Calcified meningiomas

To The Editor: We read with great interest the article by Dr. Zhu and colleagues5 (Zhu Q, Qian M, Xiao J, et al: Myelopathy due to calcified meningiomas of the thoracic spine: minimum 3-year follow-up after surgical treatment. Clinical article. J Neurosurg Spine 18:436–442, May 2013). The authors reported on a series of 11 patients who had calcified meningiomas in the thoracic spine, 3 of whom had poor neurological outcomes. They concluded that calcified meningiomas had poorer surgical outcomes than noncalcified ones. The authors are commended for sharing their experience with the worldwide readership of the Journal of Neurosurgery. However, we respectfully point out that these calcified meningiomas are not necessarily hard in texture. Spinal meningiomas can have a soft consistency despite calcification, as demonstrated by CT. It was not clear what percentage of the calcified meningiomas in Dr. Zhu’s series was actually ossified. A recent patient of ours had a calcified spinal meningioma in T-5, as demonstrated on preoperative CT, causing severe cord compression (Fig. 1). The tumor was expected to be as hard as bone because it had a CT density similar to that of the neighboring vertebral body and lamina. Surprisingly, during the operation, we found that the tumor was very soft and could be removed using suction and microscissors (Fig. 2). The patient’s neurological function improved rapidly after surgery.

Ossified spinal meningiomas are reported even more rarely than calcified spinal meningiomas. Occasional misuse of these two terms happens because the differences between them are seldom described in the literature. The term “calcified meningioma” is more of a radiographic description than a histopathological diagnosis. As in our case, most of these meningiomas with calcification on preoperative CTs are the psammomatous type according to histopathological studies (Fig. 3). The radiopaque calcification on the CT is probably attributable to the confluence of numerous densely packed psammoma bodies. On the other hand, “ossified meningioma” refers to a tumor with bony texture that is difficult to resect intraoperatively. However, both calcified and ossified meningiomas are not formal pathological nomenclature. For a pathological diagnosis, there is a metaplastic meningioma that has true lamellar bone formation (Fig. 4).

This article contains some figures that are displayed in color online but in black-and-white in the print edition.
Outcomes following resection of a thoracic spinal meningioma are likely associated with the tumor’s location and texture. A ventrally located ossified meningioma is associated with the highest risk. A preoperative CT is helpful in detecting calcification in the tumor. However, the high density found on CT does not necessarily indicate a stone-like texture. Although the calcification can be soft intraoperatively, surgeons must always be cautious and prepared for a stone-like ossified meningioma when high density is seen preoperatively.


RESPONSE: First of all, we thank Dr. Wu for his interest in our article. We appreciate his comments. He showed us a perfect surgery for calcified meningioma. Different types of calcified meningiomas were discussed in his letter. To our knowledge, there are three types of calcified meningiomas: psammomatous, lamellar calcification, and total calcification. The psammomatous type is the most common of the three. In our opinion, the reason for the poorer outcome in calcified meningiomas, as compared with the noncalcified ones, is their hard texture and the adhesion with surrounding tissue (nerve and dura mater). On the other hand, location (ventral or dorsal tumor) is another important factor contributing to the prognosis of all types of meningiomas. For the patient mentioned by Dr. Wu, we found that a soft dorsal tumor without adhesion could be removed totally. And the patient’s neurological function improved rapidly after the surgery. Similar cases can be found at our institute. A 57-year-old woman had suffered weakness in both lower limbs for 5 months. A dorsal tumor was found in the thoracic spinal canal (Fig. 1). The tumor was removed totally, and the patient’s neurological function improved rapidly after the surgery. Unfortunately, not all of the tumors in our series were soft dorsal tumors without adhesion. For example, a 69-year-old woman in our series had suffered weakness in both lower limbs for 6 months. A ventral tumor was found in her thoracic spinal canal (Fig. 2). To remove a ventral tumor, piecemeal removal is often performed. During surgery, we often cut the denticulate ligament to release the spinal cord. After that, we have more space to remove the ventral tumor. Cerebrospinal fluid leakage and a transient...