

## The Local Consequences of Puerperal Infection.

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We saw in the first lecture that puerperal fever was due to the infection of a wound somewhere inside the genital canal by micro-organisms, and last time the methods by which the germs were transferred to the surface of that wound were described. To-day we will see what happens to the wound when it has become infected. In this connection, the situation of the wound is not of any great consequence, except that a laceration of the cervix is more likely to be followed by intense puerperal infection than a perineal tear. The difference, however, is one of degree, and not of kind.

The first thing that happens when the bacteria settle on the raw surface is that the leucocytes, or white blood corpuscles, are called up from other parts of the body to the wound itself. These then arrange themselves as a barrier between the germs and the tissues of the part where the wound is, and the fight begins.

Just as in actual warfare, the fighting may be either at close quarters or at long range. In the former case, the process which is known as phagocytosis comes in. Here the leucocytes first swallow and then digest the microbes, so that these latter are killed off before they can multiply.

This, no doubt, occurs to a certain extent in all cases of wound infection, at all events at the onset, because in a preparation made from the surface of the wound in a fatal case the germs can be seen with the microscope inside the leucocytes, but it is now considered that the bulk of the fighting, as in modern warfare, is not of this hand to hand character. The alternative method is that the germs produce substances, known as toxins, which are poisonous to leucocytes, and that the corpuscles manufacture antidotes to these, called anti-toxins, which are fatal to microbes. If toxins are in excess, the quantity which is not neutralised by anti-toxins goes on, so to speak, and destroys the leucocytes, but if the anti-toxins predominate, the germs themselves are killed.

Let us first see what happens if the microbes are not very virulent, or if the leucocytes are

vigorous. The barrier is then effective, and the organisms do not penetrate into the part, so that all the trouble is on the surface and not much harm is done.

All we shall find then is a whitish layer on the wound, which consists partly of the barrier itself and partly of the germs and leucocytes which have perished in the fray. After a time this exudation is cast off, and a healthy raw surface is left. Some of the toxins which have been produced will doubtless have been absorbed into the system, so that the symptoms which we shall have to study in the next lecture will be present in a mild form, but as far as the wound itself is concerned there will not be very much amiss. A good example of this is seen in the appearance of the tear in the perineum, which occurs in every first labour, and is probably almost always infected. It practically never heals by first intention, but becomes covered by a grayish pellicle of leucocytes as aforesaid.

The victory, however, may not be at once to the blood corpuscles. The barrier then breaks down, and, in any case of intense infection, it is practically useless, and the tissues have been overrun by the microbes almost from the first. As a matter of fact, I have only once seen this barrier in a puerperal wound excised either during life or *post mortem*, and that was in a case where the infection really was not very intense, but the patient died from pneumonia supervening on a chronic bronchitis.

When the part is saturated, as it were, with bacteria, a further attempt is made by the body to check the process by cutting off the blood supply locally, so that there is sloughing, or local death, and the part is shed, just like a frost-bitten toe.

The clinical signs of the more intense infection in the uterus itself are twofold. Firstly, the organ will be larger than it should be, and the mouth of the womb will be open instead of closing, as it should do shortly after delivery. The reason of this is that the muscular tissue, of which the uterus is for the most part composed, being saturated with bacteria, cannot do its work and contract as it should. So, instead of our being able to feel the uterus low down, just above the pubes, in the shape of a hard cricket ball, its walls are flabby, and it reaches to the level of the navel or even higher. In the worst cases we cannot feel the fundus at all.

Then there will be some discharge from the interior of the uterus, which, in the majority of the cases, is composed of dead leucocytes and microbes, and has an offensive odour. But, in the worst cases of all, it is either scanty or

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