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CEREBRO-SPINAL MENINGITIS AS IT APPEARED AMONG THE TROOPS STATIONED AT BENTON BARRACKS, MO.

BY IRA RUSSELL, SURG. U.S.V. AND POST SURGEON.

[Communicated for the Boston Medical and Surgical Journal.]

DURING the past winter, Benton Barracks have been a *rendezvous* for colored troops, and a temporary stopping place for white regiments going home on, and returning from, furlough. Benton Barracks are situated just outside the limits of the city of St. Louis, and in rather an unhealthy or malarious locality. The diseases most prevalent among the troops have been—measles, some cases of typhoid or typho-malarial fever, a large number of cases of pleuro-pneumonia, together with many of *cerebro-spinal meningitis*. The latter disease appeared first among the colored troops. Not less than fifty cases occurred among them during the months of January and February, more than half of which proved fatal. Latterly quite a number of cases have occurred among the white troops—the symptoms and progress of the disease not differing materially from that among the negroes.

At first the patient has a slight chill, a white tongue, a small, rapid pulse, a dull headache, with pain in back and limbs. These symptoms will continue from two to eight days, the patient all the while attending to his ordinary duties, or, perhaps, exhibiting a kind of lazy indifference. The appetite is very slightly affected. After remaining in the above condition for a shorter or longer time, the patient is suddenly attacked with a severe congestive chill, or collapse, becoming immediately helpless; falling down, perhaps, while in quarters or on drill, and very soon becoming comatose or wild with delirium. The surface is cold, pulse small or imperceptible, and the muscles of the back and neck spasmodically contracted, drawing the head back, with more or less rigidity of the muscles of the legs and arms. Deglutition is difficult or impossible, and death soon closes the scene. Or, perhaps, after remaining in this cold, delirious or

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comatose condition from twelve to forty-eight hours, reaction begins to take place, warmth returns to the surface, consciousness is partially restored, and with a longer or shorter period of fever, of a typho-malarial type, lasting from two to four weeks, the patient recovers, or again becomes comatose and dies. During the fever following the period of collapse, nearly all the cases have been attended with delirium, sometimes of a wild and incoherent nature, but more frequently of a comparatively mild form; the patient, when spoken to, answering questions rationally, but, when left alone, immediately beginning to talk incoherently.

I have already published, in the *St. Louis Medical and Surgical Journal*, several cases that have occurred among the negro troops, together with some general observations respecting the nature of the disease. I now offer for your consideration the following cases, which have occurred among the white troops at this post, and which will, I believe, give a correct idea of the symptoms and progress of this disease, and the morbid appearances observed after death. And here I will state, that these morbid appearances have been remarkably uniform, all the cases examined (not less than twenty in number) having shown inflammation of the *meninges*, with deposits of lymph, or pus, or both, upon the arachnoid membrane of the brain, and spinal cord, together with the effusion of serum into the arachnoid cavity, and more or less softening of the white and gray substance of the brain and spinal cord.

CASE I.—William H. Allen, Co. B, 12th Mo. Cavalry, aged 18, admitted into hospital April 11th, and died April 20th. He was of small stature and delicate constitution. Had measles in the early part of the winter, and in fact has been in hospital the greater part of the time since his enlistment, until within three or four weeks. He was brought to hospital on a stretcher on the 11th of April, having been sick two days in quarters, during the greater portion of which time he was delirious. A comrade said that on the day he was taken sick he had drunk six bottles of ginger-pop, and had eaten heartily of trash purchased from a sutler. When admitted into hospital, he complained of pain in his head, back, neck, and throat. Action of the heart irregular; expression of countenance wild; mind at first tolerably rational, but in the course of two or three hours he became delirious, and talked incessantly, exclaiming—"Orderly, let me alone, I can't drill to-day," and various other incoherent expressions, giving no attention when spoken to, or heed to those about him. The muscles of the head and neck were spasmodically contracted, the head being drawn back. He was very restless, rising from the bed frequently, and walking across the ward with a wild, vacant stare, strongly reminding one of a person in a state of somnambulism. While in bed, his eyes were turned upward. Requires a nurse to keep him in bed.

April 12th.—Pulse quite regular and normal; hoarse; expecto-

rates freely; restless. Has involuntary discharges of fæces and urine.

13th.—Deglutition difficult; restless; involuntary discharge of urine; answers questions rationally.

14th.—Restless; does not sleep. Answers questions rationally when spoken to, but immediately afterwards the mind wanders, and he talks incoherently.

15th.—Complains of pain in legs; endeavors to get out of bed; has involuntary discharges of fæces and urine; constantly whispering.

16th.—Head drawn back at nearly right angles with body.

18th.—Contraction of the muscles of the back and neck; less restless; attempts to get out of bed every few minutes; deglutition performed with less difficulty; respiration hurried; mind rational. On inhaling chloroform, his head could be moved forward on a line with his body, but respiration was arrested.

19th.—Rested quite well for two hours. Has less contraction of the muscles of the neck; called for the urinal; no involuntary discharges. During the day he got worse, and became very restless. Pulse 160; respiration 60. Answers questions rationally; deglutition difficult; takes but little nourishment, and grinds his teeth constantly.

20th.—Rested well until midnight. He then became very restless, and continued so until two hours previous to his death, which occurred at 5 o'clock, A.M.

Autopsy, seven hours after death. Vessels of scalp quite empty. On removing calvaria, found vessels of dura mater highly injected. Arachnoid cavity contained one ounce and a half of serum. Pia mater highly injected. Arachnoid covered with lymph; in spots, with pus. A large amount of pus was deposited on the medulla oblongata and pons Varolii. Gray and white substance of brain congested and softened. Lateral ventricles each contained half an ounce of sero-purulent fluid. Choroid plexus injected. Medulla oblongata, pons Varolii, and cerebellum congested and softened. Whole inferior surface of medulla oblongata and pons Varolii, as far forwards as the pituitary body, covered with lymph and pus. On opening the spinal cord, found meninges highly injected, and containing quite an amount of sero-purulent fluid. Arachnoid membrane covered with considerable lymph and pus from the seventh cervical vertebra to the sacrum. The cervical portion of the spinal cord free from lymph and pus, although the meninges were very much injected. The largest amount of pus was found in the lumbar region. On opening the thoracic and abdominal cavities, found both lungs considerably congested, and the mucous membrane of the stomach quite dark and softened.

CASE II.—James F. Johnson, Co. H, 13th Ill. Cavalry, admitted April 13th; died April 17th. Quite youthful in appearance, proba-

bly not more than fifteen years of age. Has a small and delicate frame. Had been puny and quite unwell for a month. When admitted into hospital, he was in a state of complete collapse; insensible; pulse small and frequent. On inquiry, it was ascertained that he had been sick in quarters two days, and that, on the day previous to the attack, he had eaten one can of strawberries, thirty-five cents worth of apples, and a box of sardines. The following evening he had spasms, vomited freely, and threw up with the ingesta five large lumbrici. He was treated in quarters for two days by the regimental surgeon, who gave him active cathartics. During this time he was delirious, and had occasional spasms. When admitted to hospital, he had contraction of the muscles of the back and neck, extreme sensibility of the surface, and constant delirium. He continued to decline until April 17th, when death ensued.

Autopsy.—On removing calvaria, found dura mater highly injected. Arachnoid cavity contained half an ounce of serum. Arachnoid covered with lymph and pus, which followed the course of the large cerebral veins and sulci. Gray and white substance of brain congested and softened. Right and left ventricles contained half an ounce of sero-purulent fluid. Choroid plexus highly injected, and covered with lymph and pus. Third and fourth ventricles each contained half a drachm of sero-purulent fluid. Medulla oblongata, pons Varolii and cerebellum congested, softened and covered with lymph and pus; the largest amount found in the lumbar region. On laying open the thoracic and abdominal cavities, found old and firm adhesions, covering whole of right and left pleural surfaces. Both lungs somewhat congested. Found nineteen large lumbrici in stomach and large and small intestines.

CASE III.—Geo. W. Basinger, Co. F, 12th Mo. Cav., admitted to Hospital March 19th, having had a chill the day previous. When admitted, complained of pain between shoulders, which continued to increase in severity until the 21st, when he was taken with a severe congestive chill or collapse, and soon became insensible. The muscles of the back and neck spasmodically contracted. This period of collapse lasted three days; the surface cold, pulse small, frequent and thread-like. Deglutition was difficult, and there was involuntary discharge of feces and urine. On the third day after collapse, reaction began to take place; warmth returned to the surface, the pulse became fuller and slower, he became conscious, and complained of pain in head and back. At this time the entire surface of the body, with the exception of the arms and face, was extremely sensitive, and could not be touched without producing pain. From this time he had a fever of a typho-malarial type, which lasted for three weeks, without any material change except a gradual improvement. At the present time, April 20th, he is convalescent, and is in a fair way for

recovery. He has weakness of the back, with slight paralytic symptoms affecting the lower extremities, but not to such an extent as to prevent him from walking about the wards.

Treatment.—In the first two cases given above, the treatment was mainly by active cathartics in the early stage, with blisters to the nape of the neck, and, in the case of Allen, inhalation of chloroform. The last case was treated with stimulants and tonics, quinine and capsicum, which produced decidedly beneficial effects.

General Observations.—There has been a good opportunity to observe the symptoms and progress of this fatal malady, as it has appeared at this post, and I have watched it with a good deal of interest and considerable care. In what respects, if any, it differs from the same disease in other localities, I am unable to state, having never seen or treated any cases of it elsewhere. It is my opinion that local miasmatic influences, if not its sole originating cause, have had much to do in producing it. It is unquestionably, I think, of an asthenic type, and I believe that the same opinion is entertained by the surgeons on duty at this post who have had the most experience in treating it. At first, surgeons were inclined to adopt active antiphlogistic remedies, but lack of success, and more mature reflection, have induced most of them to abandon such remedies, and to depend upon stimulants, tonics, iodide of potassium and opium, together with cups, sinapisms and blisters to the spine. Opium has certainly exerted a good influence in controlling delirium. I have been led to believe that the administration of quinine, freely given in the early stages of the disease, prior to the period of collapse, will in very many instances arrest it. Whether quinine exerts a specific influence over the disease, or merely removes one of its predisposing causes—viz., malaria—I am unable to determine, as my experience in treating it has been confined to cases occurring in this locality, in which malaria abounds.

St. Louis, Mo., April 20th, 1864.

OUR NATIVE MATERIA MEDICA.

[Concluded from page 302.]

THE class of Lenitives is abundantly represented in our native materia medica. Whether we desire diluents, emollients, or demulcents, we have a large variety to select from. Perhaps a good substitute for gums Arabic and tragacanth might be found in the so-called British gum, or roasted starch. Collodion, too, would be missed by many, but other vegetable fibres, as fibrilia, might prove equal to cotton for its manufacture. It would seem, at first thought, that olive oil had become almost a necessity; but we may become better satisfied with our own productions, on learning that a large proportion of what we import, under the name of Florence oil, Bordeaux

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