

EPIDEMIC CEREBRO-SPINAL MENINGITIS.

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In responding to the request of the Editor for a few notes on epidemic cerebro-spinal meningitis, I propose to deal with the subject from the point of view of the nurse who may be in charge of a case, and shall therefore give only those points which are essential to a correct conception of the nature of the disease.

Firstly, what happens when a patient becomes infected with the malady? The trouble is caused by a definite microbe known as the meningo-coccus. This organism is of pretty wide distribution, and may be found almost anywhere, especially where overcrowding and dirt prevail, but under ordinary circumstances it does not attack healthy people, many of whom, in fact, carry the germ about with them in their noses without suffering any ill effects. In other words, it is usually harmless, because the resisting powers of most people are normally sufficient to deal with it.

But at times certain circumstances occur which lower the resistance of the patient, and of these the chief are *Fatigue*, *Fright* (or anxiety), and *Overcrowding*, though any previous illness, such as influenza or measles, which has left the patient in a weak state, may also be a factor in determining an attack.

It will at once be evident that the present time is fraught with opportunity for the disease to become epidemic, and it has, in fact, done so. It would serve no good purpose to give details of the extent to which outbreaks have occurred, but it should be obvious to all nurses just now that they may at any time be called upon to deal with a patient suffering from the infection. The danger is a very present one.

The microbe gains entrance to the body through the nose and throat, and it settles in the naso-pharynx. Now anyone who is familiar with the anatomy of the skull will know that in this region the brain is separated from the back and roof of the nose by a partition of bone, which is not only not very thick, but is perforated with little holes, through which travel blood-vessels and some nerves. It is obviously, therefore, quite an easy task for microbes to make their way into the coverings of the brain in this region. This they do, in fact, by the blood-vessels.

Coming back again to our anatomy, we remember that the brain is continuous with the

spinal cord, and that both are slung, as it were, on a water bed. Between the inner and outer coverings of the brain and cord is a layer of fluid—the cerebro-spinal fluid—and this is found not only inside the skull, but is carried also down the vertebral column. Supposing, therefore, we were to put a fine tube between one vertebra and its next-door neighbour, and push it through the tough outer membrane which covers the spinal cord, we should enter this space and draw off cerebro-spinal fluid. In theory, if we were to go on long enough we should drain not only the “water bed” of the spinal column, but that of the brain also.

This process is known as lumbar puncture, and is often employed in medicine, both for diagnosis and treatment. In the case of a patient suffering from cerebro-spinal meningitis, the fluid thus drawn off is not clear, as it is in health, but is turbid. Under the microscope it is found to contain myriads of meningo-cocci, and also an enormous number of white blood corpuscles, which have been summoned to the part in order to deal with the germs.

Sooner or later this space between the two coverings of the brain and cord becomes practically one large abscess, perhaps shut off into pockets by strands of adhesions.

What will be the symptoms of all this? Well, after an incubation period of about 24 hours, we shall have a sudden onset, and the temperature rising to 102° or more, and there may be rigors. In the worst type of case the patient becomes rapidly unconscious, and dies in one or two days, but as a rule the advance is not so rapid as this, and we find intense headache, which at first is referred to the back of the eyeballs, but later on to the occipital region. There is generally persistent vomiting and giddiness.

Very soon there occurs severe pain in the nape of the neck, which becomes excruciating when the head is moved, and is followed by retraction of the head itself. Then convulsions and unconsciousness end the scene.

The death rate is 75 per cent. or more, so it is evident that the odds are heavily against the patient. Moreover, in the cases that do recover there is almost always great emaciation, and ultimately mental impairment. Convalescence is very lengthy, and is apt to be interrupted by pyæmic abscesses in various parts of the body. One might almost say that those who are attacked by the disease either die or would be better dead, for the survivors usually become mentally unfit to take their normal place in life. I may add that the eyes are often affected by various degrees of inflammation and by squint, and that chest complications, such as pneu-

[previous page](#)

[next page](#)