GENERAL PARESIS OR CEREBRAL SYPHILIS?

By WILLIAM McDONALD, A. M., M. D.,

Clinical Director, Butler Hospital, Providence, R. I.

The student of psychiatry who has gathered most of his information from text-books and not in the school of experience has, in all probability, gained the impression that it is not difficult to make a differential diagnosis between general paresis and cerebral syphilis. That he is not without warrant in forming such a supposition can be demonstrated by choosing at random a book from the shelves; *e. g.*, on p. 825 of the Text-book of Psychiatry by Leonardo Bianchi, we find, "Diagnosis—An accurate examination of a paralytic allows us to recognize progressive paralysis with certainty when the disease is confirmed and to distinguish it from all other psychopathies and organic diseases of the brain."

"It is distinguished from cerebral syphilis by the fact that in syphilis of the brain the somatic phenomena are more limited and better defined (ocular paralysis, hemiplegia, very intense but limited cephalagia, neuralgia of the trigeminus, with atrophy and disappearance of the temporal muscles, associate paralysis of the external rectus, cross paralysis), while the psychic phenomena are but slightly marked or entirely absent. In a few cases in which there is a diffuse gummatous formation along the course of the arteries, syphilis assumes all the characteristics of dementia paralytica (Hugues). In these very rare cases the differential diagnosis is impossible. . . ."

"Given the onset of the disease with one of the syndromes described, and given the slightest disorder of speech articulation, which sometimes can only be detected with the greatest difficulty, we must make the diagnosis of general paralysis, no matter what the form assumed or the cause that gives rise to it. . . ."

Without reporting them in full—which would be impossible in this limited space—a series of cases will be given, with the most prominent and essential mental and physical symptoms, in which

a positive differential diagnosis could not be made at the time of the original examination, and in a few of which there has never been a satisfactory decision. That these doubtful cases are not rare is shown by the fact that all have come under notice within two or three years at Butler Hospital, where the average number of patients under treatment is but 166, and where in a little over three years there have been but 33 cases in which a differential diagnosis between cerebral syphilis and paresis has come into question. In ten of these cases we either made an incorrect diagnosis or refused to give more than a tentative opinion, believing a positive statement to be unwarranted. We shall report as many of these as space permits. In addition to these ten cases there were a number of others in which alcoholism, or alcoholism and syphilis, produced for a brief period a symptom complex suggestive of paresis (so-called pseudo-alcoholic paresis) but which rapidly revealed their true nature with the withdrawal of alcohol.

CASE I.—F. B. Admitted June 30, 1906. Age 41. Family history negative. Past history: venereal disease denied. Always abstemious in habits and quiet in nature, with no sign of mental disturbance until one year ago, when he became irritable and showed a complete change in manner. He began to play cards and accused friends of cheating. Attention became impaired, repeatedly rode past his destination when on the street cars. Memory failure. Three weeks previous to admission language became very obscene. Bought innumerable articles; for example, made several large purchases of fruit within a few minutes and large numbers of newspapers in rapid succession. Became extremely irascible. Two weeks before admission tried to step in front of a train, apparently with suicidal intent. Lost his sense of propriety and used obscene language in presence of women. Made public exposure of his sexual organs.

On admission the following symptoms were found:¹ Slight arteriosclerosis. Marked laxity of facial tissues. The pupils reacted fairly well to accommodation, but not at all to light. The right knee-jerk was almost entirely absent. The left knee-jerk normal. Station very poor. Gait somewhat irregular and ataxic. Slight tremor and incoordination of the hands and arms. Thickened and paretic speech. Handwriting, large and scrawling with many words omitted and others misspelled. At times his handwriting was undecipherable. A lumbar puncture revealed a very large number of lymphocytes.

¹ In all the cases only such symptoms as concern the question of diagnosis will be reported, and for the most part merely the positive conditions. The reader is assured that the examinations were most minute and that indifferent signs are omitted to economize space.

Delusions of grandeur were prominent; largely overstated the amount of his income. Elated. Says his memory is "finer than silk," that he has a very cheerful disposition, his health is remarkably good, etc. Garrulous. Memory bad, especially impressionability; language, coarse and obscene. On the day of admission was found masturbating on the open ward, and on several occasions exhibited his genitals.

A positive diagnosis of paretic dementia was made, as indeed, most physicians would probably agree, was justified by the symptoms. Patient, however, was immediately placed on anti-syphilitic treatment, consisting of intramuscular injections of the salicylate of mercury. In twenty-two days the following note was made in the records: "Patient's conduct has been all that could be wished for. Shows no signs of hallucination or delusion. His amnesia has disappeared. There is improvement in his moral sense; no longer uses foul language, etc." From this point on he steadily improved, was discharged on December 24, 1906, six months after admission. He returns to the hospital regularly once a week for his anti-syphilitic treatment. Thickness of the speech has disappeared. All physical symptoms have vanished excepting that the pupils are still somewhat sluggish and the knee-jerks unequal. No signs of mental disturbance are apparent.

It might be claimed that we have had here to do with a genuine case of paresis in which one of those remarkable remissions of symptoms had occurred. The clearing up of the somatic disturbances, however, contravenes such a theory. At any rate, even if it should appear later that the patient has general paresis, his remarkable apparent recovery under antisyphilitic treatment serves to corroborate the claim here made that the differentiation of brain syphilis and general paresis is not reached by the straight and broad path pointed out to us by writers.

CASE II.—J. H. P. Admitted January 7, 1906. Age on admission 41. Married. Family history negative. Past history: At the age of 22 became an actor. Acquired syphilis 10 or 15 years previous to admission. His wife has had two children; one was still born. The other is alive and well. He never used alcohol or tobacco.

History of the attack dates back four months before admission, when he exhibited unusual forgetfulness and his speech assumed a rambling character. He asked many useless questions; gave up his business. Seemed to remain well physically but talked more and more in a grandiose strain; said that he had a great brain, and an enormous amount of money but that someone had stolen it from him. Finally became excited and violent and two weeks before admission to Butler Hospital was sent to a sanitarium. He came from the sanitarium to the hospital with a diagnosis of general paresis.

Summary of the important physical symptoms: Pupils equal and regular in outline, 4 mm. in diameter in moderate light; they reacted with fair degree of promptness but with very slight excursion. Speech slightly incoordinate. No incoordination of hands or fingers. No tremor. Station and gait normal. Achilles' jerk absent. Patellar reflexes equal and normal. There was dullness of hearing in the right ear. The mental symptoms were very marked. There were delusions of grandeur of extreme type, at times great excitement, much irritability and profound disturbance of memory, particularly as to events of the preceding three weeks. This amounted to a continuous amnesia, so that in less than a minute after receiving an impression no memory trace of it could be found. Occasionally he was extremely garrulous and talkative. At times revealed some insight, on several occasions said that he was insane. Frequently suspicious and inclined to be pugnacious, saying he could kill any man in the place and would do so if given an excuse. During the first few days frequently disoriented and confused. He supplied the deficiencies of memory with fanciful details. There was very marked defect in discrimination. Was slightly retarded. Although for the most part elated, he occasionally wept for a brief period, but the weeping often ceased promptly and was followed by free and hearty laughter. A lumbar puncture was made and numerous lymphocytes were found in the cerebro-spinal fluid.

A tentative diagnosis of cerebral syphilis was made. He was placed upon antisyphilitic treatment (potassium iodide and intramuscular injections of salicylate of mercury). He improved rapidly. After ten days the records state that the principal symptom was continuous amnesia. Daily tests of this amnesia made during the following ten days showed marked progressive improvement, and at the end of this time he no longer resorted to fabrication and subterfuge when his memory failed. On the twentieth day after admission he was able to enumerate all articles eaten, fifty minutes after a meal, though after an hour and thirty minutes he could not name any of them correctly. He then began to show marked intolerance to both mercurials and iodides. Small doses, however, were given continuously and there was steady improvement in his amnesia. In five months he returned home for a visit and there was little abnormal in his behavior or appearance. On June 28 almost all mental symptoms had disappeared. His memory was entirely restored, excepting for the weeks of his most acute illness. He returns to the hospital once a week for his injection of mercury. Is taking potassium iodide continually. At the present time there is no physical symptom suggestive of paresis and, to all appearances, he is normal mentally.

It would appear then that in this case a correct diagnosis of cerebral syphilis had been made, but it is important to state that there was a difference in opinion among physicians when the patient was admitted though it seemed to all that there could be no

certainly until treatment had been given. It would have been a rash thing to have said positively at that time that the patient did not have a beginning paretic dementia.

Formerly it was taught that incoordination of speech, particularly disturbance in pronunciation of the labials, was characteristic of general paresis and that, given a syphilitic history with a subsequent mental disturbance and the characteristic speech trouble, a diagnosis of paresis was not only justifiable but unquestionable. Some of us who are younger were taught to place great stress upon the pupillary symptoms. We have seen many cases in which the disturbance of speech was characteristic but which, after years had passed, turned out to have been cases of curable syphilis combined probably with alcoholism. On the other hand, we have a patient at the present time in the hospital who was admitted over three and one-half years ago, with whom not a single physical symptom of any sort whatsoever could be found; whose mental symptoms consisted of a typical manic flight of ideas, pressure toward activity with great talkativeness and elation. It was over two years before the slightest disturbance in pupillary reaction could be detected, though the examinations were made with great frequency. He has now all typical signs, both mental and physical, of general paresis and the diagnosis cannot be questioned.

The two following cases might perhaps have been diagnosed as cerebral syphilis because of the youthful age of the patients, but on no symptoms, positive or negative, would such a diagnosis have been justified as preferable to that of paretic dementia if the age consideration had been excluded.

CASE III.—M. K. Admitted August 22, 1906. Age 23. Single. Russian Jew. Family history negative, excepting that his brothers all seem to possess a nervous and psychasthenic temperament. Past history: Never used alcohol. Gonorrhœa admitted. Syphilis denied.

Summary of physical symptoms.—Well developed, poorly nourished. Premature grayness of hair. Face pale and of unhealthy appearance. Flabby facial tissues and lifeless expression. Syphilitic scars on anterior surface of lower legs and diffuse copper-colored pigmentation of anterior chest wall. Large number of enlarged and hardened painless lymph nodes in groins; enlarged post-occipital lymph nodes. Scar on penis. Tremor of hands and tongue, twitching of facial muscles. Right pupil reacts normally; left reacts promptly on accommodational effort but sluggishly to light.

Patellar reflexes very slight and sluggish. Inequality of Achilles' tendon reflexes. Slight incoordination of speech. Lymphocytosis of cerebro-spinal fluid.

Elation marked. Delusions of grandiose type: says he can write better than Shakespeare, has read all the important books in the world, is to be President, etc., etc. Also delusions of persecutory type. Says that Americans are all against him, the police are seeking him, etc. Very talkative, writes a large number of letters, is restless, and self-assertive. Memory normal. No insight. No hallucinations noted. No clouding of consciousness. Speech still coherent and but moderately irrelevant.

Diagnosis.—Organic disease of the brain and general nervous system was, of course, assumed; whether this was of syphilitic or para-syphilitic nature demanded some consideration. His age (23) spoke against a diagnosis of paresis. According to Ziehen, only about 80 cases of paresis, developing before the twentieth year, have been found in all literature, and in nine-tenths of these hereditary syphilis was recognizable. With this patient, however, the scar on the genitals and other syphilitic signs were clearly of extra-uterine acquirement. If the disease were paresis then the syphilis must of necessity have been contracted in early adolescence. The patient's whole clinical appearance was such that the hospital staff inclined toward a diagnosis of general paresis rather than of cerebral syphilis. Nevertheless, he was given active treatment with the salicylate of mercury hypodermatically and iodide of potassium by mouth.

In one month the delusions had disappeared but he rapidly passed into a state of deep depression with suicidal tendencies. At the end of two and a half months all mental symptoms had disappeared except a slight depression. On request of friends he was discharged, but was to return regularly for treatment. After a few weeks he ceased to put in an appearance for treatment and nothing was heard from him until December 27, 1906, when he came to the Rhode Island Hospital Out-patient Department, where he was seen by the writer. He was deeply depressed, seemed very ill and exhibited physical signs almost identical with those found on original admission to Butler Hospital. The seriousness of his condition was explained to the brother and it was advised that the patient should be sent to the State Hospital for the Insane. This advice was not followed, and on March 10, 1907, he committed suicide in a dramatic manner, by drinking carbolic acid before a large crowd of people in the Pittsburg railroad station.

Whether the patient suffered from general paresis or cerebral syphilis will never be known, though his prompt improvement under antisymphilitic treatment and subsequent relapse under its discontinuation strongly favors the latter diagnosis.

Space will not permit of more than a brief reference to Cases IV and V.

CASE IV.—E. M. J. Age 26. Came to Butler Hospital on September 20, 1906, with a diagnosis of general paresis, made by one of the most eminent alienists in the country, and in truth his grandiose delusions, elation, loss of finer sensibilities, combined with many physical signs characteristic of paresis as well as healed syphilitic scars on the genitals and other parts of the body, composed a clinical picture extremely discouraging to one seeking for indications permitting a hopeful prognosis. A double ankle clonus as well as peculiar objective sensory signs led the examiner to make at least a tentative diagnosis of cerebrospinal syphilis. Active antisyphilitic treatment was begun and is now being continued. In a month there was marked improvement. In two months he could walk a considerable distance (only a few steps were possible on admission), and his employers stated that they could detect nothing abnormal in his mental state.

At the end of nine months he was discharged and has continued an active business life ever since, though still handicapped by a spastic gait.

CASE V.—G. W. P. Age 36. Married. Admitted June 16, 1904. Family history negative. Past history: A hard drinker for seven years. Syphilis acquired five or six years previous to admission.

A month before admission began to suffer from intense headache, and his physician writes that he found patient "weak, cyanotic, listless, paretic and slow of speech, and muddled in mind. Incoherent in speech and evidently suffering from visual hallucinations."

On admission, he was poorly nourished, facial muscles lax, expression blank. Typical healed syphilitic lesions were found in various part of the body. The tendon reflexes were everywhere greatly exaggerated, the superficial reflexes sluggish. Slight tremor of fingers and marked tremor of tongue. Incoordination of arms and hands. Gait unsteady. Station fair. Speech thick, indistinct, and incoordinate. Pupils 5 mm. in diameter, react sluggishly to light and on accommodation also. Extreme weakness but no paralysis.

The mental condition: Comprehension of environment slow and insufficient. Disoriented as to time. Says that he is 75 years old. Confused. Somewhat stuporous. Retarded in thought and action. Both aural and visual hallucinations in evidence. He became more and more delirious and his condition was diagnosed as delirium tremens. This delirious state continued for three weeks and then began to abate, leaving patient with physical symptoms unchanged. Active antisyphilitic treatment was instituted and at the end of two months he seemed to be normal mentally and in excellent physical condition.

Thus far the diagnosis presented no great difficulty. His acute symptoms were regarded as the result of alcohol and the part played by syphilis as secondary. He was discharged at the end of two and a half months as "recovered."

There was no question, however, concerning the responsibility of syphilis for the condition which he presented five and one-half months later when

he was readmitted. There was then advanced emaciation, asthenia, and great trophic disorder. The muscles were atonic and had undergone general atrophy. There was marked tremor of the extremities, dry skin, pale mucous membranes, facies lax and cachectic in appearance. He was barely able to walk without assistance. His station was very unstable. There was no definite paralysis. Pupils reacted sluggishly. Deep reflexes lively. Speech thick, indistinct, slow, disconnected. The mental state was one of stupor from which he could be somewhat aroused by persistent questioning. He was at times delirious. From the history there seemed to be little doubt but that his relapse was due to discontinuance of his anti-syphilitic remedies. He improved rapidly under mercurials and iodides and in nine weeks, against advice, was discharged in fair physical and mental condition, promising to continue his treatment. His subsequent history is not known, except that six months after his discharge he killed himself by discharging a bullet into his head.

The reason for presenting this case here is that it shows what enormous weight must be placed upon the result of antisyphilitic treatment as a factor in diagnosis. Had we been deprived of the knowledge that this man had improved greatly under such treatment during his first stay in the hospital, it would have been impossible at the time of his second admission to have said with certainty that he was not in an advanced stage of parietic dementia.

CASE VI.—A. R. Age 47. Divorced. Admitted February 3, 1904. Family history negative. Past history: Acquired syphilis six years before admission. Otherwise nothing of importance to note until some months before his admission, when it was noted that his usual shrewdness in business was decreasing; began to lose money, became restless, talkative, obtrusive, showed losses of memory and judgment. About three months before admission frequently became incoherent in speech, began to spend money with unusual freedom, at times throwing it away. Speech became thick; he slurred many words and syllables. Delusions of grandeur very marked; called himself a millionaire; said that he would close out his business and would make everybody rich; would not allow his own income to increase beyond a certain amount but would dispense the rest on the Carnegie plan.

On admission he was well nourished, inclined toward adiposity. The facial lines were blunted and face had an enervated appearance. Twitching of the facial muscles, especially of the corners of the mouth, particularly noticeable when he is endeavoring to enunciate. Fine tremor of the fingers and of the tongue. Station and gait normal. The handwriting shows marked incoordination of the fingers and is typically parietic in type.

He omits and reduplicates letters and misspells words. Cannot write even his own name so that it is legible. His speech is affected to a very gross degree and is typically paretic in type. Is utterly unable to pronounce such words as "parallelogram," "capital L," etc. The pupils are small in diameter but react normally.

It was noted that his comprehension was greatly diminished; unable to understand and carry out the simplest possible orders. His remarks were irrelevant, often absolutely incoherent. Exhibited a marked tendency toward echolalia. Delusions of a grandiose nature; owns millions, is going to give away fortunes, etc. Repeats these statements over and over. Memory extremely defective, especially for recent events. Practically no power of voluntary attention. He was elated to a certain degree, but there was also an apathy. Says that he is the best man on earth, is happy and contented; that he has been kindly treated, etc., but was seldom seen to laugh and only occasionally smiled. In behavior he was restless, wandered from one room to another, but was quite manageable. His lack of discrimination and of comprehension were beautifully shown in his attempt to dress himself after the examination. Thus, he picked up his shirt, endeavored to push his feet through the sleeves; failing in this he pushed both legs through the neck of his shirt and wound the lower part of it about his waist, then picked up his drawers and tried to put them on over his head, pushing his arms through the drawers' legs. He did not express the slightest surprise when this ludicrous state of affairs was pointed out to him.

An attempt was made to do a lumbar puncture but this failed.

Diagnosis.—The fact that his symptoms came on within a short time after the acquirement of his syphilis and the absence of morbid pupillary changes, might lead one to suspect this to have been a case of cerebral syphilis. His whole appearance and clinical symptoms otherwise were characteristic of paresis. Moreover, antisyphilitic treatment had no apparent effect upon him. He was removed from the hospital one and one-half months after admission, absolutely unimproved. The probabilities are that this was a genuine case of general paresis, but this diagnosis could not have been made with certainty at the time of admission and must even now remain somewhat in doubt.

There is not space for other cases, but those already given, although so briefly described, may suffice to place the student upon his guard against accepting too readily the statements of the textbooks as to the ease with which cerebral syphilis and paretic dementia are to be differentiated from each other at sight. There are numberless cases in which the age of the patient, the length of time intervening between the syphilitic infection and the appearance of the symptoms under consideration, the course of the dis-

ease and particularly the effect of antisyphilitic treatment are absolutely essential in distinguishing between these two conditions and in which, these factors being unknown, it would be impossible to make a sure diagnosis from observation of the patient alone. Finally there are a certain number of cases in which prolonged antisyphilitic treatment alone can solve the difficulty. Certainly the pupillary signs, the character of the speech and the presence or absence (especially the latter) of somatic signs, such as ocular paralysis, hemiplegia, etc., will in many cases be quite insufficient testimony on which to establish the diagnosis.