THE EFFECTS OF GONORRHEA ON THE FEMALE GENERATIVE ORGANS.*

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The effect of gonorrhea on the female generative organs has been so destructive that no successful contradiction is feared when the belief is expressed that no disease in modern times has caused so much indirect mortality, mutilation and suffering, both mental and physical, as gonorrhea; and this association can hardly spend its time and influence in any more valuable and humanitarian direction, than in establishing the facts in regard to its ravages, and in suggesting methods of limiting or preventing them in future.

Acute gonococcic infection of the vulva and vagina may be compared with acute gonorrhea of the anterior portion of the urethra in the male; both are frequently cured before any ascending infection occurs, both are frequently incurable in their chronic or latent stages, when the gonococcus has found lodgment in the deeper structures.

The chief danger of gonorrhea in women is stated by all the text books on gynecology to be the infection of the uterus and of the uterine appendages. Gonorrhea is the chief source of salpingitis and pelvic peritonitis, though we occasionally meet with these conditions as a direct result of endometritis caused by puerperal sepsis, but these latter cases are now admitted by gynecologists to be the exception, while as a rule these cases are caused by the disease under consideration.

Morrow, to whom we are indebted for many statistics, states in the preface of his valuable book, on "Social Diseases and Marriage," that "within the past two decades no coccus has so grown in significance and pathogenic importance as the coccus of Neisser. Of especial interest, in connection with the objects of this study, is the important rôle of the gonococcus in determining serious pelvic disease in women. Modern science has taught us that, in view of its extensive prevalence, its conservation of virulence, after apparent cure, and its tendency to invade the uterus and adnexa, with results often dangerous to life, and with destruction of the reproductive capacity of the woman, gonorrhea overshadows syphilis in importance as a social peril."

While Morrow admits that "no disease has such a murderous influence on the offspring as syphilis," he also states that "no disease has such a destructive influence on the health and procreative function of woman, as gonorrhea."

While syphilis is a most potent factor in the destruction of the unborn child, gonorrhea by its much greater frequency is a vastly more potent factor in the production of involuntary race suicide, by the sterility induced in both sexes; but much more frequently in women, on account of the ascending destructive and incurable infection of the tubes and ovaries.

Bland-Sutton of London is correct when he states that gonorrhea is the chief cause of the sterility of the prostitute class. A gonorrheal salpingitis, whether it goes on to suppuration, and the formation of pus tubes and ovarian abscesses or not, usually destroys the epithelial lining of the tubes, and so cripples the ovary as to render conception almost impossible. Sterility is then a very

common legacy bequeathed to the female victim of this disease.

The most pathetic part of the history of this subject relates to the frequent introduction of this disease into married life.

"The Report of the Committee of Seven on the Prophylaxis of Venereal Diseases in New York City would indicate," says Morrow, "that nearly 30 per cent. of all venereal infections occurring in women, in private practice in that city, are communicated by their husbands."

While venereal diseases cause more deaths and deplete the population by causing abortion and preventing conception more than any other known disease or condition, this subject is largely ignored by sanitary bureaus in their registration of contagious diseases.

And yet it is generally admitted by recent writers that gonorrhea is the most widespread and universal of all diseases. Some writers claim that 90 per cent. (the lowest estimate I have seen is 75 per cent.) of the male population of our cities have had gonorrhea some time during their lives, while only from 5 to 18 per cent. have contracted syphilis.

Noeggerath has stated that of every thousand men married in New York, eight hundred have had gonorrhea, from which the great majority of their wives have been infected. And it was largely on this evidence that he based his statements in his most remarkable and startling paper read before the American Gynecological Society in 1876 in regard to the effects of latent gonorrhea in the causation of abortion and sterility. Morrow states that his own observation at the New York Hospital, extending over a period of several years, would indicate that fully 70 per cent. of all women who come there for treatment were respectable married women who had been infected by their husbands.

This subject has been studied by so few investigators of recognized authority, in comparison with other great evils which threaten the social, moral and physical life of the nation, that I feel that the presentation of the latest crystallized views and conclusions of well-known workers and authors on genito-urinary subjects ought to arouse us and awaken our interest in this great question. The work of any real value in this department has all been done in the last twenty-five years, since the discovery of Neisser, in 1879, which made it possible for us to say that no gonorrhea existed without the presence of the gonococcus, and that gonorrhea continued to exist so long as that germ could be found in any of the deep recesses of the body.

Thus Morrow, in his great book before referred to, in comparing the significance of gonorrhea and syphilis as social dangers, says, "In the light of our present knowledge respecting the pathologic significance of gonorrhea, it is a matter of surprise that its important relations with marriage, until recent times, have been practically ignored."

He declares that gonorrhea "must be considered quite as formidable a social plague as syphilis," and again, in speaking of the murderous influence of syphilis on the offspring, says "the no less potent agency of gonorrhea as a factor of depopulation through its inhibitory influence on the conceptional capacity is by no means adequately appreciated." The introduction of gonorrhea into married life entails consequences infinitely more disastrous to the health and the life of the mother than syphilis. She may be rendered a life-long victim and her hope of children absolutely extinguished. And again he says, "woman becomes irrevocably sterile, not to speak

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of the danger which in many instances can only be averted by the sacrifice of her reproductive organs." We have authority for the statement that, while we are accustomed to look on syphilis as the most active cause of depopulation, gonorrhea is in reality a much more powerful factor.

Janet, in discussing "Social defense Against the Venereal Peril," only two years ago says, "gonorrhea with tuberculosis, perhaps more than tuberculosis, is the great pest of our age. If we compare, from a social point of view, the importance of gonorrhea with that of syphilis, gonorrhea is to syphilis as 100 to 1, not only from the standpoint of the number of persons attacked but also from the standpoint of the gravity of the lesions and their perpetuity. Gonorrhea modifies, in a manner often permanent, the genital organs of patients, renders them infinitely dangerous for the women they approach, causes all the metrites and annexial inflammation which to-day give to the surgeons three-quarters of their work, and conducts finally both men and women to sterility."

"The predominance of gonorrhea as a cause of depopulation is not surprising in view of the fact that it primarily and specifically affects the organs of generation"; though some writers declare that "gonorrhea is a general toxic infection."

After giving due weight to all the generally admitted causes which prevent conception, we are forced to the conclusion of some modern writers, "that there must remain a vast contingent of sterile marriages which are caused directly and solely by gonorrheal infection."

Noeggerath, as far back as 1876, declared his belief that 50 per cent. of female sterility was caused by gonorrhea. In his paper above referred to, he reports, after very careful study of 81 women affected by gonorrhea, that 49 were absolutely sterile, and that the remaining 32 women bore only 39 children.

Neisser attributes more than 45 per cent. of sterility in women to the effects of gonorrhea. Lier-Ascher found that out of 227 women 121 were sterile because of gonorrhea. Kehren found that in 96 sterile marriages 30 per cent. were due to the absence of spermatozoa in the husband, while in 45 per cent. there were complications caused by gonorrhea.

Gruenwald, Kammerer and Crolax report 53 per cent., 83 per cent. and 40 per cent. of endometritis, mesometritis and perimetritis, all of gonorrheal origin, as causes of sterility in the female, while Williams insists that 73 per cent. of all abortions are due to endometritis, presumably of gonorrheal origin. While conception is known to be quite possible during the existence of a vaginal or cervical gonorrhea, and gestation and parturition may proceed and terminate normally, as far as the mother is concerned, but causing 30 per cent. of the blindness in the world, because of gonorrheal ophthalmia. The way seems to be open after parturition, through slight traumatism in the endometrium, for ascent of the infection to the tubes and ovaries.

One author states it very clearly in the following words: "After accouchement the tissues of the genital organs are in a peculiar state of inhibition and of infiltration. The uterine orifices are enlarged, the mucous membrane desquamated in part, but the glandular cul-de-sacs perish and offer to the gonococcus a favorable soil for its proliferation."

We have abundant testimony that specific infection frequently ascends to the pelvic organs after parturition, when this infection only existed below the internal os uteri previous to labor. This infection may, and

nearly always does, result in future sterility, so that this germ has more to its account than would be implied by the mere term sterility. Many of its social victims have proven their conceptional capacity by giving birth to one child, but remain semi-invalids ever after as a result of the ascended infection. "It thus happens," says Morrow, "that the aptitude of a gonorrheic woman for conception is often extinguished by the first pregnancy, the one child representing the sum total of her reproductive energy." The sterility of the gonorrheic woman is thus relative rather than absolute; it is, in the expressive German phrase, "*ein kind sterilität*," a one-child sterility.

The race suicide effect of gonorrhea does not end in the prevention of conception or in a one-child sterility, but has a much more powerful influence in the production of abortions than has heretofore been attributed to it.

Savage asserts that as many abortions are caused by gonorrhea as by syphilis. Noeggerath states that of 53 women known by him to be suffering from the effects of latent gonorrhea 19 aborted. Fruhinsholz found that in 101 pregnancies occurring in gonorrheic women 71 went to full time, 23 aborted and 7 were delivered prematurely. Another report of 201 pregnancies, complicated by gonorrhea, states that 161 went to full term, 36 were prematurely delivered and 4 aborted.

The causes of ectopic gestation have never been clearly set forth in our text-books, but it is claimed by recent writers on social diseases that gonorrheal salpingitis plays an important rôle in the etiology of this condition; modifications in the epithelial lining of tubes occur in mildly latent cases, which may arrest the descent of the ovum to its natural bed in the uterus, thus becoming directly responsible for the tubal pregnancy. The "mutilation" of women who suffer from gonorrheal infection of the uterine appendages is simply appalling when we consider the great and increasing number of surgical operations made necessary by their otherwise incurable infections. In 1901 this association appointed a special committee "for the collective investigation of statistics on the prominence and dangers of gonorrhea."

In answer to its question, "What is the proportion of cases of pelvic inflammation coming under your care which are attributable to gonorrheal infection?" sent to many leading gynecologists in this country and in Europe, Humiston replied that 90 per cent. of his cases were attributable to this cause, some of them, however, being of mixed infection. Price answered that in over 1,000 abdominal sections for pelvic inflammation 95 per cent. were attributable to gonorrhea, and that in 95 per cent. of these cases the history was reliable and clear. Pozzi and Frederick stated their experience as 75 per cent. The general average of all statistics collected was 40 per cent.

It is quite possible that the difference noted in some, by the report, may be on account of a reliance on macroscopic instead of microscopic evidence of this specific infection. The statements of patients are as unreliable as their clinical history. While the presence of the gonococcus would be affirmative, its absence or a failure to find it in the deeper located infections would not always be negative proof.

Peterson says "the more the disease is studied in women and the greater the improvement in bacteriology the higher is to be found the percentage."

We often meet the statement that more than half the

abdominal operations performed in the world to-day are required on account of the infections and adhesions and pus collections due to gonorrhea, but I think we will all be surprised when the statement is forced on us that a great majority of them are from this cause; according to Humiston and Price, from 90 to 95 per cent.

Mann of Buffalo says that in his experience just about all of his "pus tube operations" are required on account of gonorrheal infections, and, as tubal infections arise from specific endometritis, he thinks it necessary for the complete cure of the patient to remove the uterus also. Many others hold this opinion. They see many dangers ahead for all women who possess a gonorrheal uterus, after infected appendages have been removed. Curettings and antiseptic irrigations, while they occasionally eradicate all the gonococci, generally do not, and relapses and contagions recur, greatly to the surprise and sometimes to the mortification of the patients, who believed themselves cured.

The great number of women operated on for the removal of gonorrheal appendages, pus collections, inflammatory adhesions, enlargement and displacement does not by any means represent the amount of invalidism and suffering caused by this infection.

In the above quoted statistics only the number actually "mutilated" by the surgeons are mentioned, and no account is taken of the large number of infected women who for various reasons are not subjected to operations and continue under the care of the family physician, dragging out a miserable existence of semi-invalidism, subject to painful or difficult menstruation, no longer able to walk freely, condemned to pass their days of suffering in a reclining position, and after years, it may be, of this suffering, worn out and desperate, apply to the surgeon, who, by the sacrifice of the uterus, tubes and ovaries, renders their existence possible by making them castrated women.

What disease have we to treat against which can be brought such an array of charges and about which so little is being done to prevent or eradicate it?

I know of no statistics of the mortality arising from gonorrheal infection of the female organs of generation, but we can obtain an approximate idea when we consider the great number of major surgical operations performed on its account, the number of abortions caused by it, and the untold number of conceptions prevented by the disastrous results of such infections.

There is little doubt in my mind that, at a most conservative estimate, half a million prostitutes are living in houses of ill-fame in our large cities and I am not sure a million would not be nearer correct; writers on this subject generally estimate as many women living lives of easy virtue outside as inside of the disreputable houses. In our country alone we have, then, a million and a half, if not twice that number, who have or are liable to have gonorrhea any day, with all the possible consequences above referred to.

The effects of the introduction of gonorrhea into married life have already been spoken of.

It is estimated that from 40,000 to 50,000 prostitutes die annually, and that their places are immediately filled by new recruits. While much of this mortality may be due to the results of dissipation and natural causes, at least 30 per cent of this mortality is due to the direct effects of gonorrhea.

It is estimated that 110,000 deaths occur annually from tuberculosis in our country, 107,000 from pneu-

monia and 43,000 from typhoid fever. While there are no statistical reports of investigations of the mortality due to the infections and ravages of gonorrhea on the female generative organs. I have little doubt, if it can be ascertained, that the race suicide arising, directly and indirectly, from this disease would equal the mortality of any of the three diseases mentioned, and I am not sure that it would not exceed them all combined; if we take into consideration the depopulation caused by the one-child sterility, and also the absolute sterility produced by gonorrheal inflammation of the uterus and its appendages.

It is customary to include the death of the child when comparing the maternal mortality of craniotomy with that of cesarean section. Thus, if 75 or 25 per cent. of maternal deaths occurred after craniotomy, the mortality of the operation would be stated as 175 or 125 per cent., as the case might be. So, in speaking of the mortality of the effects of gonorrhea on the female generative organs, one might on the same principle include that indefinite multitude of children which would have been born but for the inhibitory effects of the gonococcus on the female conceptional capacity.

As the subdivision of this subject assigned to me only includes the effects of gonorrhea on the female organs of generation, I am admonished that I can not include in my paper a discussion of the indefinite persistency of this infection in its latent or chronic stages, of its power of recurrence after apparent cure, of our responsibility in authorizing matrimony, and the possible remedy for all the troubles following on the trail of this, the greatest plague of our century.

PURULENT CONJUNCTIVITIS AND BLINDNESS.*

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No greater subject could be found for the pencil of the artist than the tragedy of the young mother who, just out of child-bed, brings into one of our city clinics her first-born infant, already blind for life through ophthalmia neonatorum, to find out what can be done for the eyes that "were so bright when it was born." The mere surface facts are dark enough without the black background which the physician also sees, the hideous cause of the affliction and the physical suffering and wreck that are impending in her own life. Because I have looked on this picture and have been compelled to crush the young mother with but a fraction of the terrible truth, I am glad to join in any effort to render less frequent the repetitions of this tragedy.

Not all purulent conjunctivitis of the newborn is caused by the gonococcus. Guerola¹ reported a series of 25 cases, in all of which he found the gonococcus, although sometimes associated with other bacteria. But most students of the subject have had quite a different experience. Alt² found the gonococcus in but 9 out of 14 cases. Groenouw,³ in 100 cases of ophthalmia of the newborn, found the gonococcus in 41. He also found the pneumococcus, the white and the yellow staphylococcus, the colon bacillus, and occasionally other

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. *Annales d'Ophth.*, November, 1900.

2. *Amer. Jour. of Ophth.*, April, 1901.

3. *Graefes Archiv f. Ophth.*, vol. III, No. 1.