

The Midwife.

PUERPERAL FEVER AND ITS PREVENTION.

BY A PHYSICIAN.*

Puerperal fever is the old name for the illness which results from septic infection following childbirth. The name was invented by a famous London physician, Thomas Willis, who flourished in the reign of Charles II, and who made a careful study of this disease. In those days the disease was rampant and no doubt caused just as much concern to the medical profession and the public as it does nowadays. Its real nature was unknown, and high fever being its outstanding symptom, it was placed in the class of specific fevers together with scarlet fever, typhus fever, and the rest. We now know that it is not a specific fever but an infection by the bacteria that cause wound infection, and the name "puerperal fever," has been discarded and the disease now is known as "puerperal sepsis."

It is probable that puerperal sepsis has occurred as long as children have been born, and all the old medical writers from Hippocrates onwards refer to it. It often used to occur in the form of epidemics, by the infection being unknowingly carried from patient to patient by doctors, midwives and other people in attendance. In the eighteenth century, when lying-in hospitals were founded, and large numbers of women were confined in them, serious outbreaks were common and the mortality was appalling. The realisation that puerperal sepsis was a contagious disease dawned very slowly. In the eighteenth century an English physician, Charles White, of Manchester, announced the advantage of scrupulous cleanliness in preventing cases. But his views were not accepted.

It was left to a Viennese obstetrician, Semmelweis, to show beyond doubt, as far as that was possible in pre-bacteriological days, that puerperal fever was a contagious disease and was akin to other wound-infections. The story is worth telling. In the year 1846, in the great lying-in hospital of Vienna, Semmelweis was in charge of the ward which was used for the instruction of medical students, who often came into it direct from the dissecting-room and made internal examinations with unclean hands. The mortality from puerperal fever amongst the patients in this ward was so appalling that the women used to beg in tears not to be taken into it. In the other ward, on the contrary, which was used for the teaching of midwives and in which much greater attention was paid to personal cleanliness, the mortality was very much lower. With this idea in mind Semmelweis also made a careful study of the post-mortems in fatal puerperal fever cases. One of his friends, a teacher of anatomy, died from the results of a dissecting wound, and Semmelweis was present at the post-mortem. As he stood beside the body he noted that the pathological appearances were the same as in the unfortunate victims of puerperal fever, and he thus had his chain of evidence complete. He concluded that the disease was essentially a wound infection and was due to the introduction of septic material by the examining finger. He issued strict orders that the students should wash their hands carefully and soak them in chlorinated lime solution before examining the women. The results of this simple expedient were remarkable; for the mortality at once fell from over 10 to about 1 per cent. Semmelweis was scoffed at by many of the most prominent men of the time and very little notice was taken of his discovery until the development of bacteriology and the influence of Lister's teaching had, thirty years later, brought about a revolution.

How Does Our Knowledge Stand To-day?

The nature of puerperal sepsis is now well known. As I said above, it is just an ordinary wound infection, peculiar only because it arises under special circumstances. In about 90 per cent. of the cases infection is due to the streptococcus. The streptococcus is the most common of the bacteria which infect wounds. It also often causes sore throats. Moreover, it is sometimes found in the throat and nose, and even on the skin of people who are apparently quite well. The part of the body which in puerperal sepsis is infected is the genital tract, and in most cases the primary site of infection is the interior of the womb. Some cases are very mild, others very severe. The nature and severity of the illness depend on a variety of factors. The virulence of the bacteria is important; if they are streptococci which have been conveyed from another case of puerperal sepsis, their virulence is great. The powers of resistance of the patient are important. Resistance is remarkably lowered by a long and difficult labour and by hæmorrhage. About half the deaths from puerperal sepsis occur after difficult labours. The nature of the illness depends chiefly on whether the infecting bacteria remain localised in the womb or spread beyond it. A spread into the blood-stream, with multiplication of the bacteria in the blood, gives rise to the dangerous form known as "septicæmia"; a spread into the peritoneum gives rise to "peritonitis"; a spread along the large veins of the thigh gives rise to a form of "phlebitis."

With such a variety of illness there must be a corresponding variety of symptoms, but it would not help you to an understanding of the disease if I went into them. Every case has, from the earliest stage, two significant symptoms, namely, a high temperature and a rapid pulse, and these are the great danger signals on which the doctor or midwife rely.

The Source of Infection.

Puerperal sepsis is, with very few exceptions, a conveyed infection, the bacteria having been conveyed or introduced into the genital tract from outside sources. They may be conveyed by surgically unclean fingers, instruments, dressings or sanitary utensils; by recent contact of the person attending the confinement with other sources of infection, such as a woman already suffering from puerperal sepsis, operations on septic cases, dressing septic wounds or the performance of post-mortem examinations. Sources of infection such as these are so well recognised that the elementary precautions for avoiding them are, or should be, always taken by doctors, midwives and maternity nurses. Another source of conveyed infection, which has only lately received the great attention it deserves, is the so-called "droplet infection." Every time a person speaks (all the more, of course, if he shouts, coughs or sneezes) he sprays from his mouth an invisible cloud of minute droplets. If the person has a septic throat, the droplets will contain a number of bacteria, and will contaminate anything on which they happen to fall. The evidence that cases of puerperal sepsis do occur through the agency of "droplet infection" is overwhelming. Fortunately a simple means of avoiding droplet infection is available—the wearing of face masks. Everybody in attendance at a labour should wear a face-mask, and nurses should be similarly masked whenever they attend to a patient during the first few days after the birth.

A third and quite different mode of infection may be from the patient infecting herself from her own bacteria. That is auto-infection or self-infection. It has been found that in a certain proportion of healthy women streptococci reside in the lower part of the genital tract. Members of the public

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