Multiple Meningiomas of the Spinal Canal
Case Report

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The occurrence of multiple meningiomas in the spinal canal is extremely rare. Rasmussen, et al., reported 140 meningiomas among 557 intraspinal tumors; 130 (93%) were intradural and 10 (7%) were both intradural and extradural. Lombardi and Passerini reported 71 meningiomas out of a total of 249 spinal tumors; 65 were intradural, 3 were extradural, and 3 were both intradural and extradural. Haft and Shenkin reviewed 367 spinal meningiomas and found that 341 were intradural, 13 were extradural, and 13 were both intradural and extradural. Rand reported a case of multiple intradural meningiomas at the T-3 and T-6 levels. Bull in a series of 55 spinal meningiomas noted that 6 were extradural, but there were no multiple meningiomas.

We are reporting a case in which there was an extradural meningioma in the cervical region and an intradural meningioma in the thoracic region.

Case Report

A 20-year-old woman was admitted to the Neurology and Neurosurgery Service of the Christian Medical College Hospital, Vellore, on May 9, 1966, with the chief complaint of progressively increasing difficulty in walking for the previous year. At the onset of symptoms, she was 7 months pregnant. The symptoms started with progressive pain in the midthoracic region, occasionally radiating down both legs. Within 2 months she noticed distinct weakness in both legs. At the same time she also experienced vague pain in both arms. She delivered a dead fetus at term; following delivery, the neurological deficit became worse and she developed urinary frequency. Two months before admission, she noticed minimal hoarseness and difficulty swallowing.

Examination. Positive findings in the neurological examination were early bilateral papilledema; wasting of the left sternomastoid muscle; left lower motor neuron hypoglossal palsy; motor weakness of both arms, more marked distally; atrophy of the small muscles of both hands and the left subpraspinatus; complete paralysis of both legs; bilateral blunting of all sensory modalities of sensation below T-8; minimal bilateral hypesthesia of C5-C6 dermatomes bilaterally; loss of vibration sense in the arms and legs; exaggerated tendon reflexes in the arms and legs; bilateral ankle and patellar clonus; absent abdominal reflexes in all quadrants; and bilateral Hoffmann and Babinski signs. Neither multiple neurofibromas nor associated stigmata were seen.

X-ray Studies. X-rays of the cervical and thoracic spine were normal. Because of the bilateral choked disc and the lower cranial nerve deficits, a right retrograde brachial angiogram was done; it revealed no abnormality in the region of the foramen magnum or the posterior fossa. Lumbar spinal tap showed a partial block to manometric testing; the spinal fluid protein was 175 mg%. Lumbar myelography (Myodil) demonstrated a partial block at T-9; the medium also outlined a smooth cap deformity at that level suggestive of an intradural-extradural medullary space-occupying lesion (Fig. 1). The Myodil trickled past the partial obstruction and was held up again at C-6. This block suggested an extradural space-occupying lesion (Fig. 2). To determine the upper limit of the lesion in the cervical region, a cisternal myelogram using 3 ml Myodil was done; the medium was held up at C2-3, demonstrating the upper level of the cervical space-occupying lesion.

First Operation. On May 23, 1966, a cervical laminctomy was done from C-2 to C-6. The tumor was evident in the extradural region. At the upper border of C-2, dilated blood vessels were seen entering the extradural mass which extended from C-3 to C-6 and was thickest at C4-5. The mass was greyish-white and plaque-like, extending anterior to the cord and along the C-4 and C-5 nerve roots on the right. After piecemeal removal of the tumor, the spinal cord was pulsating well. The tumor was pathologically identified as a meningothelial type of meningioma.

Within 1 week she showed increased strength in the arms; there was also reduc-
tion of the spasticity in all limbs.

Second Operation. On June 3, 1966, the thoracic space-occupying lesion was exposed by a laminectomy of the 8th through the 10th thoracic vertebrae. A firm, vascular, intradural tumor measuring $3 \times 2 \times 1$ cm was removed. This tumor was situated posterolaterally between the anterior and posterior roots and was attached to the dura and arachnoid. The tumor was pathologically identified as a psammomatous meningioma.

Following the second operation, there was rapid recovery of the neurological status. Urinary infection in the postoperative period was controlled with antibiotics. She was also given physiotherapy. At the time of discharge on July 22, she was able to stand and walk with support.

Discussion

It is widely believed that meningothelial meningiomas take origin from arachnoidal cap cells which are situated on the outer surface of the arachnoid. This may explain the genesis of intradural meningiomas, but does not adequately explain the origin of extradural meningiomas. Rasmussen, et al., believed that these meningiomas originated at the point of emergence of nerve roots where arachnoidal membrane is in contact with the dura mater. In the case reported by Haft and Shenkin, the epidural tumor was adherent to the nerve-root exit. In our case, the cervical extradural tumor was also adherent to the nerve roots.

Summary

We have described a case in which an extradural meningioma at C-3 through C-6 and an intradural meningioma at T-8 through T-10 were successfully removed from the same patient, and have briefly reviewed related reports.

References