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Etiological Importance of Gonorrhœa in relation to some of the more common Diseases of Women.

THERE is little doubt that, although gonorrhœa in the female is still regarded in this country as a comparatively unimportant affection, it really destroys the health of a larger number of women than does even the poison of syphilis. As a rule, the earlier indications of the disease pass unregarded. They are attended with but little pain, probably none when the urethra is not involved, and the significance of the purulent discharge is not understood. Hence it frequently happens that medical advice is not sought until a later stage, when the infection has had time to inflict serious, and sometimes life-long, damage on important organs. And even if advice is sought earlier, it is seldom that the disease is regarded seriously, or that vigorous treatment is adopted. It is because I am convinced that this state of matters is one greatly to be deplored that I have selected the subject for my address this evening, especially as I am able to illustrate what I have to say by several highly instructive cases that have been under my care during the past few months at St. Thomas's Hospital.

Attention has been already called to this question by several well-known writers, amongst whom may be specially

mentioned Noeggerath,[1] late of New York; Sänger,[2] of Leipzig; Schwarz,[3] of Halle; the late Angus Macdonald,[4] of Edinburgh; Mr. Lawson Tait,[5] of Birmingham; and Dr. W. J. Sinclair,[6] of Manchester, to whose excellent monograph I have been particularly indebted.

Acute gonorrhœa in the female is generally described as consisting mainly of an acute vaginitis. This, however, is not in accordance with ordinary clinical experience. It is even doubtful whether vaginitis occurs at all in the majority of cases; if it does, it is usually slight in degree, and of very little importance. The lesion most constantly present is inflammation of the ducts of the vulvo-vaginal glands, and of the parts immediately surrounding their orifice. In a considerable number of cases there is urethritis, and not uncommonly there is redness with swelling, and, occasionally, superficial ulceration of the nymphæ. But a more frequent lesion than either of the two last-mentioned is inflammation of the cervical mucous membrane, with more or less catarrhal erosion on the portio vaginalis and a purulent discharge.[7] It is this liability of

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[1] Noeggerath (E.), *Die latente Gonorrhoe im weiblichen Geschlecht*, Bonn, 1872. Latent Gonorrhœa, especially with Regard to its Influence on Fertility in Women, *Trans. Amer. Gynecolog. Soc.*, vol. i, 1876, p. 268.

[2] Sänger (M.), Ueber die Beziehungen der Gonorrhöischen Infektion zu puerperal-Erkrankungen, *Verhandl. der deutschen Gessellsch. f. Gynäk.*, Liepz., 1886; Etiology, Pathology, and Classification of Salpingitis, *Amer. Journ. Obst.*, March, 1887.

[3] Schwarz (E.), Die Gonorrhöische Infektion beim Weibe, *Samml. klin. Vorträge*, Leipz., 1886.

[4] Macdonald (A.), Latent Gonorrhœa in the Female Sex, with special Relation to the Puerperal State, *Trans. Edinb. Obst. Soc.*, see *Obst. Journ. Gt. Brit.*, vol. i., 1873-4, p. 254.

[5] Tait (Lawson), *Diseases of Women*, London, 1877, pp. 19, 88, 114, and 211.

[6] Sinclair (W. J.), *On Gonorrhœal Infection in Women*, London, 1888.

[7] The following case well illustrates the conditions usually met with when the disease is seen at an early stage. M. J. R., aged 32, a lady's

the cervix to early infection that gives to gonorrhœa in women so serious a character; for when once the disease has established itself in the cervix, and it may do so at the outset, the infection easily travels, or is conveyed, to the interior of the corpus uteri, and thence to the Fallopian tubes, pelvic peritoneum, and ovaries, parts quite beyond the reach of local treatment.

And it must not be supposed that only those women who lead an evil life become the victims of these internal inflammations of gonorrhœal origin. On the contrary, it is to their occurrence that the breakdown in health, following marriage, in previously healthy girls, is often traceable. The views of Noeggerath as to the latency and incurability of gonorrhœa have been treated with too much contempt. As to its incurability, no doubt he was wrong; he himself has admitted as much. Nevertheless, the credit is due to him of having first drawn attention to the fact that a gonorrhœa in the male, supposed to have been long cured, may be roused by marriage into renewed activity, and so may be unwittingly transmitted to the wife.

The usual results of gonorrhœal infection in the newly married are seen in the following case:

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maid, was admitted into St. Thomas's Hospital, September 3rd, 1888. Her last menstrual period ceased a week ago. During the flow she noticed that micturition was painful, and when menstruation ceased she observed a thick yellow vaginal discharge. On examination a purulent discharge was seen issuing from the vaginal orifice. The mucous membrane surrounding the openings of the vulvo-vaginal gland ducts was red and slightly swollen. The meatus urinarius was normal in appearance, but on pressing upon the urethra through the anterior vaginal wall, a drop of pus could be made to exude. The vaginal mucous membrane, as seen through the speculum, had a healthy appearance. A muco-purulent discharge was seen issuing from the os uteri, which was surrounded by a complete ring of erosion of a bright red colour, and a quarter of an inch in width. Pus was seen exuding from the swollen orifices of two or three glands in the erosion.

CASE I. *Gonorrhœa contracted immediately after Marriage: Salpingitis, Pelvic Peritonitis, and Cellulitis.*—M. B., aged 19, admitted into St. Thomas's Hospital, under my care, October 15th, 1888, was a strong healthy girl, never having had a day's illness until her marriage, three months previously. About a fortnight after her marriage she began to suffer from a thick yellow vaginal discharge, followed by painful micturition. On ten different occasions, during the past three months, there had been a discharge of blood from the vagina, lasting three or four days at a time. The patient complained of pain in the right hip, shooting inwards to the vulva, and downwards to the calf of the leg.

On examination no signs of inflammation were found about the vulva beyond a little redness around the orifices of the gland ducts of Bartholini. The vaginal mucous membrane was natural in appearance. A purulent discharge was seen to be issuing from the os uteri, surrounding which there was a narrow zone of catarrhal erosion. Bimanually there was a hard swelling to be felt, occupying the region of the left broad ligament, depressing the vaginal roof on that side, and pushing the uterus towards the right of the middle line. The mobility of the uterus was impaired.

Twelve days later the uterus was more fixed, and the swelling had extended to the front of the uterus. There had been a good deal of pain during the last few days in the left iliac region. The temperature was generally under 100°; it rose, however, on two occasions a few hours after examination. On October 31st the anterior swelling had extended downwards along the upper part of the anterior vaginal wall, which bulged considerably, pushing the cervix backwards and upwards as well as to the right. On November 3rd there was felt, for the first time, thickening on the right side. Four days later the swelling in front

had diminished, and there could now be clearly made out, in the left fornix, a tense oval swelling, which was thought to be a hydrosalpinx. For some days the patient had complained of pain and tenderness in the right iliac region. On November 5th she had aching down the left leg. These pains gradually disappeared, and on November 13th she expressed herself as feeling well. On the 20th she began to menstruate, and the following day was allowed to sit up a little. A week afterwards she was made an out-patient. I last saw her on February 2nd, 1889; an irregular thickening was then still perceptible in the left fornix.

This patient's husband had gonorrhœa twelve months before marriage, and believed himself to be cured.

A very common result of a gonorrhœal salpingitis is the sealing up, by adhesive inflammation, of the fimbriated extremity of the Fallopian tube. This condition is beautifully shown in a specimen on the table, in which the outer portion of the occluded tube has become distended, forming a large hydrosalpinx. This very accurate and carefully coloured drawing of the preparation, as it appeared on removal, was made for me by Mr. Holding. When both tubes are thus closed, which they frequently are, it is evident there must be sterility. It is pretty certain that this is at least one of the reasons why prostitutes are so often sterile. But this sealing up of the free extremity is not the only or the worst effect of gonorrhœal infection upon the Fallopian tube. The whole mucous membrane lining the tube becomes inflamed and swollen, and a purulent secretion is poured out, which is liable to become encysted in the closed tube or in portions of it, forming a pyosalpinx, with its attendant miseries and dangers. In fact, pyosalpinx appears to be generally of gonorrhœal origin. I shall show presently that gonorrhœal salpingitis may also be attended with destructive ulceration.

The peritonitis induced by gonorrhœal infection is not usually very acute, or attended with severe symptoms. It is at first limited to the parts contiguous to the free extremity of the diseased tube, where thickening takes place, with adhesions and matting together of the contents of the pelvis, especially of the tube, ovary, and broad ligament. The functions of these parts become seriously disturbed and there is produced, on the affected side, a mass of irregular and ill-defined thickening, which can be readily made out on bimanual examination. The mobility of the uterus is also impaired.

The case which furnished this specimen of hydrosalpinx is of such exceptional interest as to be worth relating.

CASE 11. *Gonorrhœal Salpingitis : Hydrosalpinx of Right Tube removed by Abdominal Section : Death from Acute Peritonitis in Fifty-six Hours ; Autopsy ; Double Pyosalpinx with Ulceration and Perforation ; Escape of Purulent Matter into Peritoneal Cavity.*—M. C., aged 19, single, was admitted into Magdalen Ward in May, 1888, and transferred to Adelaide August 20th, 1888.

At the latter part of 1887 she had a yellow vaginal discharge, with pain in both iliac regions, lasting for eleven weeks. After being better for a month these symptoms recurred in March, 1888, when a swelling developed in the left side, which varied in size from time to time. On admission to Magdalen she complained of pain only on the left side ; she had a thick purulent discharge, which was more profuse when the swelling was less marked, and less so when it became hard and well-defined. Sometimes the discharge was bloodstained. There was no pain on micturition. During her stay in Magdalen she had an attack of very severe pain in the left side, with a high temperature and extreme prostration, thought at the time to be due to acute ovaritis. [The sequel makes it probable that these

symptoms were due to perforation of the intra-uterine portion of the left tube, from ulcerative salpingitis].

On admission to Adelaide Ward, August 20th, there was discovered a slight lateral displacement of the uterus to the left. Lying behind and to the right of the uterus was a not very tense smooth oblong swelling, equal in size to an egg, and giving a sense of fluctuation. I was of opinion that this was a hydrosalpinx of the right tube, and that the tube had become occluded at its fimbriated extremity and bent upon itself, so that the outer distended portion lay behind the inner portion and the uterus. There was still a purulent discharge from the vagina. On the evening of September 12th, after having been examined bimanually, the patient was sick, and complained of acute pain in the right iliac region. The temperature rose to 103.4°, and the pulse to 134. The patient looked ill and somewhat collapsed. The right iliac region was swollen and tender. It was thought that the swollen tube had probably been ruptured, and it was decided, if the symptoms did not improve, that the abdomen should be opened. Next day, however, the patient was much better, and the temperature fell to what it was before the attack. The swelling and tenderness gradually disappeared. On September 22nd, I ventured for the first time since the attack to make a vaginal examination. The result was that I found the retro-uterine swelling unaltered, or, if anything, a little fuller and more tense.

On October 18th abdominal section was performed for the removal of the dilated tube, which the illness of the previous month led me to regard as a source of danger. The dilated tube was pyriform in shape, measuring three inches and three-quarters in length, two inches and a quarter in breadth at its widest, and one inch and a quarter at its narrowest part. The broadest part was at the fim-

briated extremity, which was closed. The dilated portion was confined to the outer part of the tube, and was lying behind the uterus, the undilated part of the tube being bent upon itself. There were no adhesions about the swollen tube, and it was removed without difficulty along with the ovary. The contents of the dilated tube were serous. The left tube felt as though it contained hard nodules in the substance of its walls; the left ovary was adherent. There was an adhesion of omentum to the left cornu of the uterus, and another less firmly adherent to the right cornu and adjacent portion of the Fallopian tube.

The patient died of septic peritonitis fifty-six hours after the operation.

At the necropsy there were some recent peritoneal adhesions in the lower part of the abdomen; a small quantity of thick pus was found in the pelvis. There were two black spots on the peritoneal aspect of the fundus uteri, one at each cornu.[1] The tissues beneath were disorganised. A band-like process of great omentum passed to the gangrenous spot on the left side, and was firmly adherent there. The cavity of the uterus was of average size; the mucous membrane was coated with fluid blood (menstrual?). On opening the remains of the right Fallopian tube from within, the first half of the intra-uterine portion was normal, the second or outer half was ulcerated, and a perforation, seven millimètres in length, existed on its upper surface, corresponding to the gangrenous spot already described on the right cornu of the uterus. From the outer border of the uterus to the point where the tube had been divided the lining membrane appeared healthy. The left tube was a little dilated, especially at its distal part, which contained some pus. On opening the intra-uterine portion of the tube the inner half of that portion

[1] See coloured plate in the *Trans. Obst. Soc.*, vol. xxx., p. 406.

was healthy in appearance; the outer half was either occluded, or at any rate so constricted that a fine wire would not pass. Between the constriction and the black spot on the peritoneal surface the tissues were softened and of a deep red colour. No perforation could be detected. Beyond this were two hard nodules (gummata?) which, on section, were seen to be pale circumscribed masses of exudation, completely surrounding the mucous membrane. The left ovary was of normal size and much softened.

This case offers several points for comment. Here was a girl of 19, otherwise in excellent health, totally incapacitated by pelvic disease resulting from gonorrhœal infection. In the earlier part of the clinical history it will have been noted that the symptoms were all on the left side; so decidedly was this the case, that the diagnosis was inflammation of the left ovary. Read in the light of the *post-mortem* appearances, the course of pathological events at that time would seem to have been as follows: Gonorrhœal salpingitis on the left side, with pyosalpinx, complicated by ulceration at one portion of the tube, namely, at the outer half of the intra-uterine portion; extension of the ulceration into the surrounding uterine tissue, and eventual perforation at the left cornu, with escape of the purulent contents of the tube into the peritoneal cavity, causing peritonitis and dangerous collapse; recovery from the attack, absorption of the extravasated contents of the tube, occlusion of the tube at the site of the perforation during the subsequent cicatrisation, and roofing in of the aperture in the uterus by a band of omentum becoming adherent over it. It may be objected to this theory that it is contrary to general belief that pus can be absorbed by the peritoneum. There is, however, good reason for believing that, whatever happens in the case of ordinary pus, gonorrhœal pus, when extravasated into the cavity of the peritoneum, excites a

local peritonitis, and then under ordinary circumstances becomes encysted and gradually absorbed. There was here abundant evidence of local peritonitis in the numerous adhesions on the left side of the pelvis, by which the ovary was entirely buried, and the free extremity of the tube completely occluded. The two hard masses of exudation in the left tube were probably syphilitic gummata, though I am not able to adduce any evidence of syphilis in other parts of the body. So far as regards the left side. Now let me direct attention to the condition of the right. The tumour formed by the hydrosalpinx was the only pelvic lesion discoverable on bimanual examination, and this I quite hoped might subside. Weeks, however, passed, and the tumour increased in size rather than diminished.

Moreover, the patient had an attack of intense pain on the right side, similar to the one that had occurred some months previously on the left, and attended, like that, with symptoms of dangerous collapse. She recovered quickly, and a month later I opened the abdomen. I only found peritoneal adhesions, a thickened and nodulated left tube and, on the right side, a hydrosalpinx in the position that had been diagnosed. The uterine perforations I did not see; they were concealed by omental adhesions. I removed the hydrosalpinx, and expected my patient to make a good recovery. Instead of this, she died on the third day from septic peritonitis. I was greatly distressed at this occurrence, fearing that it meant some oversight in my antiseptic precautions. Most minute inquiry was made on this point, but without result. My belief is that the perforation found after death on the right side occurred when the patient had the sudden attack of localised peritonitis, with collapse, a month before the operation, and that the omentum had become adherent to the uterus, and had closed the aperture, the extravasated matter becoming

absorbed. The adherent band of omentum was no doubt disturbed by my manipulations, allowing further escape of pus and *débris* from the diseased tube, which, instead of being absorbed, became septic, and so set up the fatal peritonitis. That is the most reasonable explanation I feel able to give of the fatal termination of the case. Two other points I wish to call your attention to, before I pass on, namely, (1) the occurrence in the same tube of a hydrosalpinx at one end and a pyosalpinx at the other; and (2) the fact that rupture of the Fallopian tube may take place at a part where there is no appreciable dilatation. If Dr. Lewers had not happened to mention to me the possibility of rupture occurring under such circumstances, and to recall to my recollection a case of the kind that he had published,[1] I should not have been led to make so careful an examination of the interior of the Fallopian tubes, and the ulcerations and perforations I have described would have remained undiscovered.

I must not, however, forget that I undertook to speak this evening of the relation of gonorrhœa to some of the more common diseases of women. Full of interest as the foregoing case undoubtedly is, it cannot be pretended that perforation of the Fallopian tube is a common affection. I hasten, therefore, to give a brief outline of one or two cases of a more ordinary kind. Take, for example, the following, where the woman became infected after having been married five years and borne two children:

CASE III.—K. B., aged 27, a straw-worker, was admitted into Adelaide Ward June 14th, 1888. The younger of her two children was 2 years and 4 months old. For the past nine months she had suffered from a thick yellow vaginal discharge, accompanied with pain in the hypogastric and

[1] *Trans. Obst. Soc.*, vol. xxvii., p. 298.

left iliac regions, and discomfort both in micturition and defæcation. The uterus was much impaired in its mobility, and a brawny thickening was felt in the left fornix. The posterior and right lateral fornices were normal. There was a slight laceration of the cervix, posteriorly and to the right. After a fortnight's treatment in hospital the thickening had almost disappeared, and when discharged, after having been in a month, she was free from pain, and felt quite well.

There can be little doubt here about the course of events. The gonorrhœal infection spread to the left tube, and so to the peritoneum, causing a pelvic peritonitis, with adhesions, strictly confined to the parts about the left broad ligament. That the inflammation was not of an intense character was shown by the rapidity with which both the discomfort and physical signs disappeared under treatment.

The next case is one in which the patient became infected at an earlier period of her married life, with the usual results of sterility and recurrent attacks of pelvic peritonitis.

CASE IV.—S. W., aged 19, residing at Walworth, was admitted into Adelaide, August 8th, 1888, complaining of pain in the lower part of the abdomen and in the right leg. She had been married three years and had not been pregnant. About two months after her marriage she noticed a vaginal discharge, and about the same time began to suffer from pain in the lower part of the abdomen, which had frequently recurred, lasting longer each time. The present attack commenced three weeks ago. The pain was relieved by lying with the knees flexed. The pain down the right leg was a new feature. The temperature was normal in the morning, and varied from 99° to 99·8° in the evening. On bimanual examination, a hard, irregular mass was felt to the left of the uterus and behind it. The symptoms

quickly yielded to treatment, and the patient left the hospital on the tenth day declaring herself well.

In the next case, the mischief in the pelvis was of a much more serious character than in the instances last mentioned.

CASE V.—E. R., aged 30, was transferred from Christian Ward to Adelaide June 1st, 1888. She was married twelve years ago to a man of loose character, whom she was obliged to leave on account of his ill-treatment of her, and who has now been dead seven years. She has never been pregnant. Nine years ago she had a swelling of the right labium, and has felt ill, and has had a vaginal discharge ever since. For the past six weeks she has had severe pain in the lower part of the abdomen, especially in the right iliac region. A fortnight ago she had an attack of shivering. She was admitted into the medical wards supposed to be suffering from enteric fever.

On bimanual examination the uterus was found displaced forwards, and immovably fixed; cervix immediately behind pubes and diverted to the right. There was a large hard swelling behind the uterus, bulging backwards into the rectum and downwards into the vagina. On the third day after being transferred, the evening temperature reached 103.2°, and soon afterwards a profuse discharge of pus took place *per rectum*, followed by signal relief. The abscess continued to discharge for some time; and when the patient left the hospital, on July 8th, her temperature was normal and her condition generally much improved.

I have before me notes of other cases not less instructive, but I must not weary you. I have carefully examined the notes of all the cases of pelvic inflammation admitted into Adelaide during the nine months I have been in charge, and I find that in nearly one-half of them there is a history pointing more or less clearly to a gonorrhœal origin. This may be, and probably is, an unusual proportion. There

can be little doubt that septicæmia, following parturition or abortion, occupies the first place amongst the causes of pelvic inflammation. Next in importance comes, in my opinion, the poison of gonorrhœa. These two sources of infection are together responsible for an overwhelming majority of the cases, a small minority being due to cold, tubercle, injury, internal hæmorrhage, &c.

I have said nothing about the bacteriology of gonorrhœa. I do not in the least underrate the importance of Neisser's discovery of the gonococcus—a discovery which I think has a direct bearing on the question of treatment—but it has been my aim to keep within the lines indicated in the title of my paper, so as to restrict any discussion which may take place within practicable and useful limits.

It will, however, no doubt be expected that, having expressed a strong opinion on the importance of energetic treatment in every case of acute gonorrhœa in the female, I should state my views as to what that treatment should be. Regarding, as I do, the evidence of the bacterial origin of gonorrhœa as indisputable, I naturally rely for its cure on remedies that have the power of destroying pathogenic micro-organisms. The old system of instructing the patient to syringe the vagina with lotions of lead, borax or zinc is, or ought to be, obsolete. The local treatment should be undertaken by the medical attendant himself. The patient being placed in front of a window, in the dorsal position, with knees flexed and separated so as to expose the vulva, all discharge is to be wiped away by means of pledgets of cotton-wool, which are to be at once burnt. If there is any abrasion on the nymphæ, it should be swabbed by means of pledgets of lint dipped in strong carbolic acid; as also should the mucous membrane surrounding the orifices of the vulvo-vaginal gland-ducts, after pressing out and removing any pus that may be lying in the ducts

themselves. The urethra should then be pressed systematically from the neck of the bladder to the meatus externus by means of a finger in the vagina. If a drop of pus exudes the urethra is known to be implicated. The method I adopt under such circumstances is to wrap a film of cotton-wool around a Playfair's uterine probe, and, having dipped it in strong carbolic acid and removed any superfluous moisture, pass it along the urethra. I also administer copaiba by the mouth. If that remedy is ever indicated in the gonorrhœa of women, it is when the urethra is infected, and my own belief is that it is then useful.

With reference to the cervix, my treatment is, having removed all discharge from the canal and scraped any erosions that may be present, to apply strong carbolic acid to the scraped surface by means of a pledget of lint, and to the interior of the cervix by means of Playfair's probe. If there is reason to believe that the infection has reached the interior of the body of the uterus, the probe should be passed its full length, so as to bring the application in contact with the mucous membrane of the body as well as the cervix. There only now remains the vagina to be dealt with. Its surface is too large and too sensitive for the application of strong carbolic acid. I therefore adopt the plan, suggested by Schwarz, of swabbing the whole vaginal surface through a speculum, with large pledgets of cotton-wool saturated with solution of corrosive sublimate (1 in 1,000). These manipulations take much longer to describe than to carry out. They are not really very formidable, and, theoretically, they ought not to need repeating, though, in practice, they often do. I merely mention here the method of treatment I have myself been led to adopt. I am not in a position to dogmatise on the matter, for my experience is not large. Cases rarely come under our notice in this early stage. Whatever treatment

be adopted, it should be capable of destroying pathogenic micro-organisms, and of penetrating the tissues to a certain extent, so as to reach any that may be just below the surface. When the infection has passed beyond the uterus to the tubes, peritoneum and ovaries, we can only deal with its results as we should with similar conditions of the same parts however caused.

Postscript.—There appeared after the above address was written, and therefore, unfortunately, too late for me to notice it at length, a valuable paper by Professor White, of Philadelphia, entitled, "Oöphorectomy in Gonorrhœal Salpingitis."[1] The author's main conclusions do not materially differ from my own.

[1] *British Medical Journal*, February 19th, 1889.