50 per cent. in some places to 10 per cent. in others. This discrepancy is merely due to the fact that the first hospital is in the centre of an industrial district where severe accidents are common, the second in a scattered neighbourhood with poor facilities for transport, so that most severe head injuries die before reaching hospital. In fracture of the base it is the severity of the injury and not the line of treatment adopted which is the chief factor in determining the result. For this reason the comparison of statistics published by different surgeons during the war is valueless unless the exact conditions are known. The mortality in gunshot wounds of the abdomen, for instance, might be expected to be small at a base hospital, much greater at a casualty clearing station, and still greater at an advanced centre, merely because distance automatically sorted out the severe cases.

If we examine critically the figures quoted from the circular of the Ministry of Health, it is difficult to agree with the conclusion that excision is unnecessary. The very fact that the mortality after excision, *plus* serum, is greater than that for either serum alone or excision alone, shows that other factors are at work. Were excision a harmful factor (as it might be, owing to disturbance of the protective barrier set up by the tissues), the mortality of the cases treated by excision alone should be greater than that of the untreated cases. But, leaving this argument on one side, it is absolutely certain that, were excision harmful, the cases treated by excision only should do worse than those treated by excision *plus* serum. It is unthinkable that a harmful factor should be less harmful by itself than when combined with a beneficial factor. If, then, excision is not harmful, it may be either a valuable or a neutral factor in treatment. The facts that stand out from the report are, first, that over 70 per cent. of the 800 cases have been treated by excision, which seems to point to a fairly general belief in the efficacy of this procedure; and, secondly, that excision by itself has reduced a death rate of 48.3 per cent. to one of 11.1 per cent. without the use of serum in addition. It seems pretty certain that the mortality given for the cases in which both methods were employed involves other questions in addition to that of the treatment adopted. We suggest that the cases treated by serum only would probably include all very slight cases, and all doubtful pustules in leather workers which resembled anthrax lesions but were not proved to be so, or did not seem severe enough to justify excision. In such cases it would be only right, in view of the danger, to give a prophylactic dose of serum. Late cases of genuine anthrax in which a natural cure was being effected would probably also be treated with serum only. On the other hand, extensive lesions of a fulminating type would nearly all come into the class treated by both methods.

It is probable that the series from Guy's Hospital, though small, gives a much fairer picture, and that the death rate when both methods are combined is notably lower than when either is used alone. In the early stages of anthrax the bacilli are limited to the pustule and its immediate neighbourhood. Excision by itself will assure a cure in about 90 per cent. of cases in a disease having a natural mortality of something like 50 per cent., while serum at best cannot be relied upon to avoid a fatal issue in all cases. In view of the danger of anthrax and the local nature of the infection in the early stages, it therefore appears to us to be the wiser course to combine the two methods, which are both known to be good and which cannot be mutually antagonistic, and thus to give the patient every chance. Little or no importance can in the circumstances be attached to the resulting scar. We consider, then, that the combination of excision and serum treatment as used at Guy's Hospital is probably the most rational and the safest course in all cases of cutaneous anthrax which have not reached the stage of a septicaemia.

The Journal of the American Medical Association announces that Brigadier-General Charles E. Sawyer, personal physician to President Harding, has been assigned a suite of rooms in the State, War, and Navy Building, formerly occupied as headquarters of the Army, from which he will direct the establishment of a department for the arrangement of better hospital facilities for disabled soldiers and sailors.

CRYPTOGENETIC PNEUMOCOCCAL SEPTICAEMIA.

BY

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CRYPTOGENETIC SEPTICAEMIAS are of particular interest to the physician, and, as a search of the literature on the subject shows few cases recorded of pneumococcal septicaemia without any evidence of a focal lesion or portal of entry, the following brief notes of a case recently under my care is, I think, of sufficient interest to record. That a blood infection occurs in acute pneumonia in a large percentage of cases, and that the pneumococcus can be cultured from the blood in many cases has been demonstrated in an extensive series of investigations. It has been stated by one observer that blood cultures give positive results in 50 per cent. of fatal cases; others have suggested invasion of the blood by pneumococcus to be a constant condition. Pneumococcaemia, however, without distinct localizations, has, Osler states, been reported by Wright, Stokes, Pearce, Flexner, Hektoen, and others. The following case would, therefore, seem to be of the cryptogenetic variety.

Mrs. S., aged 48, came to see me about March 8th, 1921. Her symptoms were of an indefinite character. For some weeks she had been feeling unwell, had been losing energy and some weight, appetite was poor, and she suffered from restless nights, shivering fits, occasional diarrhoea, and persistent polyuria. The temperature was normal and the pulse small and of low tension. A hasty examination of chest and abdomen failed to elicit any definite abnormality. She had no cough or any symptoms referable to her chest. She complained of lumbar pain radiating down the back of the thighs, and also some nausea. There was a history of slight discharge from the left ear, lasting a few days, some short time before, but it apparently cleared up, and at present no otitis media was evident. I examined the urine next day—specific gravity 1016, somewhat turbid, no sugar, a trace of albumin. As her family were becoming increasingly anxious on account of her lack of energy, progressive weakness, and shivering attacks, I was asked to admit her to Mercer's Hospital on March 22nd, 1921.

Condition on Admission.

General aspect: Face yellowish, cheeks flushed, eyes bright. Tongue perfectly clean, gums and throat healthy. Although thin, no marked emaciation. Pulse 100, regular. Blood pressure: systolic 90 mm. of mercury; diastolic 65 mm. of mercury. Temperature normal. Abdomen slightly distended, some relative rigidity below liver, and marked tenderness in both loins. Neither kidney was to be felt, but lower pole of spleen palpable. Reflexes normal. Urine: specific gravity 1020, acid, no sugar, slight amount of albumin; microscopically, some pus and epithelial cells, no casts, a number of mobile organisms, probably *B. coli*.

After-History.

During the following week her condition remained unchanged. She appeared apathetic, had no desire for food, had some nausea, was slightly constipated, and sleep was restless. Her temperature ran up to 101° at night, but returned to normal in the morning. On March 29th she had a distinct rigor. The temperature was 103°, and pulse rate 124. Blood examination showed red cells 4,500,000, haemoglobin 85 per cent., white cells, 8,000. Rectal and vaginal examination were negative.

During the second week in hospital the temperature became remittent, she had recurrent rigors, the temperature reaching 103°, and the pulse ranged between 88 and 128. I noticed a slight roughening of the first sound at the apex, and the rhythm became of a gallop type due to reduplication of the first sound, I thought, or possibly pericarditis. Tenderness and pain continued in the loins, and this was the chief complaint from the patient. There was no cough nor any abnormal lung sounds, although at the end of the second week some rhonchi and rales appeared, clearly due to a congestion or oedema. Petechiae appeared on the left breast, arms, gums, and the inside of the cheeks. She had fairly good sleep with the aid of bromidia.

Although the results of the first blood culture showed a bacteraemia it was not until the second examination that our pathologist, Dr. Pollock, satisfied himself that there was a pneumococcaemia. During the last week of the patient's illness she became wildly delirious, the sphincters became relaxed, and a slight systolic murmur was audible. She passed into a "typhoid state," and died at the end of the third week in the hospital, the temperature falling gradually to normal and blood pressure remaining persistently low.

Pathological Notes.

The following notes on the examination of the blood and on the *post-mortem* findings are by Dr. Pollock:

"As is my usual practice in blood culture, I withdrew 5 c.cm. of blood from a vein at the bend of the left elbow by means of a serum syringe, discharging the whole blood direct into a flask containing 50 c.cm. nutrient broth. I have found this method preferable to direct plating, as in the latter only a comparatively small amount of blood can be employed, and if the degree of infection be slight failure to cultivate may result. Unfortunately, the first flask became contaminated, and the second attempt was made a day or two subsequently. In this a practically pure culture was obtained of a Gram-positive coccus in pairs and chains, these latter being, in some instances, of such length as to suggest streptococci. Subsequent plate cultivation, however, reduced the chains, when present, to the short, straight diplococcus pairs characteristic of pneumococci; the vast majority of organisms, however, being diplococcal in arrangement and, in my opinion, of characteristic morphology. The numerous organisms present in the sections made subsequently from the thrombi present in the right auricle, *post mortem*, were seen in pairs, characteristically lancet-shaped, and were, in my opinion, characteristic pneumococci. The tendency of this organism in rich liquid media to approximate to a streptococcal type is, I think, noteworthy, being particularly noticeable during the somewhat recent severe epidemics of septic pneumonia."

The results of the *post-mortem* examination were as follows:

Thorax.—Pleura normal, no fluid in cavity.

Lungs.—Some slight emphysema present; oedema of both bases; no pneumococcal consolidation whatever.

Pericardium.—Distended with a clear yellow fluid (about 6 oz.); subepicardial petechiae, most marked over right auricle.

Heart.—Myocardium showed marked fatty infiltration, endocardium some relative mitral incompetence. Both aspects of tricuspid valve were covered with immense adherent vegetations. Growing from this evidently diseased valve up into the cavity of the right auricle, and almost entirely filling it, was a great *ante-mortem* thrombus of a peculiar greenish tint. Miliary vegetations were also present upon the endocardium lining the right auricle.

Abdomen.—Liver: early "nutmeg" condition. Spleen: large, soft, pulpy, with petechial haemorrhages. Kidneys: both showed an early chronic nephritis, more marked in the right. No suppurative condition. Other viscera apparently normal, and general condition of body good.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

HERPES AND VARICELLA.

The interest at present shown in the relation between herpes and varicella leads me to send notes of a recent well marked case.

A woman, aged 53 years, was taken ill on April 8th, 1921, with pain low down on the right side of the chest and a feeling of general illness. When seen on the afternoon of April 11th a patch of herpetic vesicles was present; it developed, and ultimately a severe rash occupied the fifth and sixth right dorsal root areas. At first no eruption was to be seen elsewhere, but on April 14th there were two dozen macules, papules, and vesicles scattered over the trunk, shoulders, and buttocks. Three days later a vesicular eruption was present over the whole body, including the face; more than 100 vesicles were counted. The whole cleared away gradually, but severe pain persisted in the area of the "herpetic" rash.

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A CASE OF MYOCLONIC EPIDEMIC ENCEPHALITIS.

THE case reported below occurred during the recent small outbreak of epidemic encephalitis in the city of Bristol, and was the only one that could definitely be classified as of the myoclonic type. The remainder of the cases seen, numbering between 20 and 30, were of the common cranial nerve palsy, lethargic type.

G. L., aged 32, began to suffer from acute abdominal pain, without vomiting, on September 16th, 1920; next day he had diplopia, twitchings and spasmodic movements of the body and limbs, and the pain was worse.

He was admitted to the Bristol General Hospital on September 19th as an "acute abdomen." The temperature was 102°, the pulse 100, and the respirations 32. The tongue was coated. The eyes were prominent and bloodshot; the pupils were equal and reacted normally; there was marked nystagmus and left external strabismus. Speech was blurred with a tendency to stammer; he had never stammered before. There was no facial weakness. Spasmodic movements of arms and abdomen were frequent; all the abdominal muscles were involved and the movements were at times rhythmic and 20 to 30 to the minute. There was true abdominal rigidity; the knee jerks were very active.

The spasms ceased on September 20th. The patient, who was somewhat delirious, complained of abdominal pain. The leucocyte count was 13,800. The cerebro-spinal fluid was sterile; the number of cells was not increased, and there was a slight excess of globulin.

On September 23rd he was still boisterous and delirious; the right pupil was larger than the left, and there was facial paralysis on the right side and incontinence of urine. On September 25th he was much better, the temperature was normal, and he was quite rational; the right side of the face was still weak. On September 27th the temperature rose to 99.8° and he relapsed into delirium; no fresh paralysis developed. He died in coma on September 28th.

Post-mortem Examination.

There was some congestion, oedema and softening of the brain, and microscopic sections stained by methylene blue and eosin showed the following changes: In the cerebral cortex there were a few small haemorrhages into the pia mater, and a few of the nerve cells showed neuronophagia. The invading cells were basophil and considerably larger than the small round cells seen infiltrating the mid-brain areas.

In the mid-brain, at the level of the inferior geniculate body, general round-celled infiltration and perivascular infiltration was very dense, notably at the point of exit of the optic nerve. Some of the nerve cells were densely crowded with pigment granules. At the level of the nucleus of the third nerve and superior corpora quadrigemina, round-celled infiltration was present in moderate degree; perivascular infiltration was dense in parts, and some of the blood vessels were thrombosed. In sections through the red nucleus perivascular infiltration was fairly marked, but there was much less round-celled infiltration. The nerve cells generally appeared degenerate.

In the pons at the middle of the fourth ventricle the same lesions were present in less degree. Several vessels were thrombosed, and neuronophagia was present. The upper half of the olivary nucleus in the medulla oblongata showed very little abnormality, and in sections of the spinal cord no macroscopic or microscopic lesions were noticed.

Compared with sections from other cases of epidemic encephalitis (cranial nerve palsy type) those described here show no lesion or distribution of lesions, at present recognizable by the means employed, that accounts for the variation in symptomatology. I am indebted to Drs. J. Odery Symes and Cecil Clarke for permission to publish these notes.

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THE ACTION OF QUININE ON PREGNANT AND NON-PREGNANT UTERUS IN THE TROPICS.

IN tropical countries some medical practitioners advise pregnant women to give up prophylactic doses of quinine as soon as pregnancy begins. The result is in many cases that chronic malaria causes severe anaemia and abortions; should the mother go to full term the children are badly nourished and have to be artificially fed owing to the poverty of the mother's milk, and unless both are removed from tropical regions there is great danger of the loss of their lives.

As with some women 5 grains of quinine cause contractions of the pregnant uterus and sometimes haemorrhage, I advise that the 5-grain prophylactic dose be taken in two doses of 2½ grains morning and evening, and in my thirty-two years' experience in Central Africa (11th deg. S. lat.) I have never seen a case where this has done any harm, and in nearly every case the 5 grains has kept the