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A CASE OF IDIOPATHIC SPINAL HÆMORRHAGE.

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Hæmorrhage into the spinal cord of traumatic origin, while not of very frequent occurrence, has been noted often enough to establish the fact of its occurrence beyond a doubt. But as to whether hæmorrhage into or about the cord may take place without an antecedent traumatism some writers are in doubt. However, the majority of writers do admit that idiopathic spinal apoplexy may occur, but they are all in accord in stating that the affection occurs only very rarely.

In view of these facts I trust the case I am about to relate will prove to be of some value as tending to place the existence of the disease beyond the peradventure of a doubt.

Although the case is incomplete inasmuch as no post-mortem record is included, yet I believe the clinical history alone will be sufficient to establish the diagnosis.

T. K., a laborer aged 51 years, had been in robust health and worked steadily up to the date of present illness. He is a tall man of rugged frame; habits of life good; never had syphilis nor any prolonged illness; heart normal.

March 12, 1891, after performing his ordinary day's work he went to bed feeling as well as usual. But instead of going to sleep in a few minutes as had been his habit, he remained awake, turning about the bed uneasily until 11 o'clock, when he was suddenly seized with an excruciating pain at about the first lumbar vertebra, which radiated from thence around the abdomen and down the thighs. He at once arose from bed in the intensity of his agony and rapidly walked up and down the room. After a few minutes he sat down upon the edge of the bed and bathed his feet in hot water which his wife had brought for him. While thus engaged, became nauseated and attempted to vomit several times but did not succeed. The gastric distress

lasted only a few minutes. While his feet were yet in the water he noticed that they were becoming "numb," and told his wife about it. Upon attempting to stand up, soon afterwards, he became conscious of a diminution of power in his legs. He became greatly alarmed at this discovery and at once got into bed, and became aware, a few moments later, of the entire loss of motion and sensation in both legs. The pain rapidly lessened in intensity so that he was entirely free from it twenty-five minutes after the initial attack. The patient feels sure that his consciousness, his memory for words and ability to utter them, was never lost or even impaired during the attack. Members of his family bear him out in this statement. They are further in accord in stating that at no time was the motion or sensation in any of the organs above the umbilicus impaired. The loss of voluntary control of the bladder and bowels was noticed the next day and must have occurred coincidently with the paraplegia.

A critical examination the next day revealed the following conditions: Paralysis of motion complete in both legs; power in the abdominal muscles greatly impaired; anæsthesia of all kinds completely lost in both legs, impaired over lower half of abdomen. Patient is unable to expel urine or fæces; was not aware that both bladder and bowels needed emptying. No impairment of mental functions; no pain; motion and sensation in muscles of upper half of body unimpaired.

Subsequent history.—Pain never returned, save for an occasional twinge. Urine and fæces taken away regularly by mechanical means. The paralysis as described continued unchanged until about April 4 (three weeks after initial symptom) when the first signs of the return of muscular power were noted. Patient could at that time move toes of left foot. From this time up to the present date (May 1) there has been steady progress towards recovery. He can now move both legs about the bed, flex knees and thighs. Sensation has largely returned. He is not yet able to expel his urine and fæces, although the desire to micturate and defecate now comes to him.

Remarks.—The very sudden onset of the symptoms would preclude the possibility of the trouble being due to tumor, aneurism, bone disease

or myelitis. An embolus would produce sudden symptoms, but it would be highly improbable that trouble of this kind could cause such a complete condition of paraplegia in less than half an hour. So I am forced to conclude that the lesion was a hæmorrhage—and a large one—either in the cord itself or in the structure immediately surrounding it. I am inclined to think the hæmorrhage occurred in the cord itself. As to the part of the cord involved, the symptoms would indicate the lower part of the dorsal region.

THE DIAGNOSIS OF TRAUMATIC LESIONS IN THE CEREBRO-SPINAL AXIS AND THE DETECTION OF MALINGERING REFERRED TO THIS CENTRE.

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The counterfeit can not be detected without an accurate knowledge of the genuine, and in addition to this an exact knowledge of the counterfeit, and likewise a definite knowledge of the difference between the genuine and counterfeit, is still imperatively required.

It therefore follows that he who would attempt to detect malingering should always be able to diagnose concussion of the brain and spinal cord. The proper performance of this task requires a full knowledge of the etiology, semeiology and pathology of the morbid condition under consideration. Let us, therefore, direct our attention to these essential factors of diagnosis—carefully analyzing each—in order that we may more thoroughly comprehend their relation and bearing on each other. It is universally admitted that concussion of the spinal cord most commonly follows falls upon the feet, buttocks, less frequently on the hands when both arms are outstretched, gun-shot wounds involving portions of the spinal column, a stroke of lightning, heavy blows delivered over the bones of the pelvis or in the line of the spinal column, etc. The direct effect of these falls and blows is the production of contusions of the soft parts, etc., which are more or less disorganized by these traumatic agents. The force of these agents is not by any means entirely expended in the production of these contusions, but there will be carried along the bony structure a vibratory motion which will also be imparted in varying degrees to the adjacent soft parts. A very fair idea may be gained of these vibratory movements by placing the hand on the apex of a bell, suspended in the air, while its base is struck with a metallic hammer; or by the touch of a properly keyed string of a musical

instrument when it has been put in motion. The same vibratory motion may be likewise very well illustrated by tapping gently with the finger on a glass jar or other vessel which is partially filled with jelly, and then watching the tremulous movements imparted to the contents by the slight blows delivered on the vessel. The attention of the medical profession has been very frequently called to the peculiarities of concussive or vibratory force by French authors, but its physiological and pathological action has never received that careful study to which it is entitled. A very important factor, which presents itself for our consideration in connection with study of this force is, the fact that it is not transmitted equally well by the various organs and tissues of animal bodies; and, consequently, a direct blow delivered on one part of the body may be entirely negative or result in the production of very little vibratory action, while on another part of the organism the results will be very marked. Thus a blow delivered directly on the nates will give rise to the concussive force and be transmitted along the spinal column to the bony walls of the skull, and from this structure to the brain itself, which is in such close contact with these bones. A portion of the same force will likewise be expended in varying degrees on those organs which are in intimate contact with this line traversed by the traumatic agent. The functional disturbances and the pathological changes in the various organs will depend on the physiological functions, weight, texture, etc., of the parts involved, which need not be enumerated here. A blow delivered on the feet, while the lower extremities are extended, will be transmitted to the bones of the pelvis, and then along the spinal column. A somewhat similar result may possibly be produced by a fall on the hands when the arms are extended; however, the force of this blow will be much diminished by reason of the anatomical differences in the parts, particularly the less intimate connection between the bones of the arms and the spinal column, than that which exists between the bones of the lower extremities and this important highway for the transmission of concussive force. It should likewise be remembered that the more concentrated the direct traumatic force, *i. e.*, the smaller the area to which it is applied, the greater will be the amount of concussive force generated while the other factors remain unchanged. Thus a blow covering an area of four square inches delivered directly over any part of the spinal column will generate far more concussive force than it would if spread over the whole posterior region of the body. In fact, in the former case, if the blow was a severe one, functional derangements and pathological lesions might be rationally expected to follow from the concentrated nature of the concussive