Medical Memoranda

Severe Tetanus with Recovery

The following case is of interest as an example of the efficacy of large doses of antitoxin given early in the treatment of tetanus, and emphasizes the need for wider knowledge of this method of combating the disease.

CASE HISTORY

A nursery foreman aged 65 lacerated the little finger of his right hand; he received no antitetanus serum, and the injury was treated at home with an ointment. Eight days after the accident he noticed stiffness of his jaw, and the next day this was followed by stiffness and pain in his back and neck. On the morning of the third day after the onset of symptoms he received 1,000 units of antitetanus serum intramuscularly and was sent to hospital.

On admission all the physical signs of tetanus were present except spasms. He received 30,000 units of A.T.S. intravenously soon after arrival, and three hours later 80,000 units by the same route and 40,000 units intramuscularly, followed by 60,000 units intramuscularly the next morning; the total dosage was thus 211,000 units in 24 hours. He was given 40 gr. of chloral hydrate by mouth; and his finger was dressed with hydrogen peroxide at frequent intervals. The following day he was opisthotonic, perspiration was profuse, and several spasms occurred mainly involving the muscles of the back. He was given 6 drachms of paraldehyde in oil per rectum. For the next 18 days he had 3.4 g. (0.06 g. per kilo) of tribromomethyl alcohol (avertin) per rectum night and morning, making a total of 118 g. He was sufficiently conscious before each administration to allow oral feeding, and deglutition was at all times possible. He received about 2,000 calories a day. Although his fluid intake was 60 fl. oz. and his urine output 30 fl. oz. a day he was becoming dehydrated by sweating, and on the seventh day of the disease he was given intravenously 2 pints of 5% dextrose in normal saline. From the eighth day onwards he improved daily, and on the thirteenth day he could open his mouth more readily. Avertin was discontinued on the twenty-first day; he had three doses of 30 gr. of chloral hydrate on the next two days, after which sedation was discontinued. He got up for the first time one month after admission and was discharged a week later. His temperature rose to 99.4° F. on the twentieth and twenty-first days of the disease, but was otherwise normal.

COMMENT

The successful recovery of this case in spite of the onset of the disease eight days after injury, the onset of spasms only four days later, and the age of the patient, serve to emphasize the effectiveness of early administration of massive doses of antitoxin in the treatment of tetanus, and also to show that intrathecal injection and further administration are unnecessary. Too much stress cannot be laid on the importance of adequate sedation and at the same time the maintenance of sufficient nutrition and fluid intake.

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Seven-year Cure in a Case of Carcinoma of the Bronchus

Apart from those cases in which early recognition may in suitable conditions render lobectomy with removal of the growth possible, the prognosis is hopeless whatever method of treatment is adopted, and a cure is rare. The following case is of interest in that non-radical treatment has produced a complete cure for the last 7 years.

CASE HISTORY

The patient, aged 53, a carver and gilder, was admitted to the Middlesex Hospital for the first time on March 19, 1937, complaining of a heavy feeling in the chest, with dyspnoea, for the previous 4 weeks; burning pain in the right scapula on coughing, for the last 7 days; long-standing harsh dry winter cough, worse recently, with scanty non-offensive sputum. He had lost 2 stone, and weighed 8 st. 12 lb. There were occasional palpitations, no haemoptyses or sweats, and no anorexia.

Clinical examination revealed poor nutrition, with septic teeth, but normal mucosae. No clubbing of fingers, cyanosis, oedema, or glandular enlargement could be demonstrated. Pulse, 100 regular; respirations, 20-26; B.P. 130/80. No enlarged veins were seen, and the trachea was central. Most physical signs were found over the right chest: diminished excursion; impaired percussion note at lower and mid-zones posteriorly and laterally, with absent breath sounds; weak breath sounds, bronchial in character, and crepitations towards the apex. Compensatory harsh vesicular breathing was present over the left chest. No abnormality was detected in the heart or C.N.S.

Investigations and Treatment.—Screening and x rays showed normal movement of the diaphragm, also an opacity in the right mid-zone which was posterior in position: conclusions—? early collapse. Lipiodol was found not to enter that area. The Wassermann reaction was negative. Bronchoscopy was performed by Mr. C. P. Wilson on April 6, 1937. A growth was found obstructing the dorsal division of the right lower lobe bronchus, and a portion was removed for microscopy. This showed infiltration of

tissue by squamous-cell carcinoma. Ten days later bronchoscopy was repeated as before, and 9 × 1.6 mc. of radon in short Muir seeds were inserted round the site of the growth. The patient was apyrexial throughout. The erythrocyte sedimentation rate on admission was 6.6 mm./hour; one week before bronchoscopy it was 7.8 mm./hour, the day after bronchoscopy 8.2 mm./hour, and one week later 7.6 mm./hour. Convalescence was uneventful and he was discharged one month after admission. No post-operative irradiation was given.

A regular follow-up was maintained. Three months after discharge his weight was 9 st. 1 lb.; he was feeling much better and had only a slight cough. The pain had entirely disappeared, as had the dyspnoea. Radiographs showed the radon seeds still *in situ*. Since that time he has had frequent x-ray examination at 3 to 6 months' intervals. The previous opacity in the lung field disappeared, and no further change occurred in his physical state.

Readmission.—The patient was readmitted on Nov. 22, 1943, with gradually increasing symptoms of seven weeks' duration: cough and colourless sputum; moderate dyspnoea; pain in right chest radiating to the back. His weight was now 8 st. 7 lb. On examination there was weaker air entry, with a few rhonchi on the right side, together with harsh vesicular breath sounds on the opposite side. Nothing else relevant was observed. Radiographs of the chest showed no evidence of lung collapse. Three seeds were still present in the main bronchus and one lower down. Hb, 102%; W.B.C., 8,700; E.S.R., 25 mm./hour Westergren. Sputum: No malignant or tubercle bacilli seen; numerous organisms were present, the pneumococcus being predominant. Bronchoscopy was performed by Dr. J. E. G. Pearson under local cocaine anaesthesia and pentothal. Slight general constriction of the right lower lobe bronchus was found at the level of the middle-lobe opening. The area surrounding the dorsal lobe appeared somewhat pale—? fibrotic; the lumen of this branch seemed grossly constricted, and had been presumably the seat of the neoplasm as indicated by the original notes and diagrams. A portion of this area was taken, and microscopy revealed only respiratory epithelium, mucous glands, smooth muscle, fibrous tissue, and cartilage; no evidence of growth. The patient improved greatly with conservative treatment. He was discharged 3½ weeks after admission, and is now back at work in an aircraft factory.

COMMENT

The effects of treatment of carcinoma of the lung were recently estimated by the Clinical Cancer Research Committee (British Empire Cancer Campaign Annual Report, 1943), who showed that radium application, although used in fewer cases, appeared to yield better results than x-ray treatment, the expectation of life being increased by 13 to 22%, as against 6% in the latter.

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Post-mortem Appearances of Malignant Tertian Parasites

In the description of a fatal cerebral case of malignant tertian malaria given in the *Journal* (1943, 2, 814) difficulty was encountered in finding malaria parasites in sections of brain and spleen. Although textbooks stress the importance of making films at the time of post-mortem examination in order to detect parasites in the viscera, the following short account of the actual appearance of films from brain and spleen in such a case may be of use:

Films from Brain.—Thin smears from cerebral cortex are made in the post-mortem room. These are fixed and stained by Leishman's method. Chains of parasites are seen occluding the cerebral capillaries. The parasites stain blue, and each contains a dark mass of pigment. The course of the cerebral capillaries is in fact made strikingly clear by these characteristic chains of pigment-containing parasites. The red cells in which the parasites are contained are not readily distinguishable, however. Most of the parasites appear to be schizonts, and differential nuclear staining and division into merozoites can be seen in the thinner parts of the film.

Films from Spleen.—In spleen smears, similarly prepared and stained, the minute structure of the enormous number of sporulating schizonts is readily distinguished. Only some of the parasites, however, can definitely be located within red blood cells. The cytoplasm of the parasites is stained slaty blue, and the chromatin of the nuclei gives a beautiful metachromatic violet-red reaction. All stages in schizogony are encountered from early nuclear division to final liberation and separation of the individual merozoites, which can be seen migrating freely in the splenic pulp. Many of the merozoites are in "rosette" arrangement, grouped in the merocyte, and each merozoite is clearly seen to contain a violet-red chromatin particle and a slaty-blue cytoplasmic mass. The pigment of each merocyte is generally prominent as a brown-black concretion, often centrally situated. As many as 20 merozoites can easily be counted as emanating from some of the merocytes.

The above description illustrates the appearance of parasites of *Plasmodium falciparum*, which may readily be observed in films from spleen and brain within half an hour of completing post-mortem examination on a fatal pernicious cerebral case. The advantage of making films over sections in such cases is thus evident.

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