EARLY CLINICAL SIGNS OF MENINGIOMAS OF THE FORAMEN MAGNUM
A NEW SYNDROME

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EXPANSIVE, intraspinal processes in the upper part of the cervical region and about the foramen magnum present great diagnostic difficulties, especially during the early stages. This is because they are situated in a relatively "silent" area, namely, above the segments forming the cervical plexus and below the medulla oblongata. For these reasons radicular signs in the arms are absent and the cranial nerves may fail to become involved. Furthermore, in the region of the foramen magnum there is enough room for an expansive process to become quite large before it produces clinical signs. Tumors in this region often are benign and operable, and it is important to make an early diagnosis before irreversible damage has been done.

The above applies in particular to meningioma situated ventral to the spinal cord, of which a great many cases have been described in the literature. The clinical course of untreated patients with such tumors usually is progressive, ending in a final stage consisting of spastic quadriplegia and marked loss of sensibility. It is worthy of note, however, that spontaneous remissions in the neurological signs may take place, as has been described by List and others. Because of this and the initially unspecific subjective symptoms, these patients may be taken for neurotics, or may be thought to be suffering from other organic nervous disease such as multiple sclerosis.

We have seen recently 2 cases of meningioma situated ventral to the spinal cord in the upper part of the cervical region, in which the early neurological findings consisted of impaired sense of position of the upper extremities and signs of a pyramidal tract lesion affecting the lower extremities. The clinical picture was striking, and has a theoretical basis that justifies a description and discussion of these cases.

CASE REPORTS

Case 1, a woman born in 1903.

History up to June 1959. For 8 years the patient had been complaining of periodical attacks of occipital headache. In 1952 she was given roentgen-ray and short-wave therapy without effect. Spondylosis deformans affecting C6-C7 was diagnosed in 1958, and cervical-collar treatment was started. In December 1958 the patient began to experience paresthesiae in the fingers, and had difficulty in grasping small objects. She was admitted in 1959 to the Neurosurgical Department of another hospital. Oxygen myelography disclosed no abnormality, but the region C1-C3 could not be assessed with certainty. During the time the patient was in hospital the tendon reflexes of the lower limbs were temporarily slightly increased, and the plantar responses were extensor, but the clinical findings reverted to normal, and the patient therefore was discharged. Since the subjective symptoms persisted, however, she was referred to the Neurological Department of the University Hospital, Uppsala.

Examination, June 17, 1959. The patient's general condition was good. The gait was normal. Romberg's test was positive. There was general limitation of movement of the cervical spine, most marked in the cervical region. The cranial nerves were normal. There was no loss of sensation. The tendon jerks were normal in both upper and lower extremities. The plantar responses were flexor on both sides. Other investigations included Schilling's test, which was negative.

Course. The patient experienced considerable subjective improvement on physiotherapy, and therefore further investigation was postponed.

Subsequent Course. The patient was admitted to
the Psychiatric Department because of depression; electroconvulsive therapy was given with good effect. On neurological examination in February 1960 the findings were still normal, with the exception of an extensor plantar response on the right side. At that time the subjective symptoms in the occipital region and arms had disappeared entirely.

During the summer of 1960, however, the patient’s condition again deteriorated, and disturbances in gait developed. She therefore was readmitted to the Neurological Department here.

Examination, Sept. 9, 1960. The patient’s general condition was good. The gait was stiff and spastic, and she dragged her feet along the ground. Romberg’s test was positive. The muscles of the back of the neck were tense, and there was limitation of movement of the cervical spine. Nystagmus occurred on looking to either side. There was general loss of power in the limbs. There was no loss of sense of vibration, but the patient was unable to identify small objects placed in the hands. When the arms were outstretched pseudoathetotic movements of the fingers were seen periodically. The tendon reflexes in the arms were not increased with certainty, but the knee and ankle jerks were increased, and there was ankle clonus. The plantar reflex was extensor on both sides.

Other Investigations. Lumbar puncture yielded a clear, colorless fluid with a protein content of 150 mg. per 100 ml. A colloidal reaction (the mastic test) was negative. Oxygen myelography and vertebral angiography disclosed an expansive process in the region of the foramen magnum displacing the spinal cord backwards. Vertebral angiography was repeatedly unsuccessful.

Preoperative diagnosis, tumor in the region of the foramen magnum.

Operation, Oct. 14, 1960 (Docent R. Frykholm, Southern Hospital, Stockholm). A typical meningioma situated ventrally to the spinal cord and extending from the middle of the clivus to the lower border of the vertebral atlas was removed. The tumor had to be removed in pieces.

Histological diagnosis, meningioma.

Postoperative Course. Immediately after operation there were signs of paresis of the 6th to 12th cranial nerves on the left side, and ataxia affecting the left leg. The last time she reported to the Clinic, March 1962, she was able to keep her household and to walk freely without a stick. There was persistent paresis of the 8th and 11th nerves.

Case 2, a man born in 1917.

History up to February 1961. The patient had been healthy until June 1960, when he began to experience numbness of the fingers of first the right hand and then the left. This increased and spread, and in October 1960 involved both arms, the back of the neck, and the trunk as far down as the umbilicus. The patient’s hands became fumbling and he could not hold a cigarette or drive a car. His gait became reeling, but there was no weakness of the legs. He had a slight disturbance of micturition in the form of urgency. There was stiffness of the neck on extension of the head.

Examination, Feb. 10, 1961. The patient’s general condition was good. His gait was unsteady, especially with the eyes shut. Romberg’s test was positive (falling to the right, head turned to the left). The finger-to-nose test showed past-pointing on both sides. Nystagmus occurred on looking towards either side, notably to the right. Sensitivity to touch and pain was diminished in the areas corresponding to the segments C2-T1. Deep sensitivity was diminished greatly in the arms and hands, and there were pseudoathetotic movements of the fingers and hands on stretching out the arms. The deep sensibility in the legs was normal. The tendon reflexes were normal in both arms and legs. The plantar response was extensor on the left side.

Other Investigations. Lumbar puncture gave a clear, colorless fluid with a protein content of 85 mg per 100 ml. A colloidal reaction (the mastic test) was negative. Oxygen myelography disclosed an expansive process in the region of the foramen magnum displacing the spinal cord backwards. Vertebral angiography was repeatedly unsuccessful.

Preoperative diagnosis, tumor in the region of the foramen magnum.

Operation, April 13, 1961 (Mr. A. Breig, Southern Hospital, Stockholm). A typical meningioma situated ventrally and to the right of the midline and extending from immediately above the foramen magnum to just below the vertebra of the atlas was removed. The left cerebellar tonsil was found forced down into the foramen magnum.

Pathological report, meningioma.

Postoperative Course. The patient was discharged on May 15, 1961, 1 month after operation, from the Neurological Department. He was free from symptoms and signs, with the exception of slight stiffness in the area of the operation.

DISCUSSION

Occipital headache and stiffness of the neck would seem to be common early complaints in cases of tumors in the region of the foramen magnum, and have been described previously on a number of occasions. These symptoms are not sufficiently specific, however, to arouse the suspicion of an expansive process, especially since the patient, as a rule, is of an age at which spondylosis of