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BMH Medical Journal 2016;3(3):79-82 **Case Report**

Intradural Extramedullary Spinal Metastasis from Prostate Carcinoma: A Case Report

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Abstract

Vertebral and epidural metastases are common in malignancies, but intradural spinal metastases are rare. In this paper, we report a case of biopsy-proven intradural spinal metastasis from adenocarcinoma of the prostate.

Keywords: intradural metastasis, prostate carcinoma, spinal metastases

Background

Spinal metastases can be anatomically classified as (i) intramedullary, (ii) intradural extramedullary, and (iii) extradural. Though spinal metastases are common, almost 95% of these are extradural lesions [1]. Prostatic adenocarcinoma is known to produce osseous metastases, including spinal, commonly, but very few cases of biopsy proven intradural extramedullary metastases have been reported in literature. Here we present, a case of metastatic prostatic adenocarcinoma, with intradural extramedullary lesion.

Case presentation

Our patient is a 72-year-old man diagnosed with metastatic prostate adenocarcinoma initially [Gleason Score 6]. He had bone metastases (right femur and dorso-lumbar spine) at presentation and was managed with hormonal therapy (bilateral orchidectomy, androgen antagonists) and bisphosphonates.

His disease progressed to hormone refractory prostate cancer (HRPC) and he received chemotherapy (Docetaxel) 3 years later. With complaints of pain, local radiation was given to symptomatic metastatic sites (dorsolumbar spine and right femur) 5 years after initial diagnosis.

He presented with new-onset cervical pain, radiating to upper limb and progressive weakness of right upper limb and difficulty in walking a few months later.

Magnetic resonance imaging scans of his brain and thoraco-lumbar spine done showed an intradural extramedullary mass at the level of C5 vertebra with extension through the right neural foraminal

space, causing spinal cord edema at C5 and C6 levels. No brain lesions were evident.

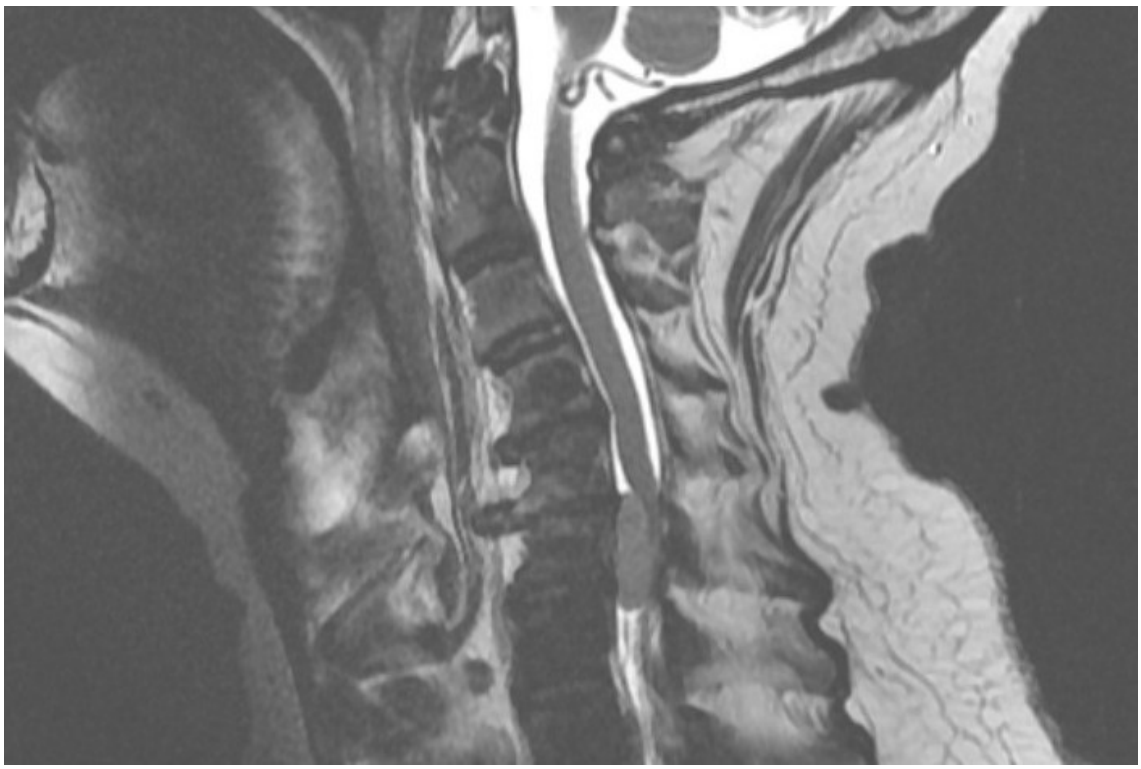

Figure 1

The differential diagnoses considered included neurofibroma, meningioma, peripheral nerve sheath tumour, or metastasis from the known prostate cancer.

With increasing neurological deficit, patient underwent surgery for decompression and biopsy (cervical laminectomy of C5-C6 vertebrae and excision of extramedullary intradural mass).

On microscopy, the lesion showed a solid group of cells separated by highly vascularised stroma with pleomorphic vesicular nuclei. Mitoses were common. Immunohistochemistry revealed the cells to be postive for cytokeratin, prostate specific antigen (PSA), vimentin and epithelial membrane antigen. The pathologic findings were consistent with metastatic adenocarcinoma of the prostate.

Following surgery, his motor power did not improve, but neck pain decreased. The resection site was treated with radiation using three-dimensional conformal technique, to a dose of 3000cGy in 10 fractions. He remained neurologically stable three months after treatment, with no new neurological deficits.

Discussion

Although vertebral and epidural metastases are commonly seen to occur in malignancies, intradural metastases are very rare. Intradural lesions occur within the dural sac and can be anatomically classified as (a) intradural extramedullary and (b) intradural intramedullary. Extramedullary lesions are most commonly non-neoplastic. The differential diagnoses for intradural extramedullary spinal lesions include meningiomas, neurofibromas and nerve sheath tumours [2].

Pain is the most common symptom in 90% of cases [3]. Associated neurological deficits manifest, based on the location of lesion. Gadolinium enhanced MRI is the preferred imaging modality to assess the lesion.

Five possible routes of spread, for the development of intradural spinal metastases from outside the central nervous system include: (1) via the rich venous plexus, (2) perineural lymphatics, (3) seeding

from involved osseous structures to the cerebrospinal fluid through the dura, (4) spreading via subarachnoid space, and (5) hematogenous spreading via the arterial system.

Intradural extramedullary metastases are commonly thought to originate from CSF seeding. Initially tumor cells are transferred to the brain, and then they enter the CSF and are transported throughout the nervous system by CSF flow. This can result in either multifocal or diffuse infiltration of the leptomeninges. Finally, metastatic tumors arise as intradural extramedullary lesions (drop metastasis).

Decompressive laminectomy was once the primary treatment for malignant spinal cord compression. Although laminectomy allows for a larger posterior space for the spinal cord, most metastatic impingement originates from the vertebral body and leads to primarily ventral pressure [4,5].

With the availability of radiation therapy, laminectomy was combined with adjuvant radiation. With the addition of radiation therapy (RT), improved results were obtained with approximately 30 to 50% of patients remaining ambulatory after treatment [6-9]. However, retrospective studies suggested that radiation alone was as effective as laminectomy plus postoperative RT in the treatment of malignant spinal cord compression [10,11]. Nevertheless, combined treatment remained the standard until 1980 when a small randomized trial [12] suggested that radiation therapy alone was as effective as laminectomy with adjuvant radiation in the treatment of spinal cord compression.

In conclusion, this a rare case of biopsy-proven intradural extramedullary spinal metastases from prostatic adenocarcinoma being reported. Though differential diagnoses of a more common new primary tumour has to be considered, a metastatic lesion, especially in the setting of an existing malignancy has to be ruled out while planning the treatment.

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