

CLINICAL DEPARTMENT

CASE OF MENINGITIS DUE TO THE BACILLUS ACIDI-LACTICI

OCCURRING IN A PREMATURE INFANT ONE MONTH OLD*

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The occurrence of meningitis in the new-born and infants under three months of age is said to be uncommon. Barron,¹ in 1918, was able to collect only thirty-nine cases. Of these fourteen were due to the colon bacillus. It was thought that the report of an additional case would prove of interest, especially as the causative agent was the *Bacillus acidi-lactici*. In a search of the literature I can find no mention of this organism causing a meningitis.

REPORT OF CASE

L. P., a negro girl, aged 1 month, was admitted to the pediatric service of the New York Nursery and Child's Hospital, April 16, 1920. Chief complaint convulsions followed by stupor.

Family History.—Mother died of tuberculosis two weeks after the birth of the patient.

Birth History.—Child was born prematurely at seven months. Birth weight, 4 pounds.

Feeding History.—Has been receiving a skimmed milk mixture. Details unknown.

Past Illness.—None.

Present Illness.—Seven days prior to entrance the baby began to refuse its feedings and appeared ill. No fever noticed at this time. Five days later the patient had two generalized convulsions, each lasting about five minutes. There had been no vomiting at any time. No stiffness of the neck nor any retraction were noticed. The baby had gradually become more apathetic, and for the last twenty-four hours was stuporous.

Physical Examination.—Patient is a very poorly nourished negro infant nearly moribund. Lies in a stupor with eyes half closed. Respirations very shallow and irregular. Cannot be aroused to notice objects. Anterior fontanel is very tense and bulging. Pupils contracted; equal; react very sluggishly to light. No discharge from external auditory canals. Tympanic membranes cannot be seen. Tongue and mucous membranes very dry and covered with thrush. No rigidity of neck, nor any retraction. Heart sounds are very rapid, no murmurs heard. Few coarse râles heard over bases of both lungs. Abdomen

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1. Barron: Am. J. M. Sc. 156:365, 1918.

is sunken; spleen not felt. No Kernig or Brudzinski. Tache cérébrale not present. The skin shows evidence of moderate dehydration. Temperature, 98.4 F. Weight, 4 pounds 13 ounces.

Laboratory Findings.—Leukocytes, 19,400. Polymorphonuclears, 58 per cent.; lymphocytes, 42 per cent. Urine specimen not obtained. Von Pirquet negative at twenty-one hours. Lumbar puncture: 10 c.c. of thick purulent fluid under moderate pressure. The fluid was pure white in color and on standing a short time gave the appearance of curdled milk. Globulin test, + + + +. Sugar, negative. Stained smears showed the cells to be nearly all polymorphonuclear. Numerous gram-negative bacilli were seen, both intracellular and extracellular. The bacilli varied in size from long rods to coccoid forms.

Six hours later a ventricular puncture was performed and 35 c.c. of thin purulent fluid was withdrawn. Twenty c.c. of antimeningococcus serum was injected into the ventricles. Ventricular fluid: Cell count, 3,000 per c.mm.; 98 per cent polymorphonuclears. Globulin, + +. Sugar, negative. Stained smears showed the same gram-negative bacillus. The general condition of the patient grew steadily worse. Temperature rose to 106 F. Brownish bile-stained fluid was vomited. Continuous coarse twitching movements were noticed. Death occurred twenty-one hours after admission.

Necropsy.—(Seventeen hours after death) April 17, 1920. The body is that of a poorly nourished negro girl. Length, 19 inches. Weight, 4 pounds 14 ounces. The principal pathology is intracranial. The entire surface of the brain is covered with a thick greenish yellow exudate. This is more marked over the right side. The convolutions are entirely flattened out. Cut sections show marked congestion and edema. The ventricles are slightly dilated and filled with a thin purulent fluid. The right antrum and middle ear are filled with pus. Smears from the cortex and right middle ear show the same gram negative bacillus found in the spinal and ventricular fluids. The microscopic sections of the brain show a purulent lepto-meningitis with marked congestion and edema of the cortex. The rest of the examination was practically negative. There was no pneumonia, nor was any evidence of tuberculosis found. The bladder urine was negative for albumin and leukocytes.

Anatomic Diagnosis: Acute purulent leptomeningitis; acute purulent otitis media (right).

The Organism: Cultures from the spinal fluid obtained from the first lumbar puncture were made on plain nutrient agar and bouillon. The agar tubes showed a profuse moist spreading grayish growth in eighteen hours. The bouillon cultures became cloudy in nine hours. After eighteen hours the tubes were very cloudy with a marked sediment at the bottom. Smears from the agar and bouillon cultures showed a pure culture of a gram-negative coccoid bacillus. Hanging drop showed a motile bacillus.

Fermentation Reactions (courtesy of Dr. Harold Amoss of the Rockefeller Institute): Glucose, mannite, levulose and lactose were fermented with the production of gas and acid. Saccharose, inulin, dextrin and salicin were unattacked.

According to the classification of Kligler² and Levene,³ the organism is the *Bacillus acidi-lactici*, one of the colon group.

COMMENT

The diagnosis of meningitis in very young infants is very difficult, the condition often being unsuspected during life. The only physical signs in this case were the stupor and bulging fontanel. The history of tuberculosis in the mother was suggestive of tuberculous meningitis

2. Kligler: J. Infect. Dis. **15**:187, 1914.

3. Levene: J. Bacteriol. **3**:253, 1918.

in the patient. After the lumbar puncture it was thought that we were dealing with a colon bacillus infection until the fermentation reactions were performed. However, the gross appearance of the spinal fluid was quite different from that usually described in colon meningitis (a dark brownish purulent fluid with an offensive odor). The fluid in this case was pure white in color, it had no odor, and on standing looked like curdled milk.

The portal of entry in this case was probably through the right middle ear. No other focus was found at necropsy. The causation of meningitis by an organism such as the *B. acidi lactici* can probably be explained by the fact that the patient, a premature infant, very poorly nourished, had not sufficient resistance to overcome even this ordinarily harmless saprophyte.