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Adenocarcinoma of the Prostate Presenting Initially as Intraspinal Tumors

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The authors report a case of spinal cord compression in the thoracic spine as a result of metastasis of prostate cancer. The patient's symptom was only severe back pain followed by paraplegia in four days. Magnetic resonance images had advantages over plain films in the detection of metastatic lesions. We raised the caution that the physician should consider prostatic metastasis in the differential diagnosis on any middle-aged or elderly man who has spinal cord lesions, even if there is no past history of prostate cancer.

Key Words
Prostate cancer,
Metastasis,
Spinal cord compression,
Magnetic resonance images.

INTRODUCTION

The primary tumor that is frequently metastatic to the spine is breast cancer, followed by prostate, lung, and renal cell carcinomas. Prostate cancer selectively spreads to bone involvement creates significant clinical problems for patients with metastatic prostate cancer.[1-3] The disease presents locally as an asymptomatic nodule or with obstructive or irritative voiding symptoms. However, nearly half of the patients have metastatic disease, most commonly to the pelvic lymph nodes or to the bones. A less common presentation is of spinal cord metastasis.[4]
Magnetic resonance images have advantages over plain films in the detection of metastatic disease because it shows more subtle signs of tumor invasion. We report a case as multiple prostate metastasis presenting initially into the spinal cord that caused total paraplegia in four days. In our case, magnetic resonance images were very useful for evaluating the responsible lesions of paraplegia.

CASE REPORT

A 72-year old man , who was otherwise healthy, had paraplegia. Paraplegia developed in four days and he admitted to the hospital. He had experienced intractable back pain in thoraco-lumbar region during two weeks before admission. He had no sign of urinary incontinence. Physical examination showed grade-1 muscle strength in his legs and sensory deficit below the sixth thoracic level. The reflexes of the lower extremity

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were vanished. The radiographs of the thoracic spine showed no destructive lesion (Figure 1). Sagittal T1 weighted image showed abnormal low signal in posterior T5, T6 and T8 vertebral bodies (Figure 2). Abnormal signal on right posteriorly at T5 and T8 indicated results of extension of tumor into lateral spinal canal from pedicle. Replacement of normal high signal in posterior epidural fat represented tumor infiltration. Tumor signal also replaced marrow signal in pedicle adjacent to epidural tumor. Tumor enhancement using Gd GTPA showed tumor mass more clearly (Figure 3).

Axial T2 weighted images through T5 and T6, and T8-T9 showed well circumscribed low signal lesion and formation of large intraspinal mass with impingement onto the spinal cord (Figure 4). A total laminectomy of T5-T6, and T8-T9 were performed. Relatively solid tumor masses were resected from both of the epidural spaces (Figure 5). The pathologic examination revealed well differentiated adenocarcinoma, probably of prostatic origin (Figure 6). Levels of serum acid phosphatase was then examined, and showed high level of 7.0 KAU (normal range; 1-4 KAU). Treatment was started immediately with diethylstilbestrol diphosphate, the patient noticed marked improvement with relief of back pain without recovery of paraplegia.

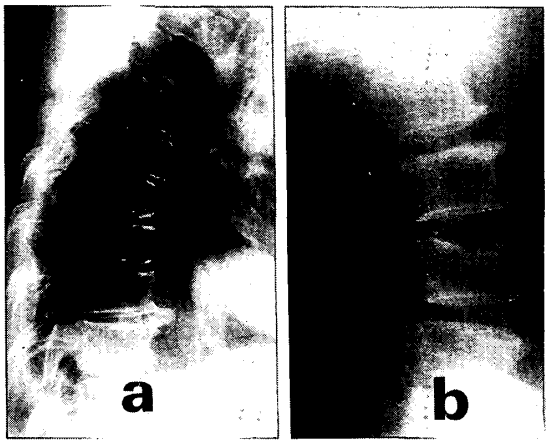


Figure 1. Lateral radiographs of thoracic (a) and lumbar spine (b) on admission show only degenerative changes of vertebral bodies.

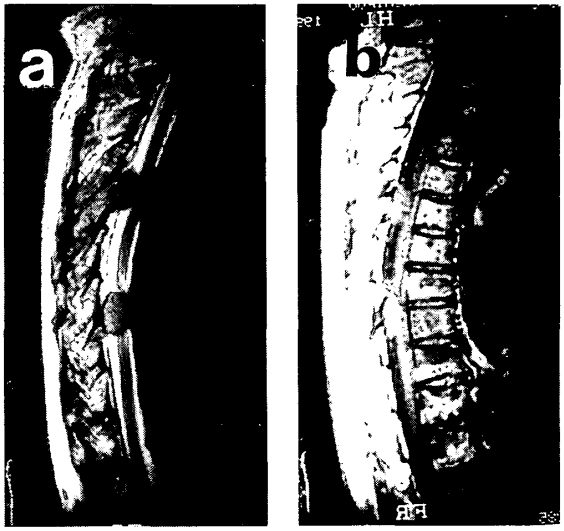


Figure 2. A sagittal T1 weighted image shows abnormal low signal intensity in posterior T5, T6 and T8 vertebral bodies. (a) A view after intravenous Gd-DTPA administration (b).

DISCUSSION

Carcinoma of the prostate is the common cause of cancer in males. The mechanism of spinal cord compression in spinal metastasis is mainly caused by tumor extension into the canal, through pathologic fracture and/ or tumor penetration of the affected vertebra.[5] Once it has metastasized to the bone the survival is poor. Although metastaic carcinoma of the prostate most often results in multiple nodules, multiple osteolytic lesions occur as in our case.

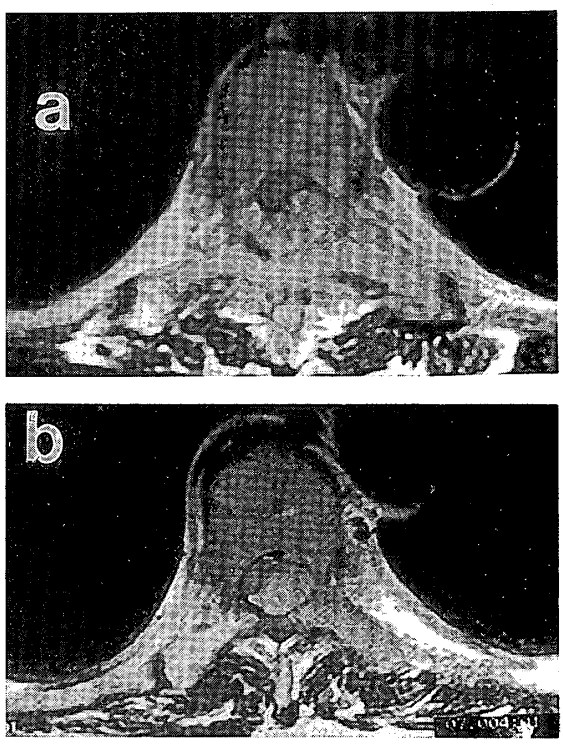


Figure 3. Axial T2 weighted images through T5 and T6 (a), and T8-9 (b) showed well circumscribed low signal lesion and formation of large intraspinal mass.

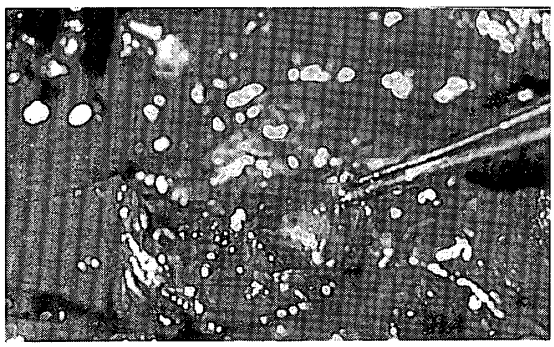


Figure 4. Relatively solid tumor mass was resected from epidural space at the level of T8-9.

Nearly half of the patients of prostatic cancer have metastatic disease, and these lesions involve the axial skeleton-skull, spine, and pelvis-as well as proximal segments of long bones[6,7]. As in our case most skeletal metastasis are asymptomatic. Back pain was the major clinical

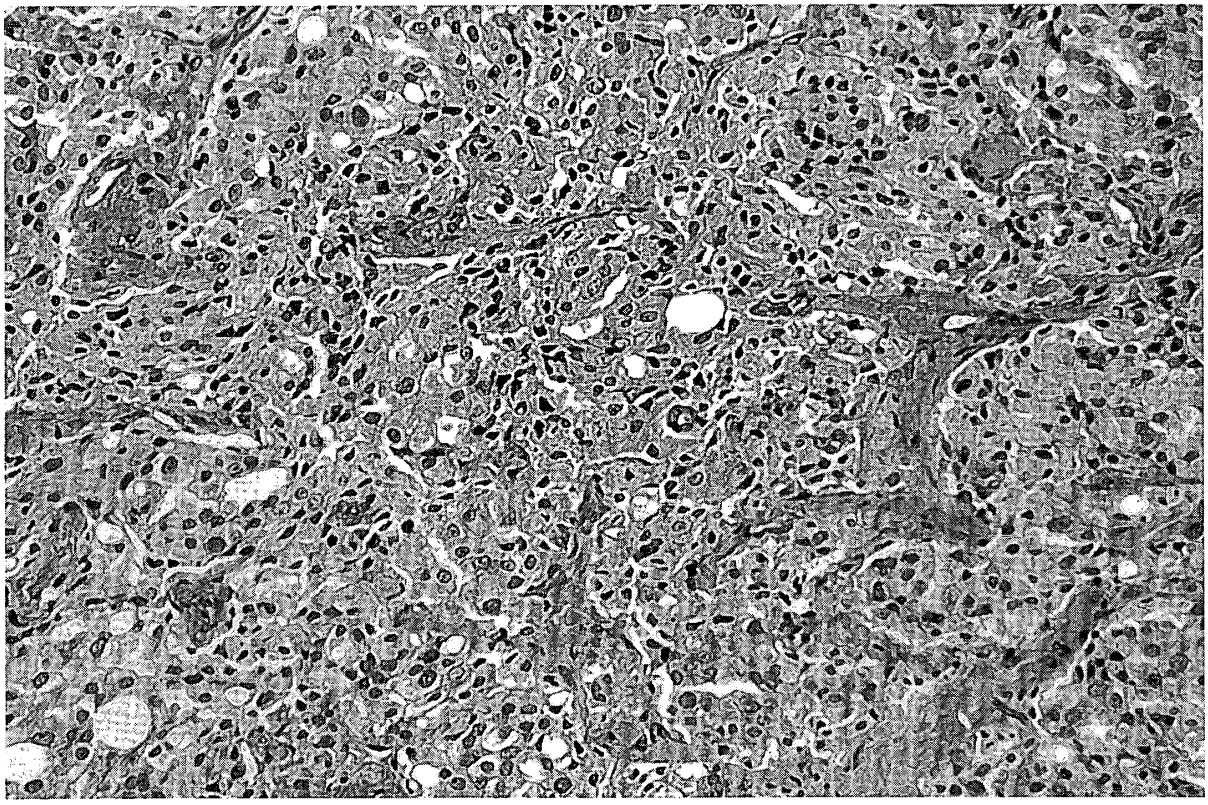


Figure 5. A histological micrograph of excised tumor mass shows acini and cells with small, regular, innocuous and a pale cytoplasm.

symptom which only called attention to the disease as in a patient presented here.

The detection of skeletal metastasis is not always possible on routine radiography, since destruction of the bone may not be visible with this technique. Radionuclide bone scan may be the best means of screening for early lesions[8], although recently several investigators have pointed out the usefulness of MRI in detecting metastasis, particularly in the spine. As in the present case MRI has advantages over plain films in the detection of metastatic lesion, it shows more subtle signs of tumor invasion. Furthermore, the major advantage of MRI is that it allows noninvasive direct visualization of the cord and mass lesion that may be compressing it.

Finally, it should be considered in the differential diagnosis of any middle-aged or elderly man who has spinal cord lesions, even if there is no past history of prostate cancer.

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