

# Society Proceedings

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## NEW YORK NEUROLOGICAL SOCIETY

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The President, DR. L. PIERCE CLARK, in the Chair

### THE NEURO-SEROLOGICAL FINDINGS IN TABES, GENERAL PARESIS, CEREBROSPINAL SYPHILIS AND IN OTHER NERVOUS AND MENTAL DISEASES

Dr. D. M. Kaplan and Dr. Louis Casamajor presented a paper on this subject, which the authors stated at the outset was essentially the record of a laboratory equipped for serological work. The paper did not concern itself with the post-mortem findings, nor did it attempt to discuss the clinical distinction of the diseases scheduled. The material was obtained from the New York Neurological Institute, and, in a measure, from the Manhattan State Hospital. It was the interesting work of Plaut that had shown the necessity of a more definite laboratory knowledge of tabes, general paresis and cerebrospinal lues.

As the result of the investigations of Dr. Kaplan and Dr. Casamajor, which were based upon an examination of 340 cerebrospinal fluids and as many sera, the following conclusions were offered:

1. That there was a diagnostic and prognostic value to be derived from neuro-serological studies.
2. Negative cell counts, as a rule, excluded diseases classified among the positive types, and *vice versa*.
3. The hyperlymphocytic and positive serum Wassermann types of tabes were the ideal forms of this disease for successful treatment.
4. It was permissible to argue that this hyperlymphocytosis was the expression of an exudative process.
5. The presence of large numbers of polynuclear cells in the spinal fluid was significant of an acute meningitic process, be it luetic or due to any other cause.
6. The diminution or disappearance of polynuclear cells was to be considered as a favorable prognostic sign.
7. In a child with meningitis, the presence of a substance reducing Fehling's solution in the cerebrospinal fluid spoke strongly for the tuberculous nature of the process.

Dr. Smith Ely Jelliffe said that so far as he had been able to follow and digest the admirable paper of Drs. Kaplan and Casamajor, it seemed that their findings substantiated in large part the claims made by Plaut in his monograph which was translated by Dr. Casamajor and himself. It also showed that the four-phase reaction was an extremely valuable addition to our diagnostic methods, and that one is not justified in relying upon close clinical study alone in the differential diagnoses of these closely related forms. He regretted that no mention was made in the paper about

the differentiation of manic depressive and schizophrenic psychoses from those very similar psychoses which may develop on a syphilitic basis. Undoubtedly the material at hand was not adequate.

The speaker said he had hoped that Dr Kaplan might have said something regarding the technique of these various serological tests, because in the short time that he had been interested in this work he had received from different laboratory sources reports upon which he could not rely, so that insistence upon a reliable technique was a point that should be accentuated. He had come to feel that the original Wassermann methods should be followed in practically all cases, as the unreliability of the many variations of that test was being increasingly demonstrated, thus again emphasizing the contention of Plaut to that effect in the work mentioned.

Dr. Jelliffe then referred to the work of Hauptmann, who showed that the use of increasing amounts of spinal fluid resulted in a corresponding increase in the number of positive reactions in cerebrospinal syphilis, in tabes, and at times in multiple sclerosis. This could be interpreted as an extremely disquieting finding, and the speaker said he would be glad to learn just what its significance was. If, with an increasing quantity of serum used in the test there were obtained numerically increasingly positive reactions in both spinal syphilis and in tabes, we had an extremely difficult and intricate question to grapple with. It had also been shown that in multiple sclerosis, the use of larger doses of spinal fluid gave an increasing number of positive Wassermans, while with the Müller variations of the Wassermann method it would appear that with increased amounts of fluid, practically normal sera gave positive reactions at times. In trying to arrive at a correct solution of this problem therefore the technique employed should not be lost sight of, and the quantity of spinal fluid used had a very important bearing upon the findings.

Dr. Morris J. Karpas said that through the courtesy of Dr. William Mabon, Superintendent of the Manhattan State Hospital, and the Medical Board of the New York Neurological Institute, he, together with Drs. Kaplan and Casamajor, had the opportunity of making a special study of the serological, cytological and chemical content of the cerebrospinal fluid and blood in mental diseases. Of the 300 cases available for their investigations, they had utilized only 200. The speaker said that in his present discussion, he would restrict himself to the general paralytic group, which was the most interesting, inasmuch as specific results were obtained. They had 100 cases of general paralysis; 72 of these were fully developed and 21 were in the last stage. There were seven other cases of general paralysis in which the diagnosis was perfectly clear, while the laboratory findings were rather paradoxical. Of the 72 fully developed cases, 49 showed a positive Wassermann test in the blood and fluid; globulin was abnormally increased, and lymphocytosis was invariably present in all cases excepting in one instance, where the lymphocyte count was only three. In seven cases the Wassermann test was only present in the blood; not in the fluid, and in two cases, globulin was absent. Lymphocytosis was demonstrable in all cases. In four cases the blood was not obtained, but the fluid revealed a positive Wassermann, and globulin and lymphocytosis were present. In nine cases the blood was negative, but the serum positive; in one case globulin was present, and in another globulin was weakly positive. Lymphocytosis was elicited in all these cases.

In the last stage of general paralysis there were 21 cases, fourteen of which gave a positive Wassermann in the blood and fluid: in seven the

Wassermann was negative in the blood, but positive in the fluid, which conformed with the view of the French school. In one case the Wassermann was negative both in the blood and fluid. In the majority of these cases, lymphocytosis was fairly marked. In several of the cases the laboratory findings did not bear out the clinical diagnosis, but in one of these the autopsy supported the laboratory report.

Dr. Karpas maintained that an examination of an organic case of mental disease was not exhausted without a complete cytological, serological and chemical report, and with all due respect to the clinical laboratory, he felt that in the present state of our knowledge one was not in a position to regard it as the ultimate court of appeals for settling disputed diagnoses in borderline cases of organic psychoses or obscure nervous affections. It was always important to take into consideration the development of the disease, the clinical phenomena, etc., in conjunction with the laboratory report.

Dr. William M. Leszynsky said that in his hospital work he had found a study of the cerebrospinal fluid of more value from a diagnostic point of view than the study of the blood.

So far as private practice was concerned, the speaker said he had been misled a number of times by the reports he had received regarding the Wassermann serum reaction, whether positive or negative, and had therefore lost confidence in its value. While these studies were carefully made by competent men and were apparently accurate, yet the interpretation of the reports as compared with the clinical findings was often extremely difficult. In one case the report came in absolutely negative. The patient was a young woman who showed **no clinical manifestations of syphilis** and in whom he had no justification for suspecting its presence. After she had been under his care for several months he learned from the physician who had charge of her some years ago that she had suffered from florid syphilis five or six years before. In spite of the negative Wassermann in this case, he advised antisyphilitic treatment, but the patient had a sudden attack of apoplexy, and died within six hours. In another case where one of the eye muscles was paralyzed the patient was put on antisyphilitic treatment in spite of a negative Wassermann, and made a prompt recovery. Of course, the finding of a positive Wassermann is frequently of confirmative value, but this depends upon the accuracy of the report.

The speaker said he was opposed to doing a diagnostic spinal puncture in ambulatory patients, as the procedure was at times followed by severe headache, nausea and vomiting, and other unpleasant symptoms.

Dr. Charles L. Dana said he had been familiar with the work of Dr. Kaplan; he appreciated the fact that it had been carefully done and was extremely important, and he thought the results would impress upon the pathologist the value of the four-phase system of investigating syphilitic and parasyphilitic diseases of the nervous system. The result of a single examination of the blood or cerebrospinal fluid was practically worthless from a diagnostic standpoint. The four-phase formula, however, was distinctly helpful in the diagnosis of general paresis and in cerebrospinal luës; the cell count was the most important single feature.

Dr. Dana thought that this entire question would have to be revised a year or two hence: the methods of testing would probably undergo a change, and the four phases mentioned by Dr. Kaplan might be either increased or reduced in number. The variability of the results at present reported were probably due, not to the character of the disorder, but to the

character of the laboratory methods. Personally, he had been impressed by the fact that the more accurately these tests were made, the closer did they bring together the various manifestations of cerebrospinal lues and of parasyphilis. A careful perusal of Nonne's recent article shows that the formulæ for cerebrospinal lues and paresis were very nearly the same. We are accustomed to say that tabes is practically the same disease as paresis; the four-phase studies, however, show that there is a closer connection between paresis and cerebrospinal syphilis, than between tabes and paresis.

Dr. Louis Casamajor said that when he and Dr. Kaplan undertook this work, they had selected, as far as possible, typical cases, with the idea of determining the findings in cases that were more or less certain in order to set a standard for future investigation. Of course, the tests were also made in many doubtful cases, and in a large proportion of these the diagnosis was established by the laboratory findings—in how many the speaker could not say.

Dr. Casamajor agreed with Dr. Leszynsky that lumbar puncture was frequently followed by severe headache and other disagreeable symptoms, and that the patients were better off if they were allowed to lie down for a time after the procedure. The ill effects of it were especially noticeable in cases that were not syphilitic or metasymphilitic. Alcoholics notably suffered after spinal puncture; also patients with arteriosclerosis and those with high blood pressure. Personally, he was not in favor of doing spinal puncture in the office.

Dr. Kaplan, in closing the discussion, said Nonne emphasized the fact that in genuine parasyphilitic nervous diseases, it was a well established and unanimously accepted dictum that they all showed a more or less pronounced pleocytosis. That clinically, hard and fast rules could not be laid down was evidenced by the fact that eleven out of 167 cases of uncomplicated tabes showed a negative result with every one of the four reactions, namely, the Wassermann reaction on both the sera and spinal fluids, the globulin test, the cell count and the Fehling test.

Dr. Kaplan, replying to Dr. Jelliffe, said the chief drawback in using larger doses of spinal fluid was explained by Hauptmann himself. Those who were acquainted with antigen standardization tests would remember the early hemolysis in the control tube containing nothing but the hemolytic system. This took place earliest because in this combination there was nothing to interfere with the perfect working of the system. As soon as these ideal conditions for hemolysis were interfered with, hemolysis was delayed and partial or complete inhibition was favored. We saw this in the tube containing absolutely non-luetic serum, plus the hemolytic system, and in the same combination with the inhibitory extract. In other words, there were many factors besides syphilitic serum or fluid that were capable of delaying hemolysis. It had been long ago established that there were diseases besides syphilis capable of giving rise to full-fledged Wassermann reactions. These were leprosy, trypanosomiasis, malaria, scarlet fever and sometimes measles. The speaker said he had often found it present in scleroderma. Besides these, he had the opportunity to establish in 1909 the additions of ox-gall to sera, and he had found that a non-specific inhibition with the bile sera was very marked. This experiment suggested itself after a positive Wassermann was obtained on jaundiced sera, secured from patients who gave no history nor evidence of lues. This was a very important addition to the causes of non-specific

inhibition. Lately, Craig, in Washington, observed that patients whose serum was negative on one occasion would become positive sometimes a day or two later, after a fresh venipuncture. An analysis of the situation showed that this was due in every instance to the generous inhibition of alcohol. Experiments, with this in view, proved that the free use of alcohol was capable of turning a negative Wassermann into a positive one at short notice. Dr. Kaplan said he held that this was partly due to the effect alcohol might have on the liver.

The above showed that the chances of reporting undesirable Wassermanns were quite numerous and insurmountable. Besides these organic non-specific inhibitory influences, there were a number of factors in the reagents used that contributed considerably to the chances of reporting positive after a negative result. There were the weakening of the amboceptor, the changes in the antigenic molecule, weak complement, and the resistance of some sheep corpuscles to hemolysis.

### SPINAL DECOMPRESSION, WITH THE REPORT OF SEVEN CASES AND REMARKS UPON THE DANGERS OF AND THE JUSTIFICATION FOR EXPLORATORY OPERATIONS

By Pearce Bailey, M.D. and Charles A. Elsberg, M.D.

In this paper, the authors called attention to the relief of symptoms which followed the removal of the spines and laminae and the incision of the dura in seven cases of spinal disease. The improvement in most of these cases was very striking, although in two the changes in the symptoms which followed the operation could not be construed as benefits to the patient. In one case, severe pain of three years' duration was promptly relieved; in another, there was almost complete recovery from the symptoms of a lesion at the level of the eighth dorsal segment, an atypical Brown-Séquard syndrome, with unilateral sensory loss and spastic motor palsy of both lower limbs: in a third, there was a disappearance of unilateral sensory symptoms and spastic motor paralysis of one leg. In one patient, only temporary changes in the symptoms occurred; these were of physiological interest, but without practical benefit to the patient. In a case of infiltrating tumor of the cauda equina, the pain disappeared and the anesthesia grew less: in a case of intramedullary tumor, the patient, bed-ridden before the operation, regained the power of walking without assistance; in still another, the anesthesia improved.

After a detailed report of these seven cases, the authors offered the following conclusions:

1. The free removal of spinous processes and laminae, with opening of the dura, may have a profound effect upon the spinal cord in certain pathological conditions.
2. There are a number of intradural conditions which present symptoms which are as yet indistinguishable from those of spinal tumor.
3. Even in the absence of increased intradural pressure or a discoverable lesion, the operation of laminectomy and incision of the dura may be of great benefit.
4. For the reasons above stated, and on account of its relative safety in experienced hands, exploratory operations upon the spine should be done more often.