

try to summarise for you in a very few words what research has taught us with respect to the nexus of events in this war.

We can now see that the septic catastrophes of the earlier period of the war—the putrid abscesses of the wounds that had not been opened up at the front, and the frequent gangrene of the amputated stumps which had been there sutured, were due to the fact that there was left behind an ec-phylactic focus in which all the defensive agencies of the body—both the serum and the leucocyte defence—were abolished—in other words, a focus in which all serophytic and sero-saprophytic microbes could freely multiply. Exactly the same applies to the open sloughing wound. Here the original bruising of the tissues, and the superadded desiccation—which closes down the capillary circulation—created an ec-phylactic focus.

The felicitous results which have in the latter period of the war been achieved by timely opening up of the wound and the excision of all devitalised tissues have been due to the fact that there was now not left behind any ec-phylactic focus in which sero-saprophytic microbes could cultivate themselves. And we have seen that the failures which have occurred when immediate primary suture was undertaken in presence of a streptococcus infection may almost certainly be set down to default of leucocytic emigration and exudation of blood fluids into the wound; while the success of retarded primary suture in cases of streptococcus infection is almost certainly due to free leucocytic emigration and the limitation of exudation.

With respect to inoculation, it is important to grasp the principle that, whether we are dealing with preventive or therapeutic immunisation, we can expect results only when we have good epi-phylactic response in combination with efficient kata-phylaxis. To this combination we owe the success which has attended antityphoid inoculation. It is, moreover, important to realise that the inefficacy of all forms of inoculation as applied to such septic conditions as presented themselves in wounds in the earlier period of the war abates nothing from the legitimate claims of vaccine therapy. For it is a first principle of that method that in ec-phylactic conditions, such as those of gravely septic wounds, the defensive agents of the blood cannot, until the proper kata-phylactic measures have been taken, come into operation.

INFLUENZAL PNEUMONIA:

BILATERAL RIGIDITY, SPINAL MENINGITIS WITH
HÆMORRHAGE INTO THE THECA VERTEBRALIS
AND NERVE ROOTS.

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MENINGITIS has been a common complication in the pneumonia of the present epidemic. In ordinary pneumonia the incidence is only from 2 to 3 per cent. of the fatal cases, sometimes much higher, as in my Montreal series. The cerebral meninges, particularly of the cortex, are more often involved than the spinal. Spasticity, a well-marked feature of the epidemic form, was not present in any one of the 25 cases of pneumonic meningitis that occurred in my clinic at the Johns Hopkins Hospital. I have no personal experience of an influenzal meningitis. In my "System of Medicine" Lord refers to 11 cases in which the Pfeiffer bacillus was found in the exudate. The following case is worth recording from the unusual character of the lesions and from the possibility of its influenzal nature.

Notes of Case.

I was making "rounds" with my class at the Radcliffe Infirmary on Jan. 26th, when Colonel W. Collier sent for us to out-patients' as a man with remarkable symptoms had just been sent in by Dr. Rice. I dictated the following note:—

A fairly well nourished man, aged about 43, with a sallow complexion and a distressed appearance; he answers questions clearly and says he has been ill for three days. Respirations 44, with a marked expiratory rattle; pulse 132, regular; temperature 99° F. Facial muscles move freely, no paralysis, opens mouth readily and protrudes tongue; pupils are equal, dilated, and react to light; no ocular paralysis. The neck is so rigid that he cannot lift the head from the pillow. The spine is arched, the muscles strongly contracted.

Both upper limbs are in tonic spasm, the arms more than the forearms; he can extend and flex the fingers; he cannot move the arms from the side; at intervals there is slight tremor. Both legs are rigid; the right is deformed from an old infantile paralysis; the left cannot be bent, the muscles stand out prominently, and the foot is extended; slight ankle clonus, knee-jerks not obtainable, nor the Babinski sign. On the skin of feet and ankles is a crop of fresh purpura. The breathing is largely abdominal, movements of the chest very slight, but more on the right than the left side. Dullness shading to flatness from the fourth left rib, extending into axilla and as high as angle of scapula behind; intense tubular breathing with fine crepitant râles. The heart sounds are clear.

The story was that he had been ill for three days with fever and cough, but there was no note about the rigidity.

The suggestion had been made that the case was tetanus, but there was no wound; the spasms were extensor and tonic in character, and not unlike those seen sometimes in cerebro-spinal fever. Then he had, in addition, well-marked purpura. Pneumonia is very rare as an early complication of cerebro-spinal meningitis. Altogether, as the pneumonia was so pronounced, I thought the spinal meninges were involved without, as is usual, the cortex of the brain. The lumbar puncture made by Dr. Lloyd was negative. Next day he remained very ill; the rigidity persisted; the temperature rose to 103°, the respirations 52. When I saw him at 2 P.M. he was still conscious, the face dusky and a little sallow, the back was very rigid, and on attempting to lift his head, the arms went into extensor spasm. The left leg could not be moved, and muscles and tendons stood out prominently; the lung condition was unchanged. The purpura had extended slightly over thighs and shoulders. The lumbar puncture by Major A. G. Gibson was again negative. He died at 3 o'clock. The blood cultures were negative.

Post-mortem.—Next morning, in the absence of Major Gibson, I made the post-mortem. The skin had a tinge of yellow; marked rigor mortis; purpura in parts mentioned; colour of muscles very deep red. Left lung airless, dark red in colour, pleura spotted with hæmorrhages, but no fibrinous exudate. On section much blood which, when washed off, left a mottled surface, with areas of greyish consolidation, surrounded by very dark red tissue—not the appearance of an ordinary lobar pneumonia, but the type of lesion seen in the present outbreak. Lower half of upper lobe in the same condition; the right lung was normal except for congestion at the base; very little exudate in the bronchi. The heart was normal; there were not the very dense blood clots in the cavities and in the vessels such as are seen in ordinary pneumonia. Abdominal organs showed no special changes; the spleen was small and the capsule wrinkled. The retroperitoneum presented a uniform sheeting of blood clot surrounding the vessels and extending over the psoas muscles.

The cortical vessels of the brain were engorged, the membranes very moist, but no exudate on cortex or base, except on the posterior surface of cerebellum there was a yellowish-white patch the size of a penny. The spinal cord had a thick buttery exudate over the cervical enlargement, less in the dorsal region and very abundant over the lumbar swelling and the cauda equina. There were no hæmorrhages; substance of the cord cut at different levels was moist and looked normal. Into the spinal theca and extending along the nerve-roots into the foramina was a uniform sheeting of hæmorrhage obliterating the spinal veins, in some places dense enough to cover completely the nerve-roots and involving their sheaths; it was more marked in the postero-lateral than in the anterior portions. There was no free blood in the spinal canal; the hæmorrhage was entirely into the theca.

The lumbar puncture on both occasions was "dry." The smears from the spinal exudate were negative; nothing grew on any of the ordinary media, and the blood cultures made by Major Gibson were negative. Sections of the lungs showed the lesions corresponding to the influenzal type of broncho-pneumonia, but Pfeiffer's bacillus was not isolated.

I do not remember ever to have seen the hæmorrhage into exactly the situation here described. It was probably responsible for the bilateral rigidity—a very variable feature in cerebro-spinal meningitis, but rarely so extreme or so tonic in character.