ON PUERPERAL SEPTICÆMIA ;

AND ITS RELATIONS, IF ANY, WITH THE POISONS OF THE SPECIFIC ZYMOTIC DISEASES—MEASLES, SCARLET FEVER, SMALL-POX, ETC.

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(Concluded from page 81.)

Now let us contrast the symptoms of genuine puerperal septicæmia with those of the specific contagious diseases when they affect a parturient woman. In the former case rigors are seldom present at the first, at least to any extent. The temperature may run high, but the breathing is not hurried. The skin preserves its colour, or else assumes an ashen whiteness. The head remains clear and painless, and there is an absence of all alarm with respect to the issue of her illness. The milk and the lochia are suppressed after some days, but much more slowly than in the case of the specific diseases. Whilst cases of these latter nearly always run on to coma and death in two or three days, the sufferer from true septicæmia may linger on for days, and even for weeks, dying at length from ulterior changes in the blood and nervous system.

A few words upon the nature and action of this septic process, which, introduced into an open wound, may produce pyæmia, or, into the uterine sinuses of a parturient woman, septicæmia; but which, both in its mode of origin and in the effects which it produces, is totally distinct, in my opinion, from that caused by the poison germs of any of the specific diseases. "It is easy," says Dr. Sanderson,¹ "to prepare a putrid infusion of muscle possessing such toxic properties that *less than half a grain* of it introduced into the blood of a dog will produce death." So, also, "a single drop of the exudative fluid of some inflammatory disorders of the serous membranes will equally kill if injected into the veins or under the skin of an animal." Now, I take it as proved that it is the growth of bacteria in these fluids which makes them so deadly. And not alone the *growth* of bacteria, for they by themselves are harmless enough, since they enter the blood continually in thousands without producing any ill effects; but the bacteria, when planted in a suitable medium, such as decomposed blood or the products of inflammation, produce the septic poison, it may be by fermentation, it may be by secretion; and thus, although bacteria are of themselves innocent, there can be no septicæmia where they are not or have not lately been present. And these are the symptoms to which the injection of such septic matters gives rise: shivering or shuddering; restlessness, muscular debility, and unsteadiness of gait; then vomiting, purging, tenesmus, and alvine irritation. There is also some rise of temperature at first. If the dose has been sufficient—for everything depends upon the quantity of the septic poison which has been introduced—death speedily follows these symptoms. The post-mortem appearances in such cases are (quoting from Dr. Sanderson): "Blood extravasated underneath the pericardium, sometimes in the neighbourhood of the valves, and chiefly on the left side. The pericardial and pleural surfaces are ecchymosed. The mucous membranes of the stomach and intestines are invariably found of a red colour, from the detachment of epithelium; the spleen is enlarged, and the abdominal organs generally are in a state of congestion. Now, the essence of all this is capillary congestion and hæmorrhage of the abdominal viscera generally, leading to blood stasis and shedding of epithelium. Microscopically, the blood-globules are found dissolved in the serum, the colourless corpuscles being also disintegrated."

Now the phenomena just enumerated, whether of the symptoms during life or of the appearances after death, very nearly resemble those which are met with in surgical septicæmia; and those of puerperal septicæmia are essentially the same. As Dr. Sanderson says, "considering that the anatomical conditions present in the puerperal state are in themselves so favourable to the entrance of septic matter, we should expect to find in obstetric practice cases more

comparable with experimental septicæmia than in surgery. Puerperal septicæmia must therefore be regarded not so much as a disease as a complication, differing from pyæmia not only in the fact that it has not necessarily a connexion, although generally it has, with any local morbid process, either primary or secondary, but also in the important particular that it has no development. Pyæmia is a malignant process which goes on to its fatal end; but in the case of septicæmia, inasmuch as the poison which produces it has no tendency to multiply in the organism, there is no reason why the morbid process should not come to an end of itself, unless either the original dose be fatal, or a *second* infection from the same or from another source take place."

It would appear, then, that bacteria, which are everywhere present, require a suitable *nidus* in which to operate in order to produce their septic effects. That *nidus* is presented by any wound or open part of the body which contains unhealthy secretions or disintegrated blood or tissue. The open uterine sinuses, the abraded mucous membranes of the vagina or vulva, of women, after delivery, present the situation of all others most favourable for these septic operations, provided there be blood or secretions of an unhealthy character to be operated upon, and a state of the system which is ready to be easily affected by the process. For it has been proved experimentally—first, that broken-up blood-globules, introduced into the circulation of a dog, produce all the phenomena and fatal effects of septicæmia immediately; secondly, that if you allow blood to coagulate and then strain the serum off the clot, this serum, injected into the veins, also acts as a poison; the source of mischief in this latter case being the disintegrated leucocytes or white corpuscles of the blood.

It follows as a matter of absolute necessity, in view of these facts, that all clots, altered serum, or secretions should be most assiduously washed away from the uterus and passages of a parturient woman, whenever we have reason to fear that this infective process is being set up. We must act upon the hope that, although *some* poison may have entered the circulation, that portion may not be sufficient to kill the patient. To remove from her person any more of it that may be lying ready for absorption must be the first object; whilst, at the same time, we may try to counteract the effects upon her system of that which has already been absorbed. That poison, as I have said, may be lurking in the vagina, or in the uterus itself; therefore, to be effectual, syringing must be carried right up to the uterine sinuses. This, in such cases, should be done almost hourly, so as to anticipate, if possible, the absorption of more septic matter. No hand but that of the accoucheur can do this effectually; and no man can feel comfortable who, seeing septic infection going on, does not himself grapple with all his might with so deadly an enemy.

To sum up my argument, then, I reckon that there are three ways in which a parturient woman may suffer special damage:—

1st. One of the specific zymotic diseases may attack her immediately before or after her delivery. The result will be a modified and generally a very severe or fatal form of that same disease, which will run the usual course with or without other complications. The germs of these diseases, as is well known, multiply in the system, and speedily affect the whole of it. This poison may be communicated to any number of non-parturient and healthy persons.

2nd. By the introduction of a septic poison from without, as from the atmosphere of the lying-in room, or from that of a foul neighbourhood; or it may be conveyed to the patient in the clothes or on the hands of the practitioner, the nurse, or other attendant. This septic poison cannot be that of one of the specific diseases, for we have seen that *they always breed true*. Moreover, it must be a poison containing bacteria, because without bacteria there can be no septicæmia. That it can be carried about from place to place without giving rise to any suspicion of its presence is accounted for by its extreme minuteness and tenuity.

3rd. The septic poison may be generated in the body of the parturient woman herself, on the introduction of (harmless) bacteria or other germs from without. We have seen that decomposed blood or disordered tissue or secretion forms the favourite *nidus* of bacteria to act upon, so as to produce their poison, whether in a surgical wound or in the open sinuses of a recently delivered woman. As the atmosphere, especially that of hospitals and sick-rooms, contains innumerable germs, which only require to be sown upon a suitable bed to acquire their poisonous pro-

¹ Lectures on Septicæmia.

perties, what wonder that they sometimes gain access to such a bed as the bruised uterus or vagina presents! The only wonder is that, upon this theory, not a few only, but the great majority of parturient women do not fall victims to septicæmia. The explanation is well pointed to by Dr. Sanderson. To become fruitful for mischief, these germs require unhealthy blood or tissues to act upon, or a system in a condition (unknown) ready to absorb the products of such union. Into the healthy blood and tissues bacterial germs enter in numbers continually; but as fast as they enter they are destroyed by some destructive (colytic) action of the healthy blood and tissues.

The septic poison, once generated as above described, spreads from tissue to tissue, sometimes rapidly, at other times more slowly, affecting now one, now another of them; in this respect resembling a cachexia, such as tubercle or cancer, rather than the specific poisons which multiply themselves rapidly in the system, and, after a few days, are all cast out.

The appearances after death from puerperal septicæmia have been described as strictly resembling those which have been observed after the injection of a septic poison into the blood of an animal. They are, shortly—capillary congestion of various organs, particularly of the mucous membranes of the stomach and intestines; infarction of bloodvessels in the lungs, liver, &c.; and, towards the end, evidence of embola in the brain and nervous centres; and when we remember the ease with which the disorganised blood in the uterine sinuses can enter the circulation after labour, it is difficult not to believe that in all this we have the *fons et origo* of most of the cases of puerperal septicæmia.

The symptoms, also, are those which flow naturally from some such starting-point: loss of muscular strength, so characteristic of every case of the disease; breathlessness, palpitation, quickened respiration and pulse; rise of temperature, varying but little between night and morning; then disturbance of the stomach, vomiting, diarrhœa, with a clean red tongue, from loss of the epithelium. As regards the nervous system, there is generally clearness of intellect, with complete unconsciousness of the gravity of the illness. Food is taken tolerably well for some time. Towards the end the intellect may become clouded, with total apathy to all surrounding objects.

I feel that I should have been only wasting your time were I to conclude without drawing some practical conclusions from the facts and arguments stated above. 1st. We ought, as a matter of course, to be most careful to guard an expecting parturient woman from every chance of infection from any of the specific contagious diseases, and to use the most scrupulous care to prevent ourselves from being the carriers of such infection. 2ndly. We ought at the same time to be on our guard lest the idea of this class of disease should either warp our judgment or blind us to the probable fact that the case before us is one of *true* septicæmia, and owes its origin to quite another form of poison to that of the contagious diseases—viz., to the importation of the poison generated by bacteria from some blood disease, or cachexia, in which these organisms abound. Lastly, we must take care that the atmosphere and other surroundings of the patient are kept so as to eliminate all suspicion of infection from them.

But it may be asked, How would you treat a case in which symptoms of septic poisoning have already set in? First of all, I would act upon the hope that, although some poison has been absorbed, that portion may not be sufficient to kill the patient. Remove from her person, by repeated syringing up to the uterine sinuses with disinfectants, any more of the poisonous stuff which may be lying there ready to be absorbed. Counteract as far as possible the effects of that which has been already absorbed, mainly by supporting the strength of the patient by mild nourishing food and moderate stimulants.

Then as to disinfectants. What a farce does it not seem to us to see nurses and attendants placing a little Condy's fluid in saucers about the room of a woman lying ill of puerperal septicæmia! The disinfectants are wanted in the vagina and uterus—even in the blood itself; and all other modes of using them are but a delusion and a snare, which may result in the most fatal consequences. The great desideratum undoubtedly is some substance which, introduced into the patient's blood, would kill the poisonous germs without also killing the blood itself. Such a substance is not yet known, but there is no reason, theoretically speaking, why it may not be discovered. Salicylic acid, or the new

disinfectants thymol and carvol, should have a fair trial; and we may hope that some other germicide may be discovered which, whilst tolerated by the blood, may be destructive of the poison in it. Meantime, as I set out with observing, until the happy discovery of some such *curative*, we must pay all the more attention to *prevention*; and I feel assured that in the acceptance of the theory of septic poisoning which I have endeavoured to illustrate from the experiments of the best observers you will find a rational course of action; whilst, at the same time, your responsibility will be enormously increased if you neglect to take the most minute precautions against so terrible a malady.

CASE OF CHRONIC ANÆMIA RESULTING FROM GASTRIC HÆMORRHAGE, SUCCESSFULLY TREATED BY TRANSFUSION OF BLOOD.

By PATRICK LETTERS, M.B., C.M.

MRS. M'A—, aged sixty, had enjoyed uniformly good health until about two years and a half ago, and previous to that time her physical condition had always been robust. A few weeks prior to Christmas, 1875, she received a sudden mental shock, to which she attributes her subsequent illness. This was followed the same evening by a rigor, and next morning by the vomiting of a large quantity of blood. For more than six months from this occurrence she did not leave bed, her daily symptoms being pain at the centre of the epigastrium, aggravated by pressure and the swallowing of food, vomiting, heartburn, and constipation. The hæmatemesis recurred as frequently as every second or third day, leaving the patient emaciated and anæmic. About May, 1876, the hæmatemesis ceased, the pain, vomiting, and constipation continuing unabated. By slow degrees her strength became somewhat recruited, and she began to regain weight and colour. During the autumn and winter following she had so far improved as to be able to give occasional attention to business (that of shopkeeper), but she continued to suffer incessantly from the dyspeptic symptoms. During the summer of 1877 her strength had still further increased, but the vomiting and constipation were habitual. Early in October of the same year the case once more assumed a grave aspect, with every symptom intensified in severity. Deglutition was now followed by acute pain as soon as the food reached the stomach, and even liquids were instantaneously rejected. At this stage I was sent for to see her at midnight, and found her in a state of syncope consequent on the loss of a considerable quantity of blood. The hæmorrhage recurred in lesser quantities at intervals of a few days for more than a month, necessitating the administration of ice, combinations of gallic and sulphuric acids, and acetate of lead and opium. To complicate matters, a bed-sore formed over the sacrum.

Towards the end of February, 1878, the pain and vomiting, which had been continuous for two years and a half, disappeared altogether, somewhat abruptly, and simultaneously the patient suffered from a spontaneous attack of diarrhœa of about ten days' duration. For this powerful astringents had to be employed. When it was arrested the patient expressed herself as free from all pain and acidity, and as having no tendency whatever to regurgitation of food. The symptoms remaining were extreme debility, blanched lips, gums, and conjunctivæ, waxy appearance of countenance, indistinctness of vision, sleeplessness, constipation, occasional cramp in muscles of limbs and back, slight œdema of ankles, and absence of all desire for nourishment. The pulse was small, tense, and irregular, occasionally imperceptible at the wrist, and anæmic bruits could be heard over the base of the heart. The treatment pursued throughout the entire progress of the case, both dietetic and medicinal, was that usually employed in cases of gastric ulceration. From the complete subsidence of the pain and vomiting, it was evident that a sanative change had taken place in the stomach. The symptoms left were simply those indicative of the patient's wasted and exsanguineous state. To restore vital activity to the almost suspended function of nutrition was now the object of treat-