

THE TREATMENT OF PUERPERAL FEVER*

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In the United States alone, it is claimed that fully eight thousand women die of puerperal infection every year. If that be true, I think it safe to say that at least five times that number suffer from infection, in varying degrees, but do not die. Many of them are semi-invalids as long as they live, or soon fall into the hands of the gynecologist. This is a fearful showing, and when we consider that it is nearly always a preventable disease it is a fearful arraignment of the medical profession. That it is a preventable condition is proven by the fact that in well-regulated lying-in hospitals the mortality is almost nil, less than one-fourth of 1 per cent.

All agree that the mortality and prevalence of puerperal infection has not very materially decreased in private homes. This fact, together with the great diversity of opinion as to its treatment, is my excuse for presenting this subject to you at this time.

Something must be done to correct this state of affairs. We know that puerperal infection is simply wound infection due to the presence of pathogenic micro-organisms that are carried from without inward as in any other wound infection. It is true that the pregnant woman, particularly during labor, is peculiarly susceptible to outside germs. These germs gain access in various ways, as by the hands or instruments of the physician, the nurse, the husband, the patient herself, the bedding, or dressings used.

The most important point of treatment in this disease is prophylactic treatment, but I shall not consume your time by going over this in detail. One of the greatest barriers to infection is a healthy woman. This necessitates a more thorough prenatal care of every pregnant woman. By proper education of the people and keeping a proper watch on the woman from the beginning to the end of her pregnancy we

can do much to lessen the danger. Proper hygienic surroundings, cleanliness and proper food, with sufficient sleep and rest, will greatly increase her power of resistance by making her a strong, healthy woman.

The management of labor from the beginning to the end is most important. Ideal obstetrics can never be attained outside a well regulated hospital. But the great bulk of labor cases are attended in the home and by the doctor in general practice or the midwife. Fortunately, in this country the midwife is fast disappearing.

The general practitioner is called upon to attend a case of labor while fresh from a case of scarlet fever, diphtheria, erysipelas or the dressing of pus cases. Is it possible to do this in such a way as to reduce the risk to the minimum? It can be done, and I should like to insist that every such doctor take the following precautions:

In his obstetric bag he should carry at all times a sterile operating gown and rubber gloves. Before he makes every internal examination he should take the time to scrub the vulva and surrounding parts with soap and water and then a bichlorid solution. He should make no vaginal toilet and he should scrub the hands and arms with soap and water and then soak them in bichlorid. Next he should don the gown and sterile gloves and make one careful and thorough digital examination. Then he should conduct the labor with just as few examinations as possible. External and rectal examination should be encouraged and will suffice for most cases. The physician should avoid stretching the cervix manually except for cause. He should not rupture the membranes until they have served their purpose. Too early rupture of the membranes predisposes to infection. Prevent lacerations by proper means. If they occur, he should repair them properly in an aseptic manner. After the completion of the second stage, the risk is greatly increased. Too early and improper resort to Crede's method of expressing the placenta is a frequent source of danger, since it favors the retention of portions of placenta or membranes. He should examine the membranes and placenta very carefully. If he finds that por-

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tions are retained he should remove them at once with strict sterile precautions. Except for hemorrhage or retained products he should keep out of the uterus. He should make no vaginal examination for tears, but should make an ocular examination in all cases. After one is sure the uterus is empty and the abrasions and lacerations are carefully closed, a sterile vulval pad is applied and held in place by a well-fitted T-binder. No vaginal douches should be given. All this can be done by the doctor in the country as well as in town or in a hospital, but he will have to do it himself when a trained nurse is not present.

The chief object of my paper, however, is to discuss the proper management of puerperal infection after it has occurred.

The disease is essentially systemic or very soon becomes so and should be treated chiefly by general means. As soon as the offending micro-organism enters the system the protective forces of Nature are aroused and a deadly combat is waged. At once Nature throws out a protective wall of leukocytes to prevent their spread in the system. We should be very careful not to break down that wall by local measures. There are only two ways that we can help to win the fight: first, by the use of means or remedies that will injure or destroy the bacteria after they have entered the system; and second, by strengthening in every way possible the resisting forces of Nature.

At present there is no known means of destroying the bacteria after they pass from the endometrium and not much while they are still confined to the uterine cavity. Intra-uterine antiseptics are of doubtful value in any case and may do a vast amount of harm. Various vaccines, bacterins and serums have been recommended, but they give doubtful or negative results. The first two named are absolutely useless. The antistreptococcus serum is beneficial in some cases when given early and in large doses. Silver salts by inunction, per rectum and intravenously have been used since Crede first called attention to them. Their mode of action is by increasing the leukocytes. I have not been able to recognize any benefit from their use. Normal saline intravenously will act as well and is free from danger. The active

treatment of puerperal infection is both local and general. It is the local treatment that is now producing so much difference of opinion and of which I shall speak first. At the present time there are three distinct views in regard to the local or surgical treatment of puerperal fever.

Some hold that the uterus should never be invaded except for hemorrhage; others that the uterus should always be emptied except in the presence of hemolizing streptococci or pelvic inflammatory exudates. Thirdly, others hold that the uterus should always be emptied when products of conception are known to be present, irrespective of the bacterial findings. I am glad to see that the number in the first class is increasing, although it may be a little extreme. The type of infection should determine the local treatment of this condition.

The purely sapremic type, which can usually be distinguished by the clinical findings, should be treated as follows:

The patient should be properly prepared and anesthetized. The sterile gloved hand is then passed into the uterus, the attached debris is gently but thoroughly separated from the entire uterine wall, after which it is removed. The uterus is irrigated with a creolin solution, and thereafter let alone. The sharp curet is an instrument of death which has no place in the treatment of infection at term and very little at any stage of pregnancy. No doubt it has been responsible for many deaths which might have been avoided if the patient had been given a fair chance. Some advise packing the uterus or inserting a gauze wick, but I think this is unnecessary except for hemorrhage.

In the purely putrid type, after the uterus has been carefully and properly emptied, the temperature drops rapidly, the symptoms disappear and the patient makes a satisfactory recovery. If there is mixed infection, there may be a subsequent rise of temperature, but further intrauterine treatment is both unnecessary and dangerous. When we are in doubt as to the contents of the uterus it is better to wait until the uterus has had time to empty itself.

In the septic type, the bacteria rapidly enter the circulation through the lymphatics and pass beyond reach of any local

treatment. Attempts in that direction only break down Nature's wall of defense and open new fields for the rapid spread of the bacteria. This type of infection is essentially a systemic disease and should be treated by general measures. We should bend all our energies to such measures as will increase the resistance of the forces of the body. This is accomplished by proper food and plenty of liquids to dilute the toxins. Sufficient rest, both mental and physical, is important, even if it has to be gained by anodynes or sedatives. Alcoholic stimulation is contraindicated because we need rest, not action.

Put the patient in a quiet room with a competent nurse, with fresh air and sunshine. If the temperature is excessive, control it by sponging and the ice bag over the fundus, which also favors proper involution. Coal tar depressants should not be used. Ergot and hydrastis may be given for two or three days.

In the beginning calomel followed by castor oil is helpful. Later, there is a tendency to diarrhea, which is usually unfavorable and may have to be controlled. In from ten to fourteen days the disease may run its course unless it spreads to other parts of the body. In other cases the bacteria escape along the lymphatics or blood vessels into the pelvic connective tissue, giving rise to a mass of inflammatory exudate. Under proper treatment and with sufficient time this is gradually absorbed. No surgical interference is advisable unless suppuration is demonstrated. It may then be drained through the *cul de sac*.

The treatment of peritonitis, both pelvic and general, pyemia, phlebitis, etc., I have not time to consider.

The point I wish to stress is the great prevalence of this affection despite the fact that it is a preventable disease. I wish to urge better prenatal management of all cases, more strict prophylaxis in the conduct of labor and the puerperum, and to emphasize the great danger of local or surgical intervention in the presence of pathogenic micro-organisms. By observing these things the disease will be very materially lessened and hundreds of mothers left to rear their offspring.

DISCUSSION

Dr. S. J. Gill, Roanoke, Va.—I wish to differ with Dr. Altman in one point, i. e., that antiseptic douches should be used in all cases where there are retained products of conception in the uterus. No instrument should be passed into the uterus on account of the danger of breaking down the wall of protection that Nature has built up. But the soft end of the tube should be passed into the vagina and the lips of the labia majora held tightly around it until the vagina is inflated, thus causing the fluid to back up into the uterus. I have had only one case of pure streptococcic puerperal fever in thirty-five years.

Dr. D. W. Kelly, Winfield, La.—I put ice over the uterus, give an initial purge of calomel followed by quinin or ergot every four hours by the mouth and give every twelve hours 0.5 to 1 vial of staphylo-strepto bacterin hypodermically. I repeat the serum until the patient is clear of fever. My best results from the bacterin are obtained when it is administered early, though I have obtained good results from this line of treatment after fever was on for a week. Do not use the douche and keep your hand out of an infected uterus. My results when beginning within twenty-four hours after the onset of fever are splendid.

Dr. Otto H. Schwarz, St. Louis, Mo.—The most important feature of any paper on puerperal fever is the part which deals with prophylaxis. In the Washington University Out-Patient Department, to my knowledge, during the last ten years there has never developed any serious case of puerperal sepsis in which the Department saw the case from its beginning. These cases are, for the most part, handled by students and they are particularly instructed in the importance of observing proper aseptic precautions. They are allowed to make vaginal examinations. The good fortune which we have had in these cases is, perhaps, due not only to the rigorous aseptic precautions undertaken, but also to the fact that these students are not handling any infectious cases or infectious material during this time.

It must be particularly emphasized that the man who is in general practice, who is handling infectious cases at all times, erysipelas and other types of infections, if called to an obstetrical case, must use all precautions in the examination of such a patient that a surgeon would employ if he were to open an abdomen. As soon as this particular point is adhered to the dangers of puerperal infection will be reduced to a minimum.

Dr. D. S. Downey, Chickasha, Okla.—I wish to condemn the thoughtless practice of purging these patients. I still find a few men who are trying "to touch the liver and cleanse the tongue" by using daily drastic purgatives. This practice

uses their vital strength and rids the system of poison just about as much, in proportion, as bleeding did in the olden days.

You encourage a general peritonitis by peristaltic whipping of the bowels, whereas if they are permitted to lie quiet the infection may localize. Our practice is to splint the bowel by the free use of morphin and an ice cap upon the abdomen and by using sapsuds enemas for daily evacuation of the bowels. If the abscess localizes in the *cul de sac*, drain through the vagina.

Since this practice our mortality has been greatly reduced.

Dr. W. H. Vogt, St. Louis, Mo.—I was very glad to hear Dr. Altman take a conservative stand in the treatment of puerperal sepsis. The too active treatment of these cases usually does more harm than good. The routine curettage of such cases is generally admitted to be poor treatment.

Regarding the administration of the antistreptococcic serums, I have only this to say: that I have never seen any definite benefit derived from them, though I use them in some individual cases. When used they must be in very large doses if one hopes for any good results at all.

No method of treatment seems to gain universal results and I believe that those cases that recover have been of a milder type. I am satisfied that if we find the streptococcus in the blood stream the case is hopeless to begin with and that any method of treatment would be of no avail. On the other hand, if this is not the case and we have a mild form of infection, Nature perhaps takes care of it without our assistance, except that we may aid the patient in fighting such infection.

Dr. W. A. Fowler, Oklahoma City, Okla.—Dr. Altman rightly lays greatest emphasis upon the danger of exploring and treating the uterine cavity in puerperal fever. It should be resorted to only in cases in which sapremia is clearly indicated and in which there is a discharge that is either very free and foul-smelling or very bloody. All authorities seem to be agreed that if this procedure is resorted to the gentlest possible means should be used and by no means should there be a repetition.

As to Dr. Altman's suggestion that the patient be given ergot in the beginning of this condition, I believe it unwise. The most important factor in the treatment of sepsis is rest, and rest particularly of the infected organ. Ergot will only undo Nature's effort in this direction. When we have the signs of peritonitis the treatment should consist of the Fowler position, nothing at all by mouth, the Murphy drip and morphin for relaxation. This routine will splint the bowels and give Nature a chance to wall off the infection.

Dr. Altman (closing).—If my paper should help to cut down the mortality of this deadly disease, my object will have been attained. I make no claim for anything new.

TREATMENT OF FRACTURES NEAR THE SHOULDER, ELBOW AND WRIST*

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In treating fractures near the large joints, one must bear in mind not only the attainment of a good union of the fracture, but the maintenance of perfect joint function. While the joints of the lower extremities are similar anatomically to those of the upper, their function is somewhat different. The joints of the lower extremities are made to bear weight and for locomotion, while the upper have as their purpose complicated movements. It is, therefore, evident that a good functional result in a lower extremity joint might be considered a poor one in an upper.

FRACTURE OF HUMERUS

All fractures of the surgical neck of the humerus should be treated in abduction to overcome the pull of the adductors and to relax the deltoid. The position of abduction is maintained by means of a wooden tripod and plaster of Paris. The arm rests upon one leg of the tripod, while the other leg rests against the side of the chest. The tripod is held to the side by adhesive. The upper extremity, shoulder and chest, are now encased in plaster. This immobilizes the fracture and secures union with good alignment and a minimum of callus.

FRACTURE OF THE ELBOW

The elbow is a hinge joint and its function is to allow flexion and extension. With one exception (fracture of the olecranon) this principle is laid down: all fractures of the elbow must be treated in acute flexion. The position of flexion is maintained by bandaging the forearm to the arm with a four-inch adhesive. Care must be exercised to provide for swelling at the elbow. The wrist is to be well padded with cotton and then swung from the neck by a bandage.

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