

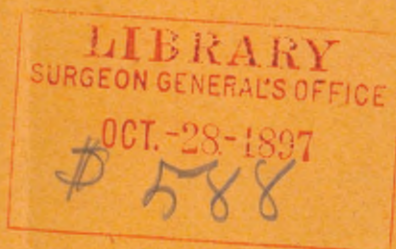
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CASES OF

# Cerebral Hemorrhage

*presented by the author*



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## .. FOUR CASES OF CEREBRAL HEMORRHAGE ..

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The cases herewith reported, although presenting no extraordinary features, still are not without clinical interest. The diagnosis of cerebral hemorrhage, often easy, is sometimes extremely difficult. Upon the recognition of the condition and an appreciation of the attendant circumstances will depend the therapeutic measures to be employed, and a false interpretation of the symptoms may lead to failure when success were possible. The cases were all seen at Howard Hospital, in the clinical service of Dr. Lewis Brinton, to whom I owe the privilege of studying them and of making this report.

J. L., fifty-two years old, and engaged in driving a wagon, applied at Howard Hospital on August 7, 1896, relating that twelve weeks previously, while seated on a chair, quietly smoking in the evening, he was stricken with paralysis. His arms and legs shook and he fell over, striking his right shoulder. There was no loss of consciousness and no convulsion. For an hour there was considerable difficulty in speech, but this soon grew less, though it persisted in some degree for two or three weeks. For several weeks the patient was completely paralyzed. At the end of this time he began to improve and he grew gradually better.

Upon application all of the members were stiff, especially those upon the right side of the body. The sphincters were under control. The gait was decrepit and spastic-ataxic. Station was swaying. The knee-jerks were exaggerated, almost equally. Only abortive ankle-clonus could be elicited. The

deep reflexes in the upper extremities also were increased. The dynamometric record was seven on the right as against thirty-two on the left. The facial lines were less well defined on the right than on the left, but the movements were active and symmetric. The tongue was protruded in the median line. The pupils were equal, regular, reactive to light. The action of the heart was rhythmic; the first sound was wanting in vigor and definition; the second was accentuated.

The patient admitted excessive use of alcohol and free use of tobacco. He had had gonorrhea at the age of eighteen years, but no history or evidence of syphilis could be obtained. The man had had measles and whooping-cough in childhood and tonsillitis and diphtheria at adult age. He complained of rheumatic pains. The appetite was fairly good and the bowels were regular. There was neither headache nor vertigo and sleep was not disturbed.

A prescription containing ten grains of potassium iodid and one thirty-second grain of mercuric chlorid was given thrice daily, subsequently increased to fifteen grains and one twenty-fourth grain, respectively, together with one-thirtieth grain of strychnin. At first there was no improvement, but after a time a change for the better set in, and slowly continued until the patient was lost to observation.

Although the patient in this case failed to lose consciousness, a diagnosis of hemorrhage into the left cerebral hemisphere from rupture of one of the anterior perforating arteries was made, in view of the age, the abruptness of onset, the absence of a cardiac lesion.

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The disturbance of speech was not a true aphasia, but was probably dependent upon destructive interference with some of the nerve-fibers from the cortex concerned in the motor execution of the act of articulation. The primary widespread distribution of the palsy is noteworthy and may be dependent upon an unusual decussation of the fibers in the medulla. The pronounced spastic condition would be a natural result, attributable to the descending degeneration in the crossed (lateral) pyramidal tract, on the side of the palsy (opposite the lesion in the brain), and in the direct (anterior) pyramidal tract on the other side.

Cerebral embolism had to be excluded on account of the absence of a discoverable source of vascular plug, such as vegetations on the cardiac valves or thrombosis, and on account of the extent of the paralysis. An embolism of this kind is usually swept into the left middle cerebral artery, and thus causes aphasia and epileptiform convulsions. Subcortical hemorrhage may of course give rise to the same symptoms as embolism.

Cerebral thrombosis was excluded on account of the mode of onset, the previous health of the patient, the absence of evidence of gross vascular disease and of headache and other premonitory manifestations. Other possible causes of hemiplegia, *e. g.*, neoplasm, abscess, aneurism, gumma, were excluded by the whole course of the case, the sudden onset, the further progress, the absence of headache.

J. A., a laborer in an iron-works, thirty-five years old, applied at Howard Hospital December 4, 1896, presenting characteristic left hemiplegia. He related that on June 15, after retiring to bed in apparently perfect health, he was awakened from sleep by pain across the anterior aspect of the chest, but he was unable to speak. Subsequently, he was told, he became delirious for a time, and consciousness did not return perfectly for four or five days or a week. It was then found that the left leg, the left arm and the left side of the face were paralyzed.

The patient was unable to speak properly for a couple of weeks. There had never been a convulsion. Improvement

had taken place in the state of the leg, but little or none in that of the arm. The sphincters were under control. The gait was the typical one. The kneejerks were increased, on the left especially, where feeble ankle-clonus could be elicited. At times when the foot was supported on the toe also a clonus was developed. The left upper extremity could not be moved voluntarily, but the left hand closed when the right was clenched and also when the teeth were brought firmly together; in yawning the left arm was raised. At times the left thumb was spontaneously drawn into the palm of the hand. The mouth was distorted somewhat toward the right, while the tongue, when protruded, was deflected toward the left. The pupils were equal, regular and reactive to light. Common sensibility appeared to be preserved everywhere.

The patient complained of shortness of breath, with smothering spells and palpitation of the heart. The cardiac action was at first arrhythmic and no murmur could be heard, but after a time when the rhythm improved a pre-systolic murmur and a booming first sound were audible at the apex.

There had never been hemoptysis. The patient had not suffered from headache, except immediately after the return of consciousness. He had used tobacco freely and alcohol moderately, but he denied venereal infection. He had had acute rheumatism as a boy, measles in childhood and whooping-cough at the age of eighteen years.

Although in this case the possibility of cerebral embolism, as a result of the mitral obstruction, as indicated by the pre-systolic murmur heard at the apex of the heart, cannot be positively excluded, hemorrhage into the brain is considered the more probable in view of the extent of the paralysis and of the absence of signs of cortical irritation and of evidence of embolism in structures other than the brain. Besides, embolism is, for anatomic reasons, more common upon the left side, and is then attended with right hemiplegia and aphasia. The onset of cerebral hemorrhage during sleep is not uncommon.

The patient exhibits also associated movements, the occurrence of which lends support to the view that the mus-



cles of each side of the body are innervated from both sides of the brain, though in preponderant degree from the opposite hemisphere. Additional evidence of allied character is to be found in the marked improvement that sometimes takes place after hemiplegia due to cerebral hemorrhage in infancy and childhood. A similar hypothesis applies to the gradual restoration of speech after destruction of the third frontal convolution in the left hemisphere. Under these circumstances there is supposed to take place an education of the corresponding center in the right hemisphere.

A. S., a tinsmith, thirty-two years old, presented himself at Howard Hospital, January 8, 1897, relating that on November 4, 1896, while on the street, he fell, without loss of consciousness or a convulsion or derangement of the action of the sphincters. With the aid of friends he was able to walk some distance to his home. It was then found that the left arm and leg and the left side of the face were paralyzed. Speech was not affected. In the course of three weeks considerable improvement had taken place and the patient began to be up several hours each day.

About twenty-three days after his first attack the patient suddenly found himself unable to speak. He became delirious at night, but no palsy was observed. The face was not drawn and there was no convulsion. From this seizure perfect recovery had taken place in four or five days.

After an interval of three or four weeks, while seated in a chair engaged in conversation, the patient found himself again suddenly deprived of the power of speech. Now the face was drawn to one side and saliva drooled from the mouth. The patient threw his head back, but he did not fall. With aid he walked some distance to his home and went to bed.

When the man presented himself he walked fairly well, though with some apparent decrepitude. The station, though a little uncertain, was quite steady. The knee-jerks were greatly exaggerated, especially upon the left. Feeble ankle-clonus could be elicited on the left, but none on the right. Speech was thick and deliberate and enunciated

slow. There was no apparent confusion of words or awkwardness in expression of ideas. There was general weakness, but this was more pronounced on the left side. In voluntary movements of the face the right side was the more active, but in emotional movements both sides acted symmetrically. The pupils were equal, regular and reactive to light. Common sensibility appeared to be preserved everywhere.

Emotional mobility was distinctly increased. The action of the heart was rhythmic. The first sound was clear, the second ringing. The radial tension was moderate.

The patient admitted having had gonorrhoea two years previously, but denied other venereal history. He drank alcoholics moderately, though constantly, and he used tobacco excessively. On one occasion, two years before, while working in the sun, he became uncomfortable, subsequently suffering from what was designated typho-malarial fever, which kept him in bed for nine weeks.

This case well illustrates the liability to repetition that is present in every case of cerebral hemorrhage, but it is particularly interesting because the symptoms, if viewed by themselves, might cause embarrassment in the diagnosis. Objectively there is present *left* hemiplegia with partial aphasia, an association that would appear paradoxical in the absence of a history of repeated attacks. As it is, the onset in each instance was unattended with pronounced manifestations and it is just conceivable that in a given case these might be so slight as either to entirely escape notice or not to have accorded to them their true significance. It is further to be borne in mind that lesions of the right cerebral hemisphere may be attended with more or less protracted disturbance of speech, as the second of the cases here reported shows. Inasmuch as each side of the body is, through the decussation of fibers in the medulla, innervated from both sides of the brain, though in predominant degree from the opposite side, it is reasonable to infer that a lesion of either side of the brain would be attended with some disturbance of function on both sides of the body. In this connection it is to be remembered that



in exceptional instances the decussation may not take place in the medulla or a smaller number of fibers than usual participate in the decussation. In the same way, while the speech-function is in right-handed persons controlled from the left cerebral hemisphere, it is probable that the right hemisphere is also not without influence (latent or undeveloped though this may be) upon this function, as is shown by its vicarious assumption after destruction of the special-center for speech in the left hemisphere. In left-handed persons the speech-center may be primarily developed upon the right side of the brain. It may, therefore, be concluded that a lesion in or about the third frontal convolution on the right side of the brain may be attended with aphasic disturbance of speech, from which recovery will ensue with a readiness inversely proportionate to the education of this portion of the cerebrum in the processes of speech-control.

As is well known, miliary aneurism is the condition most commonly antecedent to rupture of a cerebral vessel, and, as the bulging is usually multiple, the hemorrhage is prone to be repeated. The accident, apart from traumatism, is confined almost exclusively to the degenerative period of life, *viz.*, after the fortieth year. Hereditary predisposition is not without influence in the etiology: but the most potent factor is to be found in the infections, which are so often responsible for the disease of the vessels without which rupture rarely takes place.

J. R., a team-driver, fifty years old, presented himself at Howard Hospital on October 2, 1896, stating that while driving, some nine months previously, his horses became scared and ran away. He himself became giddy and fell, suffering a contusion in the left frontal region. He was sent to a hospital, but was able to walk home the same day, albeit somewhat bewildered and in a staggering fashion. There was, however, no obvious palsy.

After reaching home the man had a protracted convulsion, with loss of consciousness, general movements, and biting of the tongue. In the course of a half-hour a second convulsive seizure took place, much like the first, although

shorter in duration. For a week after these attacks the man appeared dull and unintelligent, and failed to control his sphincters. Then he began to improve, and he so continued to do for a period of two months.

He now returned to work, and while driving became paralyzed upon the left side of the body, without loss of consciousness. After being brought home he had two convulsive seizures similar to his earlier ones. These attacks were then repeated every five, six, or seven weeks, but presented no special feature. They were usually followed by headache, without apparent focal significance. He was subsequently drowsy and apathetic, and his speech a little thick.

The patient presented the usual symptoms of left hemiplegia. The knee-jerk was spastic and apparently alike on both sides. Ankle-clonus also was present, in more pronounced degree and longer maintained on the *right*. It appeared on the left side with extension of the foot, as well as with flexion, and it could be induced on both sides also by the front tap. The dynamometric reading was sixty on the right and forty-two on the left. The face was asymmetric, the left side of the mouth being relaxed (the patient said that it had always been so), although the left side of the face was at least equally active with the right. The tongue was protruded in the median line. There was no tenderness of the scalp on percussion. The left pupil was slightly larger than the right. Both reacted. Dr. Franklin D. Castle kindly examined the fundus and reported only slight dilatation of the retinal veins. The urine presented no abnormality.

The patient was unduly emotional and worried a good deal about his condition, being in especial fear of a recurrence of the convulsions. He had for many years had some little difficulty in controlling his urine, and had also suffered from headache of neuralgic character. The radial artery was resistant and the vascular tension increased. The action of the heart was rhythmic; the first sound was booming, the second ringing.

The patient had had typhoid fever, malarial fever, and diphtheria, but no



history or evidence of venereal infection could be obtained. He had used tobacco freely and alcohol moderately.

A prescription containing ten grains of sodium bromid and five grains of potassium iodid was given, to be taken thrice daily, the proportions being gradually modified until they became five grains of the bromid and fifteen of the iodid. Subsequently a prescription containing one-twenty-fourth grain of mercuric chlorid and fifteen grains of potassium iodid was substituted. The patient made progressive improvement and had no convulsion during a period of four months, in which time the dynamometric reading had increased to ninety-one on the right and seventy-four on the left.

The interpretation of the entire series of events in this case is not entirely free from difficulty. Whether, in the first place, the patient fell in his wagon as a result of some cerebral disturbance, or whether this, together with the subsequent convulsions, is to be attributed to the traumatism and concussion (perhaps laceration) of the brain attendant upon the accident, cannot be definitely decided, though I am inclined to favor

the latter view. It is also not impossible that hemorrhage took place in a portion of the brain not in close relation with the motor area. The absence of focal symptoms would seem to exclude a gross lesion, such as hemorrhage or laceration, and the temporary recurrence of the attacks must be related to the maintenance of a state of cortical irritation induced by the accident. The second stage of the disease, that is, the left hemiplegia, is obviously to be referred to hemorrhage into the right cerebral hemisphere.

As will be noted, all of the cases reported are in males. Two occurred rather early in life, and in one of these a cardiac lesion was present. All had suffered from one or more infectious diseases and all had been accustomed to the use of tobacco and alcohol. In three the symptoms set in without loss of consciousness, and in one during sleep. In three of the four the palsy was left-sided. In three also there was evidence of increased arterial tension, the fourth presenting obstruction at the mitral orifice, probably associated with myocarditis.

