A

Course of Lectures

ON THE

THEORY AND PRACTICE

OF

OBSTETRICS.

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LECTURE XLI.

PUERPERAL FEVER.

ABOUT three thousand mothers die in child-bed, annually, in England and Wales. This is an average of nearly eight deaths every day from this cause. The proportion of maternal deaths to the births, registered in several years, was found to be 1 in 171. This mortality, it must be remembered, occurs for the most part to women in the prime of life, and previously in the enjoyment of full and vigorous health. Amongst the causes of death during the puerperal period, the disease we are now considering is, of all others, the most important and fatal. The fatality from child-bed fever is however, in the present day, moderate, when compared with the epidemics of former times, in which, of those attacked, positively none recovered; but though it is still little amenable to treatment, when it exists, there is reason to hope that Preventive Medicine may hereafter almost, if not entirely, eradicate this formidable disease.

The histories of puerperal epidemics and outbreaks show great diversity in the symptoms and progress of the disorder at different times. This disease evidently varies with the constitution of disease at the time it prevails, being at one time intensely inflammatory, at another time putrid, in its form. In some seasons and places the liver, in others the peritonæum, in others the uterus, in others the intestinal canal, have been attacked; and in some of the worst examples, pathology has found no other change after death than fluidity and altered colour of the blood. It may be said, in fact, upon a review of the numerous descriptions of puerperal fever, that there is hardly a form of fever or inflammatory disease which it has not, to some extent, resembled in character. The great diversities witnessed in this disease have led modern observers to assert that under the term "puerperal fever" many different and separate diseases had been described, such as phlebitis, peritonitis, hysteritis, enteritis, typhus-fever, remittent fever, erysipelas, toxæmia, and other forms of disease. The tendency has been, in modern times, to dwell upon the special manifestation of the disease, and to consider that all the various phases of the disease depend on some local disorder, or upon some specific combination of morbid phenomena. One after another, various morbid conditions has been thought to form the chief part of the disease. At the present day, the doctrine of uterine phlebitis may be said to hold this kind of pre-eminence, and there is a general tendency to consider that all the local and constitutional symptoms and pathological changes arise from this source.

The more puerperal fever is investigated and tracked, as it were, to its elements or origin, the less satisfactory does any partial or local explanation of its nature become. In the progress of such examination, it appears more and more evident that there is a puerperal POISON to which the lying-in woman is liable, and which produces all the varied phenomena of puerperal fever met with in different epidemics, localities, seasons, and constitutions. In one time or person, peritonitis is produced; in another, metritis; in another, phlebitis; in another, mammary or other abscesses; in another, low fever; in another, intestinal irritation; in another, dissolution of the blood, without a trace of local inflammatory disorder; and so on throughout the list of local or special disorders which have been described by authors in puerperal fever. It may be questioned, even, if phlebitis ever occurs without a poisoned condition of the blood, produced either as the result of contagion, epidemic influence, or the absorption of putrid matter from the uterus.

Thus, in the earliest pathological arrangements, a great number of disordered states were grouped together as Puerperal Fever, without attempt at discrimination or analysis; next came a laborious separation of the different forms and manifestations of the disease; and the subject seems at the present time ripe for allying the numerous affections met with in puerperal fever together, in their origin from a common cause—namely, some Animal Poison or Zymotic Influence.

Of the occasional Sporadic appearance of puerperal fever and its allied disorders, there can be no doubt. In all seasons, taking large communities, or large areas, isolated cases are met with in different localities, and in the practices of different medical men, where single patients are attacked, and where the disorder is not so severe as to extend itself by contagion or infection. In these cases, when the poisonous element is produced by the patient attacked, it probably originates from the state of the blood incidental to delivery, or depends upon the absorption of irritating or putrid lochial discharges, decomposed coagula, or portions of retained placenta. A single case produced in this way, may become contagious, and cause the disease in other patients, through the medium of nurses or attendants. It seems to be clearly made out, that in cases of this kind, and, indeed, in all cases in which contagion or infection is concerned in the propagation of puerperal disease, the risk of the spread of the disorder is greater in proportion to the adynamic type of the cases which first occur. In inflammatory cases, the risk of the communication of the disease is less than in the purer forms of fever. The most convincing proof of the sporadic origin of some cases of puerperal fever is found in those instances in which single cases occur, and no other cases happen either in the neighbourhood or at about the same time.

As distinct from the sporadic appearance of puerperal disease, we have Epidemics of puerperal fever, or puerperal inflammation, in which the disease, in its various complications, rages in certain hospitals or districts, being very dangerous at the outset, attacking the patients of different medical men simultaneously, prevailing for a certain time, and then becoming weaker and more manageable in type, until it at length disappears altogether. Epidemics of puerperal fever originate in the crowding of puerperal women together; and in the epidemic prevalence of erysipelas, hospital fever, typhus, or other disorders allied in their nature to the puerperal disease. In epidemics of this as well as of other disorders, it is exceedingly difficult in any given case to prove whether it arises from epidemic or contagious influence. The best proof we have of the existence of puerperal fever in an epidemic form, is drawn from those examples in which the disease appears in certain towns or districts and affects the patients of all the medical men alike, but is certainly not confined to the practice of one or two accoucheurs. It is observed that when puerperal fever prevails epidemically in the human subject, the lower animals die in large numbers of diseases connected with parturition.

Besides the sporadic and epidemic appearance of this disease, we have, in my opinion, evidence as irrefragable as that which can be advanced in the case of any other malady whatever, that it sometimes rages as the result of Contagion and Infection. Those who deny the influence of contagion, magnify the facts relating to the sporadic and epidemic prevalence of this disorder, and seek to apply them to the universal explanation of cases in which contagiousness appears most manifest. It is natural, observes Dr. Farr, for any man to shrink with horror from the supposition that he has communicated so fatal a disease to his patients, and to be disposed to receive any other explanation than that which refers it to contagion. Nevertheless, the interests of truth and humanity demand that the evidence of the contagiousness of puerperal fever should be put prominently forward.

The following are examples of the kind of evidence which exists in proof of the contagiousness of puerperal fever, and it may be necessary to state that facts of a similar kind to those now advanced might be multiplied to almost any extent:—

A practitioner, for instance, had been attending cases of typhus fever. Within the space of four days he delivered five women. All these women were attacked with puerperal fever,

and all of them died. This was in a country practice, and the cases were remote from each other. Different practices intersected the practice of this medical man at various points, but no other cases were known to have occurred in the neighbourhood. Again, a patient suffering from typhus fever was admitted into a lying-in hospital, where she remained for a few hours only. In the beds on the right hand and the left of this patient were two lying-in women; both were attacked almost immediately with puerperal fever, and both died. Take another case: a medical man was in constant attendance upon a patient suffering from gangrenous erysipelas, and between the 8th of January and the 22nd of March he attended the labours of ten women; all had puerperal fever, and eight of the patients died. This was in a town of moderate size, and no other patients in the place were known to have had puerperal fever. In another recorded instance, two medical men, brothers and partners, attended in the space of five months twenty cases of midwifery. Of these, fourteen were affected with puerperal fever, a fatal result ensuing in eight cases. The only other known death from puerperal fever, in the same town, within the period named, occurred in the case of a patient attended by a medical man who had assisted at the post-mortem of one of the puerperal patients. During this disastrous period, the two brothers relinquished all their midwifery engagements for one month, in which time five of their cases were attended by other practitioners, and no instance of fever occurred in the course of that month. They then returned, and several fatal cases again happened. It is difficult to imagine anything more conclusive as regards the doctrine of contagion. A curious history in point is related by Dr. Ingleby. Two practitioners attended a post-mortem where the patient died from this disease. One was summoned in one direction to a midwifery patient, who was attacked with puerperal fever; the other attended two cases in succession, both of whom were seized with the same disease. Dr. Roberton relates perhaps one of the most cogent instances of contagion and fatality on record. In the space of one calendar month, a certain midwife attended twenty cases belonging to a lying-in charity; of these, sixteen had puerperal fever, and all died. The other midwives of the same charity, working in the same districts, attended in the same time 380 cases, none of whom were affected with puerperal fever. In a large town, containing many thousands of inhabitants, and numerous medical men, fifty-three cases of puerperal fever occurred. Of these, no less than forty happened in the practice of one medical man and his assistant.

In the face of such facts as these, it does not become us to hesitate, or give out an uncertain sound respecting the contagiousness of puerperal fever. It is better to know the worst, fear the worst, and guard against the worst, than to harbour undecided opinions. I have known several instances where medical men, believing in the non-contagiousness of the disease, or hesitating between the two opinions, had gone on attending patient after patient with fatal results, until convinced of the mistake they had fallen into by successive deaths. No doubt sporadic and epidemic seizures are sometimes mixed up with those of a contagious origin, in such a manner as to require much clearsightedness to penetrate the confusion; but the facts of contagion are, as it appears to me, placed beyond all question, and should never be lost sight of by practical accoucheurs.

Those who oppose the view of the contagious nature of puerperal fever, argue that the cases which seem most conclusively to demonstrate the communicability of the disease from one patient to another by the attendants, really depend on epidemic influences. They point also to the occasional sporadic appearance of single cases in different parts of the same city or district, in the practice of different medical men. It is also insisted upon that in some cases lying-in women have been exposed to the influence of surgical fever, or have been present in wards containing patients ill of peritonitis, without contracting puerperal fever. The very intensity of the contagious principle has been used as an argument against the existence of contagion. It has been said—How could any poison cling to an accoucheur for several weeks, as in those instances where medical men meeting with puerperal cases have relinquished practice for awhile, but on returning have brought the disease back with them? Great stress has been laid upon personal experience, as in the case of Dr. Meigs, who attended as the consulting physician upon numerous cases in an outbreak of the disease which occurred to another practitioner, but Dr. Meigs himself never took the disease to any of his own patients. It appears to me that these difficulties are much more easy of explanation than the difficulties attending those cases in which contagion seems to be most convincingly proved. Some persons may be more liable to convey infection than others, just as one individual is more prone to infection than another. At certain times, from reasons which we cannot understand, but which we know must exist, the human organism is in such a state that exposure to infection and contagion does not affect it. Perhaps one of the strongest arguments in favour of infection or contagion is drawn from the preventive treatment of the disease. All the great reductions in the mortality have arisen from measures calculated to remove infection and contagion. In the course of a few years the mortality in the great hospital of Vienna was reduced from 1 in 10 to 1 in 74 of the mothers delivered, by the precautions taken to prevent the inoculation and infection of lying-in women. In this country the disease is much less formidable than it formerly was—a circumstance which is greatly owing to the care taken in preventing the spread of the disease by contagion and infection.

It is further necessary to insist upon the fact, that the contagious principle in the case of puerperal fever, is not limited to the transmission of puerperal fever, nor to the communication of infection from one puerperal patient to another, either directly to the lying-in woman or by attendants or nurses, but that it may be conveyed in the shape of several other Animal Poisons. One of the most remarkable points connected with the puerperal poison is the fact, that setting aside its sporadic and epidemic appearances, it may, in the first instance, originate from a variety of causes external to the patient herself. When once produced in this manner in single cases, it may be propagated amongst puerperal women by infection and contagion. The exposure of puerperal patients to the influence of Hospital Gangrene will produce the disease. Medical men in attendance upon cases of Erysipelas have given their patients puerperal fever. It has been made out very conclusively by Semelweiss and others, that the miasms derived from the Dissecting-room will excite puerperal disease. Exposure of the puerperal woman to the poison of Scarlatina will give rise to puerperal disease in patients proof against the reception of scarlet fever itself. The mortality amongst child-bed women seized with Small-pox is well known, and such patients die with the symptoms of puerperal disease, in addition to the variola. With respect to the disorders named, and probably others also, such as putrid sore-throat and sloughs or abscesses, some law evidently exists by which they may all be respectively converted into the puerperal poison. In some cases, puerperal fever and erysipelas have been observed together at the same time, and in the same patient.

A curious circumstance connected with the poison of puerperal fever is, that it may be communicated in other forms to the nurses, or attendants, and even to males. The husbands of puerperal women may be attacked by sore-throat, erysipelas, or typhus fever. Within the last few years an accomplished physician-accoucheur of this metropolis was cut off suddenly by putrid fever, after examining a woman suffering from puerperal disease. In some of the cases where the same medical man has lost numerous cases in succession, as many men and women have died from fever or erysipelas, as those who have perished from the puerperal disease. Thus, we have evidence that erysipelas, gangrene, fever, &c., in males, or unimpregnated women, may produce child-bed fever, and we have the converse proof that this fever may excite other dangerous disorders, as the result of contagion, in non-puerperal persons.

How is this subtle poison conveyed from person to person? In what media of communication can it lurk? Through what channels can it reach the puerperal woman? The clothes, hair, and touch of the person exposed to the poisonous influence have been supposed to be the chief means of infection and contagion; but very remarkable cases are on record, such, for instance, as when the accoucheur has shaved his head, changed the whole of his clothes, cleaned himself by hot baths and vapour baths, and soaked his hands in disinfecting solutions, and yet he has taken the malady about with him. I believe that in such cases the Blood of the person acting as the medium of infection is affected, and that by the breath a certain halitus or infectious influence is given out, which acts upon the blood of the puerperal woman through her lungs, and thus conveys to her system the germs of the disease. As this point has a practical bearing of some importance, I desire in this place to make a few observations which may explain the position I have assumed.

If we attend a post-mortem when the smell is peculiar, if we spend some time in a lying-in room where the odour of the lochia is very strong, or if we go into any very powerful smell, the taint evidently enters the body by means of the lungs, and can be perceived subjectively by the taste or smell, or its odour can be distinctly perceived in the saliva, in eructations

from the stomach, or in the urinary, cutaneous, and other secretions. Although the party thus affected may not have been exposed to the miasma or smell but for a short time, his blood gives evidence of infection for many hours, or in some cases for several days afterwards. Some habits are more prone to receive and retain this kind of infection than others. It remains so long in some cases that the odour would seem to have a power of sustentation or reproduction, otherwise it is difficult to suppose that an odour to which the lungs have been exposed, it may be for a few minutes, can infect the blood and all the secretions for twenty-four or forty-eight hours. If we can trace in this way the influence of a bad odour, surely we may admit that the same thing may happen with reference to the wonderfully subtle poison or germ in puerperal fever, or those influences which are evidently convertible into the puerperal poison, and manifest similar results in the lying-in woman. I believe that the blood of the accoucheur may take up a dose of puerperal poison without manifesting any special results in his own system, and that he may communicate it through the medium of the lungs to his patient. In the case of a poison so subtle, the air we breathe unites the circulations of the accoucheur and patient, and renders them, as it were, one. This is probably one great mode in which animal poisons generally are diffused. We know that the blood of persons attending patients in scarlatina, measles, and small-pox is infected, although they are proof against the disease; and in one remarkable instance we have the positive proof that the blood is the medium of infection. I refer to cases in which pregnant women who have had small-pox in childhood, and are proof against infection, but who, on being exposed to the poison, convey the disease to the fœtus in utero. Here the blood of the mother must be the medium of communication between the patient suffering from small-pox and the ovum hidden in the womb, and the lungs of the mother must be the channel by which the poison enters the circulation. This illustrates very well what I mean by saying that the blood of the accoucheur, or attendants, is one great medium which conveys the poison of puerperal fever. The saturation of the blood of the accoucheur, nurse, or midwife, may remain for a considerable time; for cases are on record in which every case attended by certain individuals for weeks or months have been affected by the disease. A practical point deducible from these remarks is, that in attending lying-in patients, after the slightest exposure to the puerperal poison, or to any miasma which can be converted into this poison, or its equivalent, in the lying-in woman, we should be especially careful not to go so near, as to establish any communication between the lungs of the practitioner and patient. In saying this, I do not mean that other means of conveying the poison, as by clothes, hair, and the surface of the body, should not also be guarded against.

The fiercest outbreaks of this disorder have occurred in lying-in hospitals, or in hospitals where lying-in women are received with surgical and medical cases, and where erysipelas, gangrene, or fever have prevailed. On this account many have doubted whether lying-in hospitals are not mischievous rather than otherwise, in the present limited state of our knowledge of the means of preventing puerperal fever. Women confined even in misery and squalor in their own homes are less liable to this disease than patients collected together in hospitals, even when the greatest care as regards cleanliness and ventilation is observed. All lying-in women should, as far as possible, be removed from the neighbourhood of any contagious epidemic or infectious disease. It should be a rule of the practical accoucheur to have as little as possible to do with any of the animal poisons which give rise to puerperal fever. He should avoid autopsies, especially in cases of death from child-bed fever, or ordinary inflammation. The student should not attend midwifery cases while he is dissecting. After an attendance upon any suspicious case, the practitioner should change his clothes, or have them hung up in a room exposed to the fumes of chlorine: I have no doubt it would be useful for him to inhale the diluted fumes of chlorine several times a day, and after touching anything connected with any source of danger, to rinse his hands in a solution of chloride of lime or chloride of zinc. It is impossible to be too scrupulous, in a matter of such moment, and I have known some accoucheurs who, on entering a lying-in room, always wash their hands before making an examination.

In the next Lecture I propose to consider the special characters of puerperal fever in its various manifestations, and the rules of treatment.

MISS NIGHTINGALE has been elected an Honorary Life Governor of Middlesex Hospital.

PRACTICAL DEDUCTIONS

FROM A

CLINICAL RECORD OF TWENTY-SIX CASES

OF

STRANGULATED FEMORAL HERNIA.

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PART I.

THE mortality attending strangulated femoral hernia induced me to examine those cases which had fallen under my especial treatment, in the hope, that by a careful examination of the facts exhibited in each instance, and in comparison with one another, some practical deductions might be elicited which would guide us to a more successful treatment of this disease—deductions which would bring prominently into the foreground—1stly, The causes of death; 2ndly, The circumstances by which these causes are brought about; and 3rdly, The means by which they may be avoided.

The total number of cases amounts to twenty-six, and these are *not selected* cases, but they are arranged on Table I. in the order in which they came under my observation and treatment.

The heading of each column on the table is so arranged as to indicate the particular circumstances attending each individual case.

Some of those circumstances which may be termed "unfavourable," are indicated by the usual typographical note of exclamation.

1. Under the term "unfavourable" I include the distance travelled to the hospital, whilst a sufferer with strangulated hernia.

2. The constitutional nutrition of each individual is noted as being important in influencing the recovery, as much from the effects of the disease as from those of any operation.

3. The constitutional condition of the patient when first brought under observation. It will appear that in several of the cases the prostration of the system was so great as to preclude almost all hope of recovery, even after liberation of the strangulated bowel was accomplished; but, in these cases, we must seek for the cause of such fatal prostration.

4. The size of the tumour is said to have considerable influence in the production of a morbid condition of the protruded viscus, as well as on the severity of the constitutional symptoms. Three conditions, as regards size, have therefore been noted under the terms "small," "medium," and "large."

5. The columns 6, 7, 8, 9, refer to the attempts made to reduce the hernia by those means included under the term "taxis." These means consist in the exhibition of purgatives, enemata, immersion in a hot or warm bath, and the attempts to return the protruded viscus into the abdomen by manipulation.

6. The morbid states of the alimentary canal exercise a most pernicious influence upon the recovery of the patient, especially that portion above the coil or knuckle of intestine in the hernial sac, as well as of the peritoneal serous membrane, both visceral and parietal. I have, therefore, noted the condition of the abdomen previous to the operation when evidence of disease therein existed.

7. The columns 11 and 12 relate to the peritoneal hernial sac, and especially to incisions of this structure, either of its anterior surface or of its neck.

8. When a portion of intestine has been subject to the constriction produced by an unyielding band encircling it for many hours, we should, *à priori*, suppose that the greatest amount of injury of that intestine would be found in those cases in which the constriction had existed the longest period of time. This I shall demonstrate is not the case, practically, and it is for us to inquire why in those cases in which the natural constriction has existed the shortest time the damage inflicted on the protruded bowel has been the greatest?

9. An individual the subject of strangulated hernia has to endure many of those conditions which produce the greatest amount of prostration of the nervous energies, and it is therefore required in this investigation to compare the whole period of suffering with other concomitant circumstances. The whole period of suffering is stated in column 14.