

of the symptoms of dryness, so-called, occurred in these cases. The cases with scars were about equally distributed between those with and those without tonsil remains.

In 6 cases, or 10%, there had been some injury to the upper part of one or both posterior pillars. This injury destroys the symmetry of the palate. The voice had not been permanently affected in these cases. One case was associated with the above-mentioned symptom of dryness, but the others were not. Two uvulas had been injured, and one of these had experienced the periodic sensation of dryness of the throat. The other was attended with no symptoms. Nose "colds" had occurred once or oftener in 13 cases or about 21% of the total number. The proportion was about the same in the two groups of cases with and without tonsillar tissue.

The percentage of post-operative hemorrhages was computed on the total number of cases operated during the past three years. During this time there were about 1,700 tonsillectomy operations performed at this hospital. In this number 2 cases bled so that it was necessary to suture the pillars of one side. In a third case the pillars of one side were sutured as a precaution. There were no fatalities. Therefore, the percentage of hemorrhages that were of any consequence and required treatment was only .00176%.

A REPORT OF TWO CASES OF PNEUMOCOCCUS MENINGITIS.

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CEREBROSPINAL meningitis may be caused by a great variety of organisms. Among them may be mentioned the meningococcus, pneumococcus, tubercle bacillus, streptococcus, staphylococcus, bacillus coli communis, bacillus influenzae, typhoid bacillus, gonococcus, bacillus pyocyaneus, bacillus of Friedlander, bacillus of plague, bacillus mallei, actinomyces, anthrax bacillus, bacillus of Welch, and micrococcus tetragenus. Holt reports 197 cases of meningitis in children under three years of age studied at the Babies' Hospital, New York. The cases occurred during the past five years and do not include the epidemic which ended in 1906. The tubercle bacillus was responsible for 70% of the 197 cases, the meningococcus for 12% and the pneumococcus for 11%. In most of the pneumococcus cases the meningitis was probably secondary to a pulmonary infection. Of 142 cases of meningitis to which Dunn, of Boston, was called to administer antimeningitis serum, 8% were due to the pneumococcus. Of 61 autopsies on sporadic cases of meningitis, Councilman reports 21, or 34%, due to the meningococcus, all being probably primary cases, and 18, or 29% due to the pneumococcus. In only one of the latter cases was the meningitis apparently primary, and even here there was evidence of an acute nephritis which may have been the primary infection. Councilman, Mallory and Wright report 10 cases of pneumococcus

meningitis, only 2 of which were primary. In 25 cases of sporadic meningitis mentioned by Osler, the pneumococcus was present eight times, but in only one case was the infection primary. Libman reports 60 cases from Mt. Sinai Hospital, New York, 19 being due to the tubercle bacillus, 17 to the streptococcus and 7 to the pneumococcus. Statistics from all sources show that, excluding tuberculous meningitis, which is in a class by itself, an overwhelming number of the cases of cerebrospinal meningitis are caused by the meningococcus and pneumococcus, all the other organisms together being responsible for only a small percentage.

Early in the eighties an organism bearing a striking resemblance to the pneumococcus was isolated from cases of primary meningitis by several different investigators, and during the following decade its presence was reported by numerous observers of undoubted ability. The discovery by Weichselbaum, in 1887, of the diplococcus intracellularis which bears his name, and the demonstration of its presence in most cases of epidemic meningitis, lead to a worldwide controversy as to the rôle of the pneumococcus in this disease. Netter, in an extremely able article on meningitis in the *Twentieth Century Practice of Medicine*, presents strong arguments in favor of the pneumococcus as the chief cause of epidemic meningitis. He assumes, but probably incorrectly, that the meningococcus is a degenerate form of the pneumococcus. Osler, in the Cavendish Lecture, 1899, attacks Netter's position as illogical and inconsistent and states that "it is in the highest degree unlikely that a remarkable specific affection like cerebrospinal fever should be caused by two different organisms." Leube believes that the pneumococcus may be the cause of certain epidemics. Councilman, Mallory and Wright found the meningococcus exclusively in the Boston epidemic. Faber found it in the Copenhagen epidemic, and it was found repeatedly in the New York epidemic. Among those who believe that the diplococcus intracellularis is the sole cause of epidemic meningitis are Hare, Holt, McFarland, Ormerod, French, Councilman and Koplik. In a recent article, Barker says that "for the present the possibility that each of the two organisms, the micrococcus meningitidis and the diplococcus pneumoniae, may be the cause of epidemic cerebrospinal fever should be borne in mind." Flexner, whose series of cases of meningitis is undoubtedly the largest ever collected, and is made up of reports from many parts of the world, makes the positive statement that "the epidemic of meningitis which prevailed in America and Europe from 1904 to 1908 will be regarded as especially significant, because during its prevalence the final proof was brought that the diplococcus intracellularis of Weichselbaum was the sole cause of epidemic meningitis in man." In view of Flexner's large experience with the disease, this statement should carry great weight. As to the sporadic cases, it is generally agreed that any one of a great variety of organisms may be the ex-

citing cause, but that most commonly either the meningococcus or the pneumococcus is found.

Most cases of pneumococcus meningitis are of a secondary nature and follow such conditions as infections of the middle ear, nose or nasal sinuses, pneumonia or injuries to the skull. Meningitis complicating pneumonia is of fairly frequent occurrence. Osler found it eight times in 100 autopsies. The meningitis here is often latent and presents no definite symptoms.

Primary pneumococcus meningitis is a rare disease. The portal of entry into the body and the manner in which the meninges are infected in primary cases are still unsettled. Netter believes that the organisms gain entrance to the lungs and thence are carried to the meninges by the blood. Holt maintains that the disease is the result of a generalized pneumococcus infection which occurs with special frequency in the very young and reports 7 cases (probably of a secondary nature) in each of which the pneumococcus was found in the heart's blood. Barker believes that most of the so-called primary cases are secondary to a focus of infection elsewhere in the body, as it is hard for him to imagine a sufficient number of bacteria to cause the disease gaining entrance to the meninges without first multiplying in some other part of the body. It seems to be most generally held that the organisms first gain a foothold in the nose or nasopharynx and thence pass to the meninges by way of the lymphatics. Osler states that "primary pneumococcus meningitis may develop in a person in good health, but more frequently there is a general pneumococcic infection in a debilitated individual, or in one with chronic disease."

The lesions of this type of meningitis are very similar to those of other forms of the disease. The most evident points of difference are a more abundant exudation of fibrin and pus, and microscopically an acute endarteritis similar to that found in tuberculous meningitis.

The symptoms presented are likewise similar to those found in any case of meningitis. When the convexity is chiefly affected, the difficulties of diagnosis may be great, owing to the absence of such signs of basal involvement as rigidity of the neck, opisthotonus, irregularity of pulse and respiration and cranial nerve affections. Where these signs appear the picture becomes clearer. Dunn has prepared a table comparing the signs and symptoms of 142 cases of meningitis caused by five groups of organisms, the tubercle bacillus, meningococcus, pneumococcus, streptococcus, and influenza bacillus. He shows that it is impossible to differentiate the various forms of meningitis from each other by clinical evidence alone. Dunn likewise presents a table in which he analyzes the signs and symptoms of 88 cases to which he was called to administer antimeningitis serum on a mistaken diagnosis of meningitis. These 88 cases proved to include a wide variety of diseases, from gastroenteric intoxication to pneumonia. From a study of the clinical pictures presented he concludes that "any one of the

clinical symptoms or signs considered characteristic of cerebrospinal meningitis may appear in other diseased conditions than meningitis."

"Without lumbar puncture a diagnosis of cerebrospinal meningitis is absolutely without value for scientific, statistical or therapeutic purposes."

"The positive diagnosis of any form of cerebrospinal meningitis can be based only on the finding of the specific organism in the cerebrospinal fluid." Lumbar puncture is a diagnostic procedure which in proper cases should be more frequently employed. Under strict aseptic precautions the results should be as favorable as in Holt's series of 1,000 lumbar punctures with no disagreeable effects in a single case. He believes that lumbar puncture was as important an advance in this group of cases as were throat cultures in diphtheria and other throat affections.

The cerebrospinal fluid obtained by lumbar puncture from a case of pneumococcus meningitis is usually turbid or even purulent, but in the very early stage it may rarely be clear. The fluid commonly escapes under increased pressure and microscopic examination reveals numerous pneumococci and large numbers of polymorphonuclear leucocytes.

The possibility of the occurrence of a serous or serofibrinous effusion must be kept in mind. Hutinel, Lévi, Grisolle, Grasset, Dominici and Griffon have reported cases of this character occurring mainly as a complication of pneumonia. Hutinel believes that in the meninges as in the pleura, two kinds of inflammation are possible, the one with and the other without suppuration. Lévi states that cerebral symptoms in pneumonia may be due to toxemia, but in many more cases than is usually supposed they are produced by the actual presence of pneumococci in the meninges. Hemenway reports a case of lobar pneumonia with definite meningeal symptoms. An excess of clear fluid under increased tension was twice obtained by lumbar puncture, and in each instance the pneumococcus was grown in pure culture. At the time of the crisis the nervous symptoms disappeared and the child made a perfect recovery. The author, therefore, concludes that the case was not one of meningitis. However, the possibility of a serous meningitis cannot be excluded.

The course of pneumococcus meningitis is usually more rapid than that of any other form of meningitis, often being more furious than the fulminating cases of the epidemic variety. The average duration is three to six days, and the disease is one of the most fatal known to man. Only in the serous forms is the possibility of recovery conceivable.

Treatment is of little avail. Hexamethylenamine should be given in large doses. Theoretically, it would seem that the injection of a proper antipneumococcic serum into the spinal canal holds out the only prospect of cure. Dunn has tried this in three cases, but the patients were practically moribund at the time and no good effects were observed. The course of the disease is so rapid that the serum should be given

at the earliest possible moment. Observations along this line will be awaited with great interest.

The following were apparently primary cases of pneumococcus meningitis, but the lack of an autopsy in either instance is to be regretted.

John R., aged two, seen Nov. 22, 1908, with Dr. F. Reynolds and Dr. E. J. Wynkoop. Family history negative. Breast-fed baby. Has had scarlatina and measles. During the past year has been fed indiscreetly. Five days ago the baby was taken ill rather suddenly and vomited four times that day. The amount of vomitus was so large that the parents wondered where it all came from. The second day of illness the patient vomited twice and in the afternoon had a series of convulsions lasting four hours. Temperature was 104° pulse 160. The patient did not vomit again, but the bowels were constipated. Since the convulsions have been stupid, irritable and at times delirious. Later slight strabismus was seen and the pupils failed to respond to light. To-day marked internal strabismus of the right eye was noted, with tenderness and rigidity of the posterior cervical muscles and the presence of Kernig's sign.

Physical examination. — Well-developed and well-nourished baby; very irritable and somewhat delirious. He cried as if in pain whenever he was moved. Marked internal strabismus, O. D. Marked tenderness and rigidity of the neck with slight retraction of head. Lungs, heart and abdomen negative. Marked Kernig's sign present. Temperature 106°.

Under local anesthesia, lumbar puncture was performed and 20 ccm. of turbid fluid was withdrawn; 20 ccm. of antimeningitis serum were administered.

The patient steadily failed and died in thirty-six hours.

Bacteriologic examination of the cerebrospinal fluid revealed a pure culture of the pneumococcus.

C. R., aged three, female, seen on Oct. 6, 1910, with Dr. F. Hooker. Parents living and well. Four brothers and sisters living and well, none dead. The patient has never been strong and has had frequent colds. She has coughed considerably but has never had any definite illness.

Four days ago she acted a little depressed and irritable. She vomited once and did not seem quite herself. The following day she was about as usual and went out to play. The next day she stayed in bed. She vomited, became irritable and restless and by evening was definitely delirious. Fever was now noted. Yesterday morning the temperature was 103°, pulse 144, and the respirations 56. The patient was delirious, exceedingly restless and difficult to examine. The head was retracted. At 6 P.M. the temperature was 102°, pulse 140, and respirations 48. The patient refused nourishment that day. I saw her at 12.30 A.M.

Physical examination showed a fairly well-developed, poorly nourished child. She was pale, semi-conscious and delirious, and moved restlessly about the bed most of the time. Respirations were rapid and labored. The head was retracted and the neck moderately rigid. There was marked left internal strabismus. The left pupil was slightly smaller than the right but both apparently reacted to light. The lungs were negative save for a few scattered sibilant râles. The heart action was very rapid, no murmurs were heard. The pulse was small, rapid and regular. A slight Kernig's sign was present. Knee-jerks were absent and there was no ankle clonus or Babinski.

Lumbar puncture was performed and about 35 ccm. of very turbid fluid was withdrawn. The fluid at first escaped under slightly increased pressure but soon came slowly drop by drop. Thirty cubic centimeters of

antimeningitis serum were injected into the spinal canal. Following the injection the child breathed rather heavily for a time and lay as if asleep, with an entire disappearance of the restlessness and jactitation. Later she opened her eyes widely and appeared much brighter. Soon she began to fail and died about twelve hours later.

Examination of the cerebrospinal fluid by Dr. Waite showed a few polymorphonuclear leucocytes and numerous Gram-positive diplococci with pointed ends possessing a capsule and growing in chains. He believed them to be pneumococci or possibly encapsulated streptococci.

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ABDOMINAL PAIN FROM ANTERO-POSTERIOR CURVATURE.

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IN the study of patients who present symptoms of chronic pain in the region of the kidney and appendix, there are many cases which on physical examination give no other evidence of a real lesion, such as temperature, tenderness, muscular rigidity etc., except this constant pain. After thorough study, and a consideration of the possibility of a chronic adherent appendix, or some quiescent lesion of the kidney to account for the pain, there still remain many cases where it is difficult to make a diagnosis. This paper is written to suggest a possible etiology in such conditions and a method of treatment based on the correction of the cause. The following two cases are reported to show the type of case under consideration.

CASE 1. A young man, age twenty-five, farmer, for two years had complained of pain in the right lumbar region and extending down into the inguinal canal. The onset was gradual, the pain worse after he had been standing some time. There never had been any urinary symptoms. He came to Boston with a probable diagnosis of renal stone, for a more complete examination and a possible exploratory operation. An x-ray showed no evidence of stone and there was not sufficient