MUL TIPLE SPINAL CORD MENINGIOMAS

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In most large series of neoplasms of the spinal canal, spinal cord and its lepto-
meninges, the meningioma group comprises approximately 25 per cent. Occasionally
a meningioma of the spinal cord is associated with multiple neurofibromas or mul-
tiple intramedullary ependymomas. The incidence of multiple meningiomas is small
when compared with the frequency of their single occurrence, and in most instances
of multiplicity they are intracranial\textsuperscript{5,6} or intracranial and spinal.\textsuperscript{10} Certainly the ex-
amples of multiple meningiomas confined exclusively to the spinal cord are rare,\textsuperscript{3}
which leads the author to present the following case.

REPORT OF A CASE

Removal of meningiomas from the 6th and 3rd thoracic cord segmental levels respectively. Re-
covcry.

H. D., a 34-year-old white woman, was admitted to the University Hospital on March 12,
1951, because of progressive loss of sensation and of weakness in her lower extremities. A year
prior she had noticed “tingling” in her feet which soon progressed to complete and constant
“numbness.” During June 1950 she became unsteady in walking with occasional episodes of
“buckling” of her knees. The weakness in her legs also progressed, being greater on the right.
One month before admission her right foot dragged constantly although she could still walk
unaided. During January 1951 an “aching pain” developed below the right scapula which was
provoked by coughing or lying down; however, this pain did not radiate in a segmental dis-
tribution. Coincidentally she noticed the absence of sweating over the lower extremities, and
a mild degree of urinary urgency and frequency developed.

Examination. The patient was a well developed, slightly obese female appearing neither
acutely nor chronically ill. There was a complete loss of pain and temperature sensation below
the 7th thoracic dermatome except for sparing over the sacral segments bilaterally. Deep pain
sensation was absent in the legs. Sense of motion and position was normal but that of vibration
was diminished below the 8th thoracic segment and was absent at the ankles. Discriminatory
touch was impaired below the level of analgesia. Reaction to the Romberg test was positive.
Marked weakness of the legs, especially on the right, with associated mild spasticity was
noticed, although the patient was still able to walk without help. The deep reflexes of the
lower extremities were equally hyperactive with bilaterally sustained patellar and ankle
clonus; abdominal reflexes were absent and Babinski’s sign was present bilaterally. Sweating
was absent below the 7th thoracic dermatome.

Roentgenograms of the chest and the entire spinal column appeared normal. Following
a lumbar puncture, which revealed a complete block to jugular compression, a myelogram
was done using 2½ cc. of pantopaque. This demonstrated the block to be at the midportion
of the 5th thoracic vertebra with sharp projections of the pantopaque anteriorly and posteriorly
in the lateral view (Fig. 1). No CSF was withdrawn at the time of the lumbar puncture for
fear of increasing the paresis. Routine studies of blood and urine revealed nothing abnormal.

1st Operation. A laminectomy under intratracheal general anesthesia was performed on
March 15, 1951, removing the lamina and spines of the 4th, 5th, and 6th thoracic vertebrae.
At the level of the 5th thoracic vertebra the dura was seen to be bulging and the extradural
adipose tissue was absent. After opening the dura in the midline, a tumor was evident on the
right pushing the spinal cord posteriorly and to the left (Fig. 2). It was attached ventrolat-
erally by a sessile base to the dura at the level of the 6th thoracic spinal cord segment. The
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arachnoid was opened and the well-encapsulated tumor delivered from beneath the spinal cord. Following the removal of this tumor the cord slowly assumed its normal position. When an attempt was made to pass a small, soft rubber catheter cephalad beneath the dura, an obstruction was encountered at the level of the 3rd thoracic lamina. Accordingly the laminectomy was carried upward enough to expose the point of block and upon opening the dura here a second neoplasm was disclosed. It also was attached to the dura by a sessile base but in a dorsolateral position on the left (Fig. 2). The spinal cord at this site, following removal of the

mass with its attached dura, appeared normal with only minimal compression as compared to the spinal cord at the site of the first tumor. The catheter was subsequently passed superiorly into the cervical region and no further obstruction was met. The dura was left open and the wound closed.

Course. Forty-eight hours after operation the paresis increased and progressed to complete paralysis with loss of all sensory function below the 7th thoracic dermatome.

2nd Operation. Re-exploration of the spinal cord was performed on March 17, 1951 because of the possibility of postoperative hemorrhage. There was no hemorrhage but marked edema of the spinal cord was present at the site of the lower tumor. The subarachnoid space above this was filled with clear spinal fluid.

Course. Two days following this procedure the patient was able to move the toes of her left foot. Function slowly returned and at the time of discharge, April 29, 1951, she was walking with a slightly spastic gait. Bladder function was normal as shown by cystometric studies. Vibration sensation was absent at the ankles; all other sensory functions had completely returned. The reflexes were hyperactive with a sustained ankle clonus on the right. Babinski’s sign was not present.
The patient has since led a normal and active life. When last examined her gait was normal and the only neurological abnormalities were those of slightly hyperactive deep reflexes in the lower extremities.

Pathological Examination. Grossly both tumors were well-encapsulated. The first neoplasm removed was oval in shape, of whitish color and somewhat soft to palpation. It measured 2½ cm. in length by 1½ cm. in width. The second was circular, reddish-blue in color and firm to palpation, measuring 2½ cm. in diameter by 1½ cm. in thickness. Histopathologically both tumors were typical psammomatous meningiomas. The first neoplasm (Fig. 3) had minimal calcification, and the second (Fig. 4) was markedly calcified.

Figs. 3 and 4. Photomicrographs of the psammomatous meningiomas found (left) at the right 6th thoracic spinal cord segment, and (right) at the left 3rd thoracic spinal cord segment. Hematoxylin-eosin stain, X16.

COMMENT

The term “multiple meningioma” was coined by Cushing to designate discrete neoplasms of the brain without coalescence. In our patient the spinal cord meningiomas were discrete with normal dura and arachnoid intervening. Multiple intracranial meningiomas are frequently associated with von Recklinghausen’s disease. Kernohan has suggested that the histologic appearance of meningiomas in the presence of von Recklinghausen’s disease may be atypical and resemble neurofibromas. The tumors in this instance were typical psammomatous meningiomas (Figs. 3 and 4) and the patient presented no stigmata of neurofibromatosis.

It is believed that meningiomas develop from nests of arachnoidal cells scattered throughout the dura and, further, that the syncitial or “meningothelial” type develops from the “cap” cells of the arachnoid, although the fibrous type arises from the fibrous elements of the arachnoidal meshwork. The majority of meningiomas
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of the spinal cord occur in females, and 70 to 80 per cent of all such tumors are located in the thoracic region. The explanation for the predominance of these neoplasms in women and in the thoracic region is obscure.

Since the introduction of myelography, many cases of successful removal of multiple neurofibromas with complete recovery have been reported; however, surgical removal of multiple meningiomas of the spinal cord is rare. The clinical and roentgenological findings in this case clearly indicated a solitary tumor at the 5th thoracic vertebral level. The sensory level was quite definite at the 7th thoracic dermatome with no evidence of disturbance superiorly. The myelographic study would have demonstrated other tumors caudal to that found at the 6th thoracic spinal cord segment, even though the clinical symptoms of a lower lesion might have been obscured. The multiplicity of the lesions was clinically unsuspected in this case—the second meningioma being the silent partner. At times multiple lesions are recognized only when new symptoms develop. One should bear in mind that intraspinal meningiomas may simulate degenerative diseases of the spinal cord. This patient was sent to the University Hospital with the presumptive diagnosis of multiple sclerosis.

The surgical management of multiple meningiomas is not unlike that of solitary tumors. In this instance, because of the severe compression of the spinal cord caused by the first neoplasm lying somewhat anteriorly to the cord, a partial intracapsular excision was performed before any attempt was made to lift the tumor from its bed. The second meningioma was easily removed as it presented dorsally to the spinal cord. In spite of this technique, severe edema of the spinal cord occurred resulting in complete paraplegia 48 hours postoperatively. Although delayed, recovery was complete.

When dealing with spinal cord neoplasms the possibility of concealed, asymptomatic, multiple tumors must be kept in mind and a high index of suspicion maintained. After the removal of a neoplasm, further exploration of the spinal canal should always be made by passage of a catheter. Myelographic studies should be carried out several weeks postoperatively if the results of the operation do not come up to expectation.

SUMMARY

A case is presented of the removal of two separate meningiomas of the spinal cord which were not associated with von Recklinghausen’s disease.

REFERENCES


