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SOME PATHOGNOMONIC PHYSICAL SIGNS OF CHRONIC GONORRHŒAL INFECTION IN WOMEN, AND THEIR VALUE IN THE DIAGNOSIS OF PELVIC DISEASE.*

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Of all the forms of disease to which the pelvic organs of women are subject, that which she least suspects becomes the most dangerous and, ere she realizes it, has wrought irreparable damage to her. Originating in sexual intercourse, if communicated by the husband, he seldom if ever acknowledges its character to her, and if contracted out of wedlock, its recognition is usually concealed until its germ has passed beyond control by methods other than surgical. Since Nöggerath first wrote upon the subject, the profession, and especially many of those working in the field of gynæcology, have devoted much time and study to it, both clinically and scientifically, with the hope of being able to check the progress of the disease in women before it has invaded the structures which, when once involved, render them permanent invalids. The result of their work is upon record, and easily accessible to you all; it is, therefore, unnecessary for me to attempt to offer any new theories or methods of relief for cases of acute gonorrhœa, for, in my twenty years of experience, I have seen but very few such cases, and I believe that to be the general experience of most of those present, from the fact, as previously stated, that in the majority of cases, excepting prosti-

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tutes, the disease has passed beyond the acute stage and the physician is called to see the sequelæ of it.

Lyons says, in the *Medico-Surgical Bulletin* of May 1, 1895: "Notwithstanding all the facts that have been accumulated in the study of this disease in both sexes in the last few years, it is a most lamentable truth that there is no disease, at least of such common occurrence, that is so little undersood, the diagnosis of which is so often missed, is so much neglected, and so improperly and unsatisfactorily treated by the vast majority of the profession." According to his experience he says he must include even gynæcological specialists.

Such has been my experience, and my only object in writing this short paper is to call your attention to what I believe to be positive physical signs of such an infection, be that infection immediate or remote. As I know of no other pathological condition of the generative organs of women that will initiate and perpetuate such, I deem them therefore to be valuable aids in making a correct diagnosis of many forms of pelvic disease.

Given a case of acute gonorrhœa to examine, what do we find? An urethral meatus, vestibule, nymphæ and ducts of the vulvo-vaginal glands in a high state of inflammation, bathed in pus, painful and sensitive to the touch, and the act of urination attended by acute pain. The mucous membrane of the lower half of the meatus is swollen and everted and, early in the progress of the disease, is changed from its normal pink to a deep red; the ducts of the vestibule, from being almost invisible in their normal state, now stand out prominently on the surface of the mucous membrane, and their color is deepened many shades. If we inspect the vulvo-vaginal glands and their ducts, we shall find in the first few days of the disease that they are tender to the touch, increased in size, their normal secretion which is a colorless mucus increased and changed to muco-pus, the mouths of the ducts are pouting and of a deep red color, and the mucous membrane surrounding the ducts for about an eighth of an inch in diameter tinged to the same hue. If a drop of the pus secreted by these glands be placed under the microscope and search made for the gonococcus, it will usually be found in the early stages of the disease.

Although it is claimed by many that the vaginal mucous membrane is not susceptible to the action of the gonococcus, if we exam-

ine it closely we will note that, whereas in a healthy condition the follicles in the vaginal mucous membrane, being sparely distributed over the vaginal wall, are not readily visible to the naked eye, they can now readily be traced as minute, angry red spots not larger than the head of a pin, which give forth a dirty, grayish-colored secretion. We must also bear in mind the fact that the same infected semen which has inoculated the external genitals has also bathed the cervical portion of the uterus and mingled with its secretions. We all know the susceptibility of the uterine mucous membrane to the action of the gonococcus and its beautifully-arranged rugæ within the cervical portion of the uterus, upon and behind which the germ can secrete itself and do its deadly work unmolested by almost any form of medication.

For this reason I labor under the impression that he who would successfully abort a gonorrhœa of the uterus must be there with his antidote before the septic intercourse takes place. Such is not our privilege. We are called upon to repair the damage, and our efforts are directed toward relieving the distress, and particularly that pertaining to the urethra and bladder, as quickly as possible. Under careful aseptic treatment the acute symptoms subside, the painful micturition is relieved, the swelling and tenderness of the external genitals disappear, and the parts apparently return to their normal condition.

If we watch these patients carefully for some time, we shall see that they never return to the condition they were in before the infection took place. Instead, the pouting meatus urinarius remains, its mucous membrane permanently changed in character, and its appearance changed so as to resemble what has commonly been called urethral caruncle and looked upon by many as prolapse of the urethra. The ducts of the glands of the vestibule remain indefinitely, and in many cases for years, as red and angry spots to mark the former dwelling-place of the gonococcus. But for me, the appearance of the ducts of the vulvo-vaginal glands are the most positive evidence of the former residence of the gonococcus in the locality. I have yet to see the woman who has suffered from gonorrhœal infection whose vulva will present a normal appearance upon examination.

If experience proves that I am right—and the evidence of those who have investigated the subject thoroughly seems to go far toward

proving the truth of my statement—of how much value are these signs to us in our efforts to arrive at a correct diagnosis in the many obscure forms of pelvic disease which we are called upon to treat?

First let us see why it is that the pathological changes which take place in these ducts of the vulvo-vaginal glands and the ducts of the vestibule, as the result of gonorrhœal infection, cause them to permanently stand out as evidence of such. Sänger says: "In many cases of gonorrhœa, the disease has not ceased with the disappearance of the gonoccoccus, and the inflammatory processes consequent upon the entrance of the gonococcus into the tissues may persist after the gonococcus has disappeared as a chronic inflammatory process that ultimately leads to the formation of scar tissue, and also as an apparently recurring diseased condition in the form of an acute exacerbation of the existing chronic inflammation." To these existing chronic pathological conditions he has applied the term "residual gonorrhœa." Others term it "latent gonorrhœa."

I have not been able as yet to study under the microscope the structural changes in the mucous membrane lining these ducts, but it would seem to me that the peculiar deep red and apparent constantly congested appearance of these ducts is due to a destruction of the proper columnar epithelium by the gonococcus and its replacement by squamous epithelium upon hyperplastic capillary new formation. Certain it is, so far as my experience goes, that a duct once so infected never returns to its normal appearance. To be sure, as in other forms of disease, all cases are not alike. While some present these signs to a marked degree, others will be only slightly changed, dependent, I believe, upon the virulence of the infection and the number and vitality of the gonococci and whether the infection is a pure or a mixed one.

Granted then that a sufficient number of these signs are present to attract our attention to the possibility of gonorrhœal infection, what is the next step toward obtaining a correct diagnosis? If possible, get from the patient a history of the acute attack and the circumstances under which it took place. In very many cases this can not be accomplished owing to domestic reasons. It is our duty then to see the husband, and, if possible, obtain the knowledge we seek through him. If we are not privileged to do this, then the microscope will prove a substantial aid. When once the gonococcus has been discovered on the slide, we are sure of our position. Again.

this is not always possible, for, as Sänger says, in many cases the gonococcus has disappeared from such secretions as we are able to obtain and we have only the results of its invasion to guide us. However, after a little experience in hunting for gonococci and finding it or getting a confession in the major portion of the cases, one will feel very sure of his ground and, in such a case, should treat the case as if it were one of gonorrhœa. If he errs it will be on the safe side.

Now, as the purpose of this paper is only to point out what I consider some pathognomonic signs of gonorrhœal infection and to call attention to their value as an aid in the diagnosis of different forms of pelvic disease, I purpose to keep to my subject and for the rest of the time allowed me will call attention to a few of the pathological conditions within the pelvis where a perfect knowledge of such an infection will be a valuable aid in arriving at a correct diagnosis and instituting proper treatment. For convenience I have arranged them as follows:

1. Various pathological changes within the urethra attended by pain at the neck of the bladder following the act of urination.
2. Abscess of the vulvo-vaginal glands.
3. Chronic senile vaginitis.
4. Pernicious leucorrhœal discharge from the cervix uteri.
5. Dysmenorrhœa from stricture at the internal os.
6. Structural changes in the endometrium resulting in menorrhagia.
7. Pathological changes within the Fallopian tubes.
8. The effect of the gonococcus upon the ovary.
9. The different forms of displacement that accompany this condition.
10. Sterility.

In regard to the first sign, we have been led by some writers upon gynæcology to believe that the major portion of pain and irritation at the neck of the bladder is reflex and due to displacement or peri-uterine inflammation which results in traction upon the base of the bladder through its vesico-uterine ligaments. I suppose this explanation arose from the fact that cystitis and the formation of stone are not so frequently found in the female as in the male, and therefore the physician goes on treating his cases with tampons and applications to cure what he considers to be a reflex condition at

the base of the bladder. But if he is made by experience to realize that gonorrhœal infection can produce stricture and disease of the female urethra just as readily as it does in that of the male, a perfect knowledge of these signs would lead him to direct his attention to the urethra and bladder of the woman to relieve these symptoms. It is my belief that a knowledge of these conditions was largely influential in inducing Dr. Emmet to originate his button-hole operation for relief of such cases.

Urethral caruncule, one of the most distressing pathological conditions in woman, would be looked for as a legacy of gonorrhœal infection, and the cystoscope should be brought into play for the discovery of changes at the base of the bladder about the ureters—in fact, any pathological change in the urinary tract that could follow in the wake of gonorrhœa should be sought for by the careful and observing physician.

With respect to the second sign, that of abscess of the vulvo-vaginal gland, could we discover the gonococcus or the diplococcus in the gland contents, we would know that extirpation of the gland rather than simple evacuation of its contents would be the only treatment that would relieve the woman not only from the dangers of repeated attacks of inflammation but from the risk of infecting the opposite sex.

My desire to call attention to the third proposition—chronic senile vaginitis—is due to the fact that in my twenty years' experience I have had many such cases where any form of treatment recommended in modern gynæcological practice seemed only palliative in my hands. I deem this due to the fact that a chronic discharge from the uterus of such origin may often after the menopause be so irritating to the vaginal mucous membrane that those afflicted may be indefinitely subject to acute or subacute attacks of vaginitis, the cause of which is unknown to themselves or the physician. To substantiate my position, I might cite the history of several such cases where treatment antiphlogistic in character had been continued by my *confreres* or myself for a period extending over months, only to be disappointed in the end by the appearance of an acute exacerbation without apparent cause. Experience has taught me that these cases in an aggravated form, although they have long since passed the menopause, can only be cured by the removal of the infected uterus. This may seem to some of you to be

an extreme measure or method of treatment to apply to senile vaginitis, but the cure of the case lies in the removal of the cause, and if the cause be a catarrhal uterine secretion, infectious in character, then why hesitate in its removal? Understand me correctly, I am only advocating such a method of treatment when palliative remedies applied to the vagina have failed.

In what manner will a perfect knowledge of gonorrhœal infection affect our diagnosis respecting the results to be obtained in such cases as come within the fourth proposition—pernicious specific leucorrhœal discharge from the cervix, one of the most frequent causes of sterility in women? Could we from such knowledge be able to discriminate between it and a simple leucorrhœal secretion due to passive congestion of the pelvic structures with simple or complicated displacement, we certainly could give a much more hopeful prognosis in our cases than we could did we know that the secretion which escapes from the cervix uteri was only the outer evidence of a deep-seated infection* that had in all probability permanently injured the uterine appendages.

We should also be able to easily cope with the fifth condition mentioned—dysmenorrhœa from stricture at the internal os. No man with a perfect knowledge of such a condition, and in his right mind, would promise his patient that simple divulsion of the stricture at the internal os and curetting of the uterine mucous membrane would permanently relieve her from pain during the menses or, if she so desire, secure her the hope of her married life—impregnation.

Respecting the sixth proposition,—structural changes in the endometrium resulting in hæmorrhage,—I can only say, that I find on my history books many cases that have come to me for relief from increased and prolonged menstruation in which I have been able to trace the origin of such directly to a specific infection of the uterine mucous membrane. I do not pretend to say that this is the only cause of such a condition; it is only one among many. But if we

* Sinclair says: "When the gonococci have once invaded the glands of the cervix uteri, they appear to linger there as long or longer than they do about the deeper parts of the male urethra. Developing in a new soil, they are endowed with a greater vitality than the comparatively starved stock from which they sprang." He further says: "It is the neglected cases of gonorrhœa in the male—those which become chronic—which most frequently give rise to the infection of the female, even though they may have long ceased to show signs of activity."

are able to recognize it by the external signs of infection which I have pointed out, we should certainly not make the mistake of attributing the hæmorrhage to a laceration of the cervix and close the latter with the expectation that the hæmorrhage would be relieved when we have restored the cervix to its proper form. Nor would we go on indefinitely making applications of remedies to a diseased mucous membrane, when we know that beyond the mucous lining of the uterus exists a focus of infection out of reach of such applications.

As a valid reason for my citing the seventh proposition—pathological changes within the Fallopian tubes resulting from gonorrhœal infection—I make the following quotations:

Bumm says that "purulent parametritis with gonorrhœa of the cervix is due to a mixed infection with pyogenic bacteria. It is the analogue of the acute gonorrhœal bubo in the male, which likewise owes its origin to pyogenic germs. The further the gonorrhœal infection advances from the cervix toward the appendages, the purer becomes the culture of the germ, and it is claimed that when infection invades the Fallopian tube, very few bacteria other than the gonococcus can be found in the secretions of the uterine mucous membrane, and that bacteria other than the gonococci are scarcely ever found in the tube in these cases. The peculiarities and the results of the action of the gonococcus upon the tubal mucous membrane is therefore shown in its natural state."

If Bumm is correct, and he certainly may be looked upon as an authority, we should be wary in our prognosis to those who come to us presenting the external signs of gonorrhœal infection and complaining of peri-uterine trouble. It would certainly not be wise to promise a cure to any such patient by the application of local methods of treatment other than surgical. I can only speak for myself, but I am candid when I say that it has been my fortune to meet with many such cases after they have passed through the hands of physicians who have stimulated them with such promises.

Let us now pass on to the eighth proposition—the effect of the gonococcus upon the ovary. So far as my experience goes, the major results attending such infection are these: Imprisonment of the ovary to the fimbriated extremity of the tube and to the surrounding structures, and changes in the peritonæal covering of the gland. It is a well-known fact that Nature tries to circumscribe any

inflammatory process affecting the Fallopian tube. If it be gonorrhœal or septic infection of its mucous membrane, then she rapidly closes the fimbriated extremity in her effort to bar the progress of the disease and prevent general infection of the peritonæal cavity. In the majority of such cases in which I have made laparotomy, I have found the tube glued to some portion of the ovary and the latter more or less embedded in or covered by organized lymph. For the most part, I believe that the inflammatory processes involve the superficial structures of the ovary, producing changes in its capsule which not only bar the organ from future usefulness as a reproductive organ but induce a process of cystic degeneration of the ovisac which finally results in permanent destruction of the ovary either by cystic degeneration, senile atrophy, or a suppurative process. Certainly in such a case the intelligent practitioner would not recommend prolonged treatment by vaginal application and promise a cure.

My ninth proposition,—the different forms of displacement that accompany this condition,—is one upon which the brightest minds in our profession have labored for years, and many operations have been devised for the relief of such displacements. Such operations are, as a rule, only applicable to individual cases, and then only when we are certain that our diagnosis will justify the application. This subject is so vast that I shall only sum it up in these words—that he who stops short of making a laparotomy for the relief of such a condition is only temporizing with his case and letting slip from his grasp the golden opportunity of restoring his patient to health by the most modern and intelligent means of treatment known at the present day.

I will tax your patience only a moment longer with one more condition in which I am deeply interested, and which, in my judgment, calls for the greatest skill on the part of the surgeon and the most patience and resignation on the part of the patient, and this is sterility as a result of gonorrhœal infection, because it includes among its causes all of the conditions I have previously mentioned, together with that of the opposite sex, and, in many cases, the domestic happiness of a household. Sinclair says that a woman once infected with gonorrhœa is forever after a sterile woman. If such were the case, then to tell it to each wife that came to me thus infected would be to ring the death-knell of her happiness. I can not quite

agree with this eminent writer because of the fact that I have treated such cases by divulsion, curettage, laparotomy, bisection of the ovaries and tubes, and they are to-day happy mothers. A report of such work can be found in my last paper read before the Alumni Society of the Woman's Hospital, and entitled "Conservative Work upon the Uterine Appendages."

I am well aware that it is claimed by operators and able writers that gonorrhœal infection of the appendages is usually bilateral. This may or may not be so. It is certainly not sufficiently well settled in the professional mind to warrant me in removing what is apparently a healthy tube and ovary because of the fact that the opposite one is the seat of gonorrhœal infection. I prefer rather to free it from adhesions, wash out the tube with a good disinfectant, release the ovary from pressure and tension, and give it another trial. And only when the intelligent practitioner recognizes such infection and applies the methods of treatment from vulva to ovary which, I think, I have sufficiently proven can be applied with safety, is he doing his full duty to his patient. That he can, if he so desires, is made manifest by the following report of a case:

A gentleman consulted me four days ago respecting the condition of his wife. She was treated by his family physician who called in consultation a second man, the latter recommending immediate operation. I was asked to see her as a third party and give an independent opinion. The woman was prepared for examination, and I at once recognized what I considered to be positive signs of gonorrhœal infection of the external parts. A simple digital examination showed the left appendage to be four times its normal size. I took the husband one side and in a positive manner asked him when he had suffered from gonorrhœa. This he absolutely denied at first, but later acknowledged that he had had it twice. The history of the wife's illness, extending over a period of years, tallied well with the repeated attacks or exacerbations of a gonorrhœal infection. The woman was in such a wretched condition that radical operation for the removal of the appendages would certainly have meant death. I at once advised aspiration of the appendages through the vagina, which was consented to, and ten drachms of pus were removed. This I sent to a microscopist without any history of the case, simply asking him for his knowledge of the contents of the pus.

The following letter received the same day corroborates the diagnosis:

"My Dear Doctor: The specimen of pus left on this date shows under the microscope numerous gonococci in the pus cells and free. There are also a few streptococci and two or three varieties of bacilli present, showing a mixed infection. The original infection was unquestionably gonorrhœa.

"Yours very truly,
(Signed) "F. A. Lyons, M.D."

Here was a case in which, from the husband's own confession, infection had taken place five years previously and had been kept alive by frequent exacerbations of the primary infection.