A point which must not be overlooked in these cases is attention to the action of the skin. In all abdominal derangements in children the cutaneous secretion is apt to be suppressed early, and the skin soon becomes dry, rough, and harsh; when this is found to be the case the child should be bathed every evening with hot water and be then freely anointed with warm olive oil. By this means the suppleness of the skin is soon restored. Warm clothing should be worn and a flannel swathe around the abdomen to serve as a protection to the belly.

SPINAL MENINGEAL HÆMORRHAGE.¹

BY S. G. WEBBER, M. D., BOSTON.

SPINAL meningeal hæmorrhage is rare, and the cases in which the diagnosis has been confirmed by an autopsy are comparatively few. There are in many cases such a variety and so much confusion in the symptoms that a diagnosis seems very difficult. The reason for this may be found in part in the combination of true spinal symptoms with symptoms referable to meningeal disturbance, and when the hæmorrhage is in the lower portion of the cord these symptoms may all be present in the legs.

Bear in mind, then, that there are two classes of symptoms which must be separated: those due to pressure upon the cord and changes in its structure; those due to irritation of the membranes and nerve roots by the foreign body, the clot.

The symptoms arising from implication of the cord are primarily those due to pressure, then those due to secondary changes. There is more or less complete paraplegia, and exaltation of reflex action. Pain in the back at the seat of the pressure is not constant; there may be deviations from normal sensation. The pressure may cause secondary changes in the cord, and then the paralysis becomes more or less permanent, and sensation may not be restored; so also the reflex action may continue exaggerated, and there may be contractions or the limb tremble. If myelitis follows the pressure the exalted reflex action may disappear, the contractions relax, the paralysis remain, and atrophy set in.

The symptoms due to the irritation of the blood-clot and pressure upon the nerve-roots are so united that it is scarcely worth while to try to separate them. These are pains radiating in the course of the nerves and others referred to the periphery, tingling and pricking sensations, more or less anæsthesia, with possibly tenderness to touch of the parts to which the nerves are distributed; spasmodic contractions,

¹ Read before the Suffolk District Medical Society.

generally clonic, sometimes tonic; subsequently there may be atrophy and diminished electric excitability. Disturbed vaso-motor action may be found either below or at the level of the hæmorrhage.

In every case of traumatic origin the possibility of additional injury to the cord must be borne in mind, and this may modify the course of the case.

At the commencement there would be no febrile symptoms; subsequent meningitis is not common.

The two varieties of symptoms can be most readily separated when the hæmorrhage is in the lower cervical region. When above this, death would probably follow quickly unless the amount was very small.

The following case illustrates the clinical features of meningeal hæmorrhage in the lower cervical region.

The patient was a young man, referred to me by Dr. Vaughan, of Cambridge. He was a very strong and athletic young man up to four and a half years previous to the time at which I saw him. He went a-fishing and stood in the water above his knees for two or three hours, and was very tired; the next day he passed an examination at school between four and five P. M. He was much excited; the examination was severe; he was warm and flushed in the face. Between five and six P. M., he went in swimming. He dove from a bank one and a half feet high, and came up with a headache; this went off, and he dove two or three times without any ill effects. He then dove again, and when under water was immediately paralyzed in both arms and both legs. He thinks he did not hit his head on the bottom, though that was his first impression. May have wrenched his neck. When the paralysis occurred a shudder passed over him such as is seen to pass over cattle when killed. He did not lose consciousness at any time. He was soon rescued by his companions and laid on the bank. Up to that time he had no pain. A friend took hold of his hand, on which was a red spot which was very tender and painful. He was carried to his room in a carriage; while riding he could not hold his head up; there was no nausea, and no pain in his back during the whole of his sickness. In a short time he could draw up his left leg a little. After about six hours he had severe pain, amounting to agony, in his arms and hands, with a throbbing sensation. After being turned on his face he fell asleep.

The next day he was raised up, and thereupon had nausea. In his hands was a sensation as if asleep, and the weight of a fly on the hands caused pain. He could draw the left leg up quite well, and could move the left arm a little; the right arm and leg could not be moved. There was no pain or tingling in the legs. •

He gradually improved, until after two weeks he could stand up, and could walk, but was drawn over, walked unsteadily, staggered, and the right leg moved spasmodically. The legs twitched while he was in

bed, especially the right; there was also spasmodic action in the arms. The bowels were confined, and the urine retained for a few days after the injury.

During the whole course of his sickness his mind was clear, and he read much, even immediately after, the injury. The right eyelid drooped, and the reading caused trouble in his head, otherwise there were no cerebral symptoms.

He improved slowly, the left side gaining the more rapidly, and when seen about four and a half years after, the motion of the left arm and hand was nearly or quite normal, that of the right hand was much restricted in the fingers, but the arm moved freely. The left leg and foot moved much more freely than the right. The legs trembled and twitched, the hands and arms twitched, but did not tremble. The reflex action of the legs was exaggerated, but not excessively so. The sensation was better in the right hand and arm and right foot for heat and the touch, but two points were felt at a distance of three eighths or four eighths inches in both palms, and on the feet there was no difference in the two sides, but the distance was greater than usual. At times the arms and legs have the pricking sensation as if asleep. Touching the left foot caused this sensation.

The temperature in the axilla was 98° on the right, 98.5° on the left; temperature of room, 71° . The right hand and foot were sometimes darker colored than the left.

The circumference of forearm, nine and three fourths inches on right, ten and one eighth inches on left; of arm, four inches above external condyle, nine and seven eighths inches on right, ten and three eighths inches on left; of chest, sixteen and a half inches on right, eighteen inches on left.

The reaction to both galvanic and faradic current was diminished in the muscles which move the fingers on the right as compared with those on the left.

There was no spontaneous pain, and no motion nor twisting of the body caused pain, even in gymnastic exercises. There was some difficulty in micturition, it being a considerable time before the water commenced to flow. Erection was less frequent and less strong than formerly.

This is a case wherein the diagnosis is comparatively easy; there no need to dwell longer upon a differentiation of the symptoms.

It may be interesting to compare with this a case in which the hæmorrhage occurred below the origin of the brachial plexus. The symptoms are less well marked. A young man was thrown from his wagon; he could not remember how he struck the ground. He crawled to a neighboring house and was carried home. His legs were partially paralyzed; he could stand, but could not walk without help. The next day

he could not stand, but could move his legs in bed ; he shook and shivered, even after warmth was applied had a rigor. There was slight spasmodic action of the legs during the first two weeks ; also dyspnœa, and his chest seemed bound up.

Immediately after the accident he had severe pain in his back, described as though some one had buried a piece of steel in it ; there was also a spot in the lumbar region, tender on pressure. He had a disagreeable sensation which he could not describe, passing from hips to knees. From the time he began to stand he had a sensation of pricking as if the parts were asleep, most marked in his right leg.

He improved slowly, beginning to walk after a week or so ; it was six weeks before he could sit in a chair and raise one leg, and yet longer before he could raise both legs at once. There was much emaciation, and the calves of his legs were flabby ; they did not feel natural like his hands. Legs and feet were cold ; the sense of constriction in his chest continued. There was no constipation, no disturbance of micturition. Sexual desire was gone for four or five months, and during this time there was no emission ; this appetite remained less than natural. There were no special cerebral symptoms,

I saw him nearly a year after the accident at the request of Dr. W. S. Brown. When seen, he could walk without help, but with his feet wide apart. On rising from the chair he first took hold of the arms of the chair, then of his hips, and rose with effort. With his eyes shut he staggered in walking and could not stand with his feet near together. He could distinguish two points only when they were more than two inches apart. The reaction of the muscles of the leg and thigh to the faradic current was good. The glutæi were not tested. Pulse 61, respiration 19. There was a slight incoördination of the left hand. He said he could not carry a pail of water in his left hand as its weight seemed to pull him round.

There was probably in this case a complication of lesions, meningeal hæmorrhage, and also concussion or other injury of the cord. The chill, the gradual increase in the severity of the symptoms, the severe pain in the back immediately after the accident, the partial loss of motor power and of sensation, and the early and gradual improvement, the spasmodic action, the pain radiating to the knees, the pricking of the feet as if asleep, are such symptoms as would be found in hæmorrhage ; the dyspnœa and sense of constriction, the persistence of the weakness of the muscles, and possibly some of the other symptoms, may have been due to direct injury of the cord itself.