may be reinfecting from this canal after treatment by the permanganate of potassium. You will consequently watch closely the condition of things for a few days after completing your treatment.

Now, there is no doubt in my mind that intra-uterine irrigations of permanganate of potassium have an effect on gonorrhœal infection that is to be had with no other antiseptic. But the great point is to have a flow of sufficient quantity and force, and this can be accomplished with the

Rotunda Hospital douche. This instrument may be adapted to any pitcher or bowl that is at hand, and its value in surgery and obstetrics is without compare.

There are very few physicians or nurses that know what a good douche is. I even know of the ordinary enema syringe being used for intra-uterine irrigation. To say the least, this is most barbarous practice, and I trust that none of you will ever be guilty of such unsurgical technique. Not only is there danger of pumping up air into the cavity of the uterus, but the force and quality of the jet leave much to be desired. Then you have the fountain syringe, which is a decided improvement over the former douche, but which does not permit of a sufficient flow of liquid, owing to the small diameter of the rubber tubing and also no stop-cock allowing the quantity of liquid to be regulated. The Rotunda douche leaves nothing to be desired. With it you can obtain a very considerable or very small jet of liquid, and, above all, it is easily kept clean and is portable. So much for the douche.

With abundant irrigation (and here I differ from Dr. Janet, for I employ from two to three litres at each seance, the former only uses about one litre, if I am not mistaken) you clean the surface of the endometrium of the mucous *débris* and fibrous coagulations which are excellent culture media for the gonococcus, and the antiseptic comes directly in contact with the infected tissue.

As to the intra-uterine catheter to be employed I have no particular choice, those of Fritsch, Collin, Budin, Rever-

din or Reynolds are perhaps the best. If, however, you employ the latter instrument, I think it well to give it the necessary curve for the uterus you are treating.

When the cervix is sufficiently permeable to admit of an easy introduction of the catheter, which should be of small calibre, it is better to irrigate without dilating, so as to avoid all traumatism to the uterus, which is most important. The end of the sound is pushed gently up to the fundus and the stop-cock is slowly opened. The strength of the solution of the permanganate should be from 1 to 3000 or 2000, while the level of the solution should be about four feet above the patient.

You must watch carefully to see that the liquid runs out as fast as it enters, and, if it does not, you must stop the flow and find out where the obstruction is. The first irrigations are rather painful, but the last do not trouble the patient much.

When the uterus will not admit the easy introduction of the catheter, dilatation becomes necessary. To obtain this you may employ Hegar's sounds or laminaria. After dilatation is sufficient, the technique of the irrigation is the same as I have just described. There are also here three stages of discharge the same as I pointed out in the commencement of this lecture, and I will not repeat them again. To each of these three stages corresponds a treatment.

While the gonococcus is present, the strength of the solution of permanganate will vary from 1 to 2000 or 3000, according to the patient, and in cases where the reaction is

not intense, you may even employ 1 to 1000. The duration of the treatment cannot be set down, but it varies from eight to fourteen irrigations, one being made daily.

Microscopical examination of the discharge should be made daily, and this will furnish you with the most important indications as to the strength of your solution and the length of time that the douching is to be kept up.

If the metritis is very acute with considerable abdominal pain, you must wait a few days until the acute symptoms have subsided, and to obtain this I know of nothing better than the application of equal parts of the mercurial and belladonna ointment over the abdomen, with absolute rest in bed.

It is quite safe to say that after fourteen irrigations the gonococcus is destroyed and the treatment can be discontinued, after which the patient should be carefully watched for four or five days.

During this time a slight discharge may appear, containing a number of varieties of bacteria. The best means to avoid this discharge is to order a disinfection of the vagina morning and evening, with a 1 in 10,000 solution of bichloride of mercury.

If the discharge persists in spite of the vaginal douching, a few applications of a 10 per cent. solution of ichthyol should be made to the endometrium.

In closing, I would say that the curette has its indications, and that the above treatment I only advocate in the more recent infections. In old cases of metritis, Neisser's organism has disappeared and the permanganate would have no action.

There are many other methods of treating gonorrhoeal metritis, by applications of carbolic acid, nitric acid, chloride of zinc either in solution or in the form of a paste made up into a cayon to be introduced into the cavity of the uterus, but these methods are as dangerous as they are useless.

In the case of our little patient I have ordered daily irrigations of permanganate of potassium at the strength of 1 to 2000, and I trust that I can show you the remarkable effect of the treatment.

(The patient was seen one week later, the discharge had disappeared, and examination of the urethral and vaginal secretions could reveal no trace of the gonococcus. The child did not complain of any pain produced by the permanganate.)



