Spinal metastasis of intermediate grade chondrosarcoma without pulmonary involvement

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Abstract
We report a patient with an intermediate grade chondrosarcoma, which metastasized to the dorsal spine following surgical resection of the primary tumor, but without pulmonary or systemic metastases.

Résumé
Nous rapportons le cas d'un malade avec un chondrosarcome de grade intermédiaire présentant des métastases au rachis dorsal, mais sans métastase pulmonaire ou systémique.
**Introduction**

Chondrosarcomas are the second most frequent primary malignant tumors of the bone and represent one fourth of all primary bone sarcomas. They are characterized by differentiation of cartilage cells and associated matrix, and are a heterogeneous group of lesions with diverse morphological features and clinical behavior [5]. The behavior of these lesions ranges from the slowly growing late-metastasizing tumors to very aggressive early metastasizing sarcomas. On the basis of histological features (nuclear atypia and cellularity), chondrosarcomas are further sub-divided into three grades according to their aggressiveness [5, 10]. The metastatic potential of chondrosarcomas tends to correlate to a large extent to the histological grade of the disease. The most frequent sites of metastases are the lungs, regional lymph nodes and liver [5]. Isolated bony metastases in the spine are rarely seen. Moreover, the spine is not a very common site for primary chondrosarcomas to occur. The figures reported in various series are 6/125 cases [7], 28/280 cases [13], 12/69 cases [1] and 4/153 cases [6]. We report one patient with an intermediate grade chondrosarcoma, which metastasized to the dorsal spine following surgical resection for the primary tumor, without pulmonary or any other systemic metastases.

**Case-Report**

A 30-year-old male patient presented to us with the complaints of loss of power in both lower limbs for 10 days. He also had a loss of bladder and bowel control since 2 days. The patient gave a history of being operated for a tumor on the left scapular area two years previously. Clinical examination revealed grade 0 power in both lower limbs with sensory deficit below Th 8 vertebral level. There was a healed scar over the left scapular area with absence of the scapula. There was no evidence of local recurrence in that area. X-Rays of the dorsal spine showed collapse of vertebra Th8. (Figure 1) MRI of the spine revealed altered signal intensity and collapse of Th 8 vertebra with an intraspinal extradural soft tissue mass causing mild cord compression, (Figure 1) There was no evidence of any additional distant metastases as seen on CT scan chest, USG abdomen and radio-nuclide scan. There was no evidence of increased uptake at the primary site on bone scan i.e. any evidence of local recurrence. He underwent urgent spinal decompression, in the form of Th 7-8 laminectomy, without skeletal stabilization. The material obtained intra-operatively from the paraspinal area and vertebral body was submitted for histopathological examination. The patient had an uneventful post-operative course, and was discharged from the ward after 5 days. He showed gradual return of power from grade 0 to grade 3 in the lower limbs and regained bowel and bladder control at the end of the first post-op month. The details of the primary scapular tumor were obtained. It was a 17X10X5cm-tumor mass involving the scapular blade. On microscopic examination, it was found to be a grade 2 chondrosarcoma. Multiple representative sections showed that all the cut margins including the glenoidal labrum cut margin were free of tumor. The specimen sent intra-operatively from the vertebral body and the paraspinal mass showed metastases from an intermediate grade chondrosarcoma (Figure 2) , similar to that at the primary site. Hence a histopathological confirmation of metastasis from the original tumor to the spine was obtained.
Discussion
The rate of recurrence, metastatic patterns and death after operative intervention has varied and has not always been predicted on the basis of characteristics of the original tumor [3, 8]. In one of the largest reported series from a single institution it was noted that local recurrence developed in 19.7% of patients and metastatic lesions in 13.7% [2]. In another series of 227 patients, it was found that predictors of metastasis and poor outcome were local recurrence, pelvic location of tumor, tumor size, ploidic abnormality and histological grade. Patients who had a wide resection of tumor fared better than those who had marginal or intra-lesional resections. Adjuvant therapy in the form of radio or chemotherapy did not alter the outcome [9]. Ozaki et. al. [11] analyzed the metastatic patterns of intermediate and high-grade chondrosarcomas. In a group of 24 patients with intermediate grade tumors, five developed metastasis (21%) as did six of 10 high-grade tumors (60%)(p=0.04). Four developed pulmonary metastases only. Five patients developed both pulmonary metastases as well as metastases at other sites. Two patients developed bony metastases only. The rate of metastasis was higher in patients with a local recurrence (86%) than in those without local recurrence (19%) (p=0.01). Sanerkin et.al. [14] reviewed 62 cases of chondrosarcoma of bone and found that high-grade chondrosarcoma had a metastatic risk of 75 per cent and eventual mortality of 88 per cent. They also observed that, in their series, medium and low-grade chondrosarcomas had a metastatic risk of 14 per cent and 5 per cent and a mortality of 60 per cent and 29 per cent respectively. Disler et.al. [4] have reported 2 patients with low to intermediate grade conventional chondrosarcoma who developed multifocal bone metastases in the absence of pulmonary spread. The metastatic lesions in their reports, as in our case, were of a histological grade similar to that of the primary site. One of the patients had synchronous foci while the other one developed the bone lesions 3 years after the initial presentation. Ozaki T, Hillman A et.al. [12] also reported 1 case of intermediate grade chondrosarcoma, which metastasized to the lumbar spine without pulmonary involvement. Their patient had a chondrosarcoma of the proximal humerus that had recurred locally in the lateral part of the scapula and clavicle and was resected one month prior to the development of lumbar spinal metastases. In our patient, the primary tumor, an intermediate-grade chondrosarcoma of the scapula, was excised 2 years back and there was no local recurrence. The appearance of isolated dorsal spinal metastases, with histology similar to that of the primary tumor, was very peculiar. It would hence be worthwhile to be aware of the possibility that a chondrosarcoma can metastasize to a peripheral site without evidence of any other hematogenous metastases and in the absence of local recurrence, even after it has been treated adequately and it is not of a high-grade variety.
Figure 1: (A) X-Ray dorsal spine showing collapse of Th 8 vertebra. (B) MRI film showing compression of spinal cord at Th 8 level
Figure 2: Photomicrograph showing metastatic chondrosarcoma invading the host bone (H and E: 100X).
References


