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AJNR Am J Neuroradiol 1984, 5 (4) 483-484
http://www.ajnr.org/content/5/4/483.citation

This information is current as of October 21, 2023.
Pulmonary Metastasis from Intraspinal Meningioma

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Most intracranial and intraspinal meningiomas are benign. Aggressive "malignant" behavior of intracranial meningiomas, with distant metastases usually to the lungs, has been well described [1-4]. We report a rare case of intraspinal meningioma with distant metastases to the lungs. Our review of the literature revealed only one other case of intraspinal meningioma with metastases to the lung [5].

Case Report

A 67-year-old woman had back pain radiating down the right leg. Review of systems was negative. On neurologic examination pain was elicited during straight leg raising on the right. No motor or sensory deficits were noted. The probable clinical neurologic impression was right L5 root compression. Metrizamide myelography revealed a well-marginated intradural defect at the T12-L1 level situated predominantly to the right of the midline (fig. 1A). A computed tomographic (CT) scan at the T12-L1 level showed a high-density intradural lesion with CT numbers suggestive of calcification. An admission chest film revealed a rounded nodular density measuring about 2.5 cm situated in the left lower lobe (fig. 1B). Chest CT revealed the lesions to be uncalcified and compatible with a lung neoplasm. At spinal surgery, an intradural tumor was removed.

Histology revealed a solid tumor composed of sheets of meningioma and that it did indeed metastasize. The discovery of the nodular lesion in the chest was an incidental finding. Crucial to this case is the documentation that the primary neoplasm was a meningioma and that it did indeed metastasize. The spinal neoplasm had histologic characteristics of an intraspinal meningioma (fig. 1C). More difficult is the diagnostic problem of the lung lesion. The surgical and gross pathologic findings favored a metastatic tumor over a primary lung tumor. The tumor was well circumscribed and seemed to be compressing the adjacent lung, rather than infiltrating as primary lung tumors may do. Histologically the tumor was very vascular. In addition, the finding of interdigitating membranes by electron microscopy supported the diagnosis of meningioma.

In conclusion, although meningiomas metastasize rarely, a pulmonary nodule in the presence of a central nervous system meningioma should raise the suspicion of lung metastases.

ACKNOWLEDGMENTS

We thank George H. Gray, Jr., and Ronald V. Pellegrini, the attending physicians, and their associates; Lilia D'Amico for secretarial assistance; and Glenn Hangard for photographic assistance.

Received January 12, 1983; accepted after revision May 27, 1983.

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AJNR 5:483-484, July/August 1984 0195-6108/84/0504-0483 $2.00 © American Roentgen Ray Society
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Fig. 1.—A. Metrizamide myelogram. Well marginated, right-sided intradural defect at T12-L1 level. B. Admission film. Nodular mass in left lower lobe. C. Intraspinal meningioma. Whorls and sheets of cells with vesicular nuclei, indistinct cell borders, and occasional psammoma bodies. (Original magnification, x25.) D. Metastatic meningioma to lung. Solid tumor is highly vascular. Cytologically, nuclei are vesicular and cell borders are indistinct. (Original magnification, x100.) E. Electron microscopy of metastatic tumor. Cell membranes are interdigitating as in meningioma. Tumor lacks basement membrane seen in vascular tumors. (Original magnification, x8000.)