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Images in hematology-oncology

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A 59-year-old female with breast cancer presenting with lower extremity weakness

CLINICAL HISTORY

A 59-year-old female presented with a palpable mass on her left breast measuring 3x2 cm. A biopsy of the breast mass revealed infiltrating ductal carcinoma (IDC). Initial staging studies including computerized tomography of chest, abdomen and pelvis, and bone scan were negative for metastatic disease. She underwent a left modified radical mastectomy and axillary lymph node dissection. Final pathology showed grade 3 IDC with positive staining for estrogen and progesterone receptors and Her2/neu. Seven of 15 resected axillary lymph nodes were positive for metastatic disease. She was treated with adjuvant chemotherapy consisting of cyclophosphamide, epirubicin and fluorouracil for 6 cycles followed by postmastectomy radiation. She was started on tamoxifen after the completion of radiotherapy.

Approximately 2 years later, the patient presented with dizziness and unstable gait. An MRI of the brain revealed multiple metastatic lesions on the bilateral cerebral and cerebellar hemispheres. She received whole brain radiotherapy with a total dose of 3000 cGy. She was started on chemotherapy with docetaxel but developed lower limb weakness and radicular pain 3 months later. Neurologic examination revealed motor deficit on bilateral lower limbs. Sphincter functions were intact. Deep tendon reflexes, upper and lower abdominal reflexes and deep sensory functions were normal. Bilateral Babinski signs were negative.

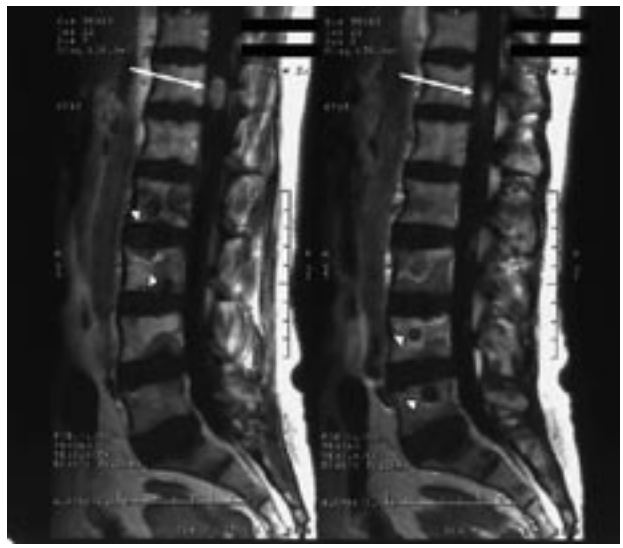

Fig 1. MRI of the thoracic and lumbar spine showing an intramedullary enhancing lesion at the level of the T12 vertebra (white arrows) and multiple lytic bone metastases (arrowheads)

What is your diagnosis?

CLINICAL HISTORY CONTINUES...

An MRI of the thoracic and lumbar spine revealed an oval 1 cm intramedullary enhancing lesion at the level of the T12 vertebra (Figure 1). The patient received radiotherapy to the lesion. Despite further chemotherapy, she died 3 months later with apparent clinical progression of her disease.

CLINICAL AND RADIOLOGICAL DIAGNOSIS

Breast cancer with intramedullary spinal cord metastasis.

DISCUSSION

Intramedullary spinal cord metastasis (ISCM) is a rare complication of systemic malignant neoplasms (1). Lung and breast carcinomas are the most common primary sources. The cervical spinal cord appears to be the most common location of ISCM possibly because of its larger size and abundant vascular supply (2). Hematogenous dissemination via either arterial route or vertebral venous plexus was postulated to be responsible for the most cases (2-4). The common coexistence of visceral metastatic disease supports the idea of dissemination through the arterial route.

MRI with gadolinium contrast enhancement is currently the gold standard of choice for the diagnosis of spinal cord compression, including ISCM (2-4). Gadolinium MRI has a high sensitivity in identifying intramedullary lesions. Prior to the availability of MRI, myelography was usually employed with a high false negative rate. After the introduction of MRI technology, the diagnosis of spinal cord lesions has been revolutionized.

ISCM is rarely responsive to treatment with a very unfavorable prognosis. The median survival after the diagnosis of ISCM is measured in weeks to a few months (1). Conservative palliative approaches using radiation, steroids and chemotherapy have been adopted due to systemic disease with improvement in the quality of life in certain cases (3,4). Treatment with steroids may decrease the pain and cause transient improvement in neurological findings. The outcome essentially depends on the degree and severity of neurologic deficit. Radiotherapy is the recommended treatment but effective only if administered early before paraplegia develops. Surgery is usually deferred except for rare patients with localized tumors achieving quality survival after microsurgery (2).

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