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from Abortion.

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OF NEW YORK.





Certain Forms of Septicæmia¹ Resulting from Abortion.¹

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THE forms of disease which are to be considered are not exclusively peculiar to abortion. They follow the termination of the pregnant state, whether that has resulted maturely or prematurely, but much more frequently when it has resulted prematurely. Modern antiseptic midwifery, as it concerns the care of parturient woman and her offspring at term, has reached nearly ideal conditions, and it is difficult to imagine any great modification or improvement of existing methods. This, it may be said in passing, has laid humanity under obligations which it were difficult to overestimate. It seldom happens that a parturient woman is without assistance of some kind during and after her labor. Degraded indeed must be the surroundings where help and relief are withheld from such a person, and if she enters a public maternity nothing is lacking, in the majority of institutions, which would minister to her safety and recovery. The improved machinery of our hospitals, and the broader culture of

those who are now practicing obstetrics compared with the average obstetrician of the past, have reduced all the serious accidents of parturition and the puerperium to the minimum, and justify the statement which has been made concerning the almost perfect foundation upon which the obstetric art now rests. How different is the situation when we consider the facts relating to the premature termination of pregnancy! In the first place such an event is unnatural. A full-term foetus is extruded from the womb as a physiological act or function, and under perfectly normal conditions it should be no more productive of harm than the dropping of mature fruit from a tree. This statement is borne out by the experience of thousands of women in the savage state and those who have attained a high degree of physical development among civilized women. A premature foetus means the abrupt termination of a physiological process, and the interposition of disease or violence. Whatever be the cause, the equilibrium of the natural forces is more or less disturbed, and the effect

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upon the welfare of the individual is usually harmful.

By many women an abortion is regarded as so trivial a matter as to be unworthy the care and attention of a physician, and even the ordinary precautions are neglected which common prudence makes imperative for such occasions. Such carelessness and its consequences, together with those evils which immediately result in abortion cases, have produced the conviction among many physicians that abortions are responsible for more of the serious disease which affects the pelvic viscera of the female than any other cause.

The term septicæmia is a comprehensive one, and its comprehensiveness has increased with the development of bacteriology. With the light which bacteriology has shed upon it, it signifies that poisonous elements are actually circulating in the blood which does not normally tolerate them, that they proliferate in it, are distributed more or less extensively over the body, and cause serious and often fatal consequences. These statements do not belong to the domain of theory; they are demonstrated facts. The elements in question have been found, isolated and cultivated, and the culture fluids injected into animals and human beings, with resulting reproduction of the phenomena of septicæmia, and the finding of microbes similar to those which had been injected in the white-blood corpuscles and subcutaneous tissues about the seat of inoculation, and in the bloodvessels. In rabbits, guinea pigs and house mice septicæmia has thus been artificially produced, while Garré, Bumm, Bock-

hardt and Schimmelbusch have produced it in their own persons and recorded their observations.

Septicæmia following abortion signifies that the removal of the products of conception has not been complete, and that decomposition and absorption of that which was retained has followed, or that poisonous elements have been introduced from without.

The degree of intensity which the disease will take is governed by the virulence of the poison, the resisting powers of the individual, and the activity and intelligence with which the disease is combated. The bacteria of septicæmia are chiefly of two varieties (*streptococcus pyogenes aureus* and *staphylococcus pyogenes aureus*), and bacteriologists differ in their statements as to their relative importance. They may be very active or they may be inactive and sterile, and it seems to be probable that the action of one may be modified by the conditions which obtain in the other. Their action may also be modified by the behavior of other germs normal to the body and harmless under ordinary conditions (*e. g.*, *bacterium coli commune*), but changed and harmful under other conditions. This portion of the subject is susceptible of much additional investigation, and belongs to the bacteriologist rather than to the clinician.

The resisting power which an individual offers to septicæmia is a variable quantity. It is said by Arloing (*Les Virus*, 1891, p. 203), that the most efficient means which the body has of disposing of the poison germs which it may contain is the process of phagocytosis, but this process is weak and defective with some indi-

viduals, while it may be active and aggressive with others. The general condition of the body at the time of the attack, the temperament and disposition of the individual, must all have their bearing upon the intensity of the disease.

The surroundings of the patient may also have a modifying influence, the hygienic condition of the sick room, the skillfulness of the nursing, and the ability of the physician in recognizing and attacking the various symptoms as they present themselves.

No attempt will be made in this paper to describe all possible forms or types of septicæmia; the object of the writer is merely to call attention to a few of those which have been seen in his own practice during the past twelve years. They may be divided for convenience into mild, severe and uncontrollable varieties or groups, of which the cases in the first variety always end in recovery or partial recovery, those in the second are often fatal, but not necessarily so, while those in the third are almost invariably fatal, no matter what the treatment may be.

The cases of the mild variety or type present a history which is sufficiently characteristic; with which almost every physician in general practice is reasonably familiar. The abortion, from whatever cause, occurs most frequently at the third or fourth month of gestation, the fœtus is expelled after more or less pain and hæmorrhage, and is followed in a few hours by clots and portions of the remaining tissues of the ovum. If the woman is strong and robust she may not take her bed, or even call a physician to her aid, but if she is weak and delicate the prostrating effect of

the pain and hæmorrhage may compel her to do both. During the three or four days which follow the abortion there is a constant discharge of blood and shreds of membrane. Then there is a complaint of chilliness and constipation, the skin becomes sallow, and the facial expression more or less anxious. If the physician in attendance makes a vaginal examination he will find the uterus moderately enlarged, soft and sensitive. The os uteri will be patulous, and the finger passed within it will find a soft and swollen endometrium, while the odor which remains upon the finger after it has been withdrawn will be the odor of decomposition. The general condition of the patient will be similar to that which is seen with the continued fevers of not very severe type, the symptoms of which do not require enumeration. In such a case it is apparent that the products of conception have not been entirely removed from the womb, there has been decomposition with infection, and the elements of infection have found their way into the blood. We will suppose that the patient's surroundings, however, are good, that she has an airy, well-ventilated room, and an intelligent physician, who either cures the uterus, or introduces a strip of gauze into it for drainage, who directs the nurse to carefully administer hot antiseptic vaginal douches at proper intervals, and who prescribes calomel or a saline, and possibly iron, quinine and strychnia. In a week or two the patient will probably be about agian, and, having had good treatment, may experience no further ill effects from the accident which befell her.

In another class of mild cases the phenomena attending the accident

are similar to those which have been narrated, but the patient is neglectful of herself, either has no physician, or one who does not appreciate the situation, and struggles along with her bad feelings and symptoms until at length she gradually throws them off. Nature has triumphed over conditions to which a less vigorous constitution would have been compelled to yield. It may be, however, that the end has not been reached, for it is in such cases that an endometritis or a salpingitis is often provoked, which means the possibility of much disturbance in the future.

In the second variety or group of cases to be considered, the number is much smaller than in the first. Some of them end in partial recovery, for it is doubtful if entire restoration to health with healthy pelvic organs ever occurs, and others are fatal after a more or less prolonged duration. This class of cases demands careful and unremitting attention, and an inexperienced physician is not, as a rule, justified in assuming the entire responsibility of their care if it is possible to obtain skilled assistance. It is well in the care of cases of this variety to inquire particularly into their aetiology. There may be a history of precedent abortions, which have left their impression upon the uterus and other pelvic organs, the tissue of the uterus being indurated and not relating readily as gestation advances. With cases of that character abortion occurs spontaneously after the irritation of the uterus has become considerable. Or there may have been a criminal operation with the exhibition of violence, and the influence of infected instruments or hands. Other cases are associated

with serious disease of the uterus, cancer, tubercle or syphilis having operated to interrupt the pregnancy; while in others the patient may have been so nearly exhausted by hard work, or worry, or antecedent disease, that she was poorly prepared to offer resistance to a process which, under the most favorable conditions, causes rapid loss of vital energy.

The greater number of these severe cases occur during the early months of pregnancy, in accordance with the natural and logical requirement that the nearer the fruit of the womb approaches maturity, the more completely and effectively will the womb succeed in expelling it.

The course of the disease may be febrile or afebrile, there may be supuration or an absence of it, there may be a steady advance to a fatal issue, remissions with final recovery or remissions with final termination in death. Those who die may be overpowered by the poison in their blood, or may slowly die of exhaustion, and those who recover may owe it to their abundant vitality, or to the fact that the poison has spent its force. If the disease septicæmia has any natural history, which I doubt, it is so modified by the conditions which accompany individual cases as to make the delineation of type forms extremely difficult. Still, I think we may consider at least two subdivisions in this group containing the severe cases, in one of which the toxic, in the other the inflammatory, element predominates:

(1) In the first of these subdivisions, the toxic, there is much that is trying and insidious which will give a physician some of the most unpleasant experience in his whole career.

The first intimation of serious trouble, in a given case, will probably be a more or less pronounced chill, an indication of attack upon the nervous centres, and not a symptom of malaria. Or this note of warning may be absent. The temperature of the body may not be high, but the pulse will be quick and small, the facial expression anxious, and the skin sallow, or mottled and purpuric. The respiration will be accelerated and shallow, there will be tenderness of the uterus and its surroundings, and there may be induration and tenderness in the vaginal vault and the inguinal regions. The skin may be dry, or it may be damp and cold, the mouth and tongue dirty, and there will be a disagreeable odor of the breath. I have never noticed that it was distinctly a *sweet* odor which is mentioned as one of the characteristics of septicæmia. The stomach and intestines will be paralyzed, and the abdomen distended; but the pain in the abdomen will be due to pressure and distention, and is not the cutting pain of acute peritonitis. There will be no desire for food, and vomiting will cause the greatest annoyance, especially when the material vomited is mostly bile, which has been regurgitated into the stomach. I have never seen recovery in those cases in which the vomiting of bile was not speedily checked. The mind will be dull, and there may be delirium and muscular trembling and twitching. Inability to sleep will add to the exhaustion produced by the pain, the pressure, the straining and the want of nutriment. These are all grave symptoms, and will tax one's ingenuity to the utmost to meet them successfully. Treatment

must be energetic from the beginning, and will include the judicious use of the curette, uterine and vaginal irrigation, oxygen inhalation, alcohol, fluid nourishment and turpentine enemata. The latter must neither be used too frequently nor in too concentrated form. I have seen extensive destruction of the rectal mucous membrane from want of caution in this respect. I regard them, however, as of the greatest value when properly given, for they frequently cause dispersion of the intestinal gas, with relief of abdominal tension and the bad symptoms dependent upon it, and they probably destroy intestinal bacteria which, as recent investigations have shown, play no small part in the history of the disease. Under this treatment, or other methods, which may be equally appropriate, the bad symptoms may disappear, even the induration in the groins and vaginal vault may become less marked, respiration may become easy, refreshing sleep be obtained, and an abundance of fluid nourishment taken with relish and benefit. The stools and urine will resume normal, or nearly normal, conditions; in fact, the same may be said of the functions in general, and hopes of convalescence and recovery will be entertained. Such hopes may be realized, or they may be illusory and disappointing, for after a day or two of improvement the old symptoms may return, old foci of infection—being re-kindled; all efforts to relieve them will prove unavailing, and coma and death will, in a short time, end the case.

(2) In the second subdivision of the group, which includes the severe cases, inflammatory symptoms are pronounced and characteristic. There

is at least one advantage in the treatment of these cases compared with those in which toxic symptoms predominate; the symptoms are frank and open, and one knows what kind of an enemy he is dealing with, even though the battle be a severe one. After the initial chill, which is almost an invariable premonitory symptom, well-marked symptoms of peritonitis appear, or there will be cellulitis, marked by rapidly extending induration in the pelvis and abdominal wall, with which peritonitis will usually be associated. The temperature, pulse and respiration will be febrile, and fluctuation must be sought and appreciated in the vagina, rectum, gluteal or inguinal region. Incision and irrigation may be followed by relief and recovery, or the relief may be only temporary, abscesses forming in other locations, perhaps true pyæmia developing, the system becoming saturated with toxic influence, and death resulting.

The third group of cases is fortunately a small one, though the cases are almost invariably hopeless. They are those in which the septic influences act with great rapidity, the patient being overwhelmed and dying in a few hours or days, or those in which intra- or extra-peritoneal suppuration is diffuse and abundant. In the latter form a fatal result may come in a few days, or if the powers of endurance of the patient are good, it may be deferred for weeks. I recently operated in such a case by abdominal incision, which had continued six weeks and in which about two gallons of fetid pus were removed from the abdominal cavity. For the toxic cases in this group there is no possible remedy; they illustrate the limit and the helplessness of our art. For

the suppurative cases, the only possible hope is in abdominal section, and this hope is but a slender one. Cases have been reported which have been thus treated with favorable issue, but they are the rare exceptions which prove the rule.

It will be observed that in the foregoing remarks septicæmia has been considered as a disease, and not as a symptom. It is a principal form to which peritonitis, cellulitis, lymphangitis and phlebitis, conditions which have long been recognized as associated with a morbid puerperal condition, are incidental or subsidiary. The notions concerning the relations of these conditions to each other and to the system at large have long been confusing and vague. They are now being simplified by the developments of bacteriology, and upon bacterial infection as a foundation we can readily understand how the processes in question can be local or general, suppurative or non-suppurative, with products that in some cases are offensive and irritative, and in others are not. A study of the clinical facts associated with abortion must convince us, as has already been remarked, of their enormous importance. We can never in any case say that the remote consequences may not be disastrous, even though the patient experiences but little inconvenience at the time of the accident. However wise and skillful our treatment may be, there are some cases which will always turn out badly. The best that we can do is to be so well prepared for the possibilities that may arise that the number of these hopeless cases may be as small as possible.

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