

Successful complete regression of isolated intramedullary spinal cord metastases from epithelial ovarian carcinoma with chemotherapy and radiotherapy

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Abstract

Advances in the management of ovarian cancer by use of aggressive surgery and effective platinum-based chemotherapy have prolonged survival; this may have resulted in an alteration of the metastatic pattern of the disease and spread to unusual sites (e.g., CNS) has become more common. Also, with the availability of more sensitive imaging techniques, these tumors are being diagnosed with increasing frequency. Intramedullary spinal cord metastasis is rare. We report one such case treated successfully with chemotherapy and radiotherapy with long-term survival.

Key words: Intramedullary metastases, ovarian cancer

Introduction

Epithelial ovarian cancer usually presents as advanced-stage disease with widespread intra-abdominal metastases. The liver and lung are the commonest sites of distant metastases. Central nervous system metastases are rare in epithelial ovarian cancer and usually occur as a part of widespread systemic dissemination. Isolated metastasis to the intramedullary cavity of spinal cord is very rare. We report one such case from eastern India treated successfully with local radiotherapy and oral chemotherapy with prolonged survival.

Case Report

A 40-year-old lady presented with acute abdominal pain in June 2000, when she underwent exploratory laparotomy elsewhere. She was found to have a right-sided ovarian tumor, which was partially resected. There was no ascites or intra-abdominal lymphadenopathy. Histologically, the tumor was found to be serous papillary adenocarcinoma grade III.

The patient was asymptomatic at the time of presentation to us and clinical examination was unremarkable except for the well-healed scar of prior surgery. Ultrasonography of the abdomen and pelvis revealed residual right ovarian tumor. The Serum CA-125 level was within normal range. The patient received three cycles of chemotherapy with paclitaxel and carboplatin. At the end of three cycles, ultrasound of abdomen and pelvis was normal. She then underwent a total abdominal hysterectomy with bilateral salpingo-oophorectomy and omentectomy. Histologically, the right ovary revealed a residual serous papillary adenocarcinoma, while the omentum and other tissues were free of disease. Postoperatively, she received another three cycles of paclitaxel and carboplatin. Subsequently, she remained under observation.

In August 2002, she presented with backache, progressive weakness in both lower limbs and loss of bowel and bladder control. On clinical examination, there was grade IV power in both lower limbs and the deep tendon reflexes and plantar reflexes were absent.

MRI of the spine revealed an intramedullary 1.2 x 4.5 x 1.5 cm lesion [Figures 1A and B] in conus medullaris and cauda equina. There was diffuse edema of the cord from the level of C4 vertebra to conus medullaris. CT scan of thorax, abdomen and pelvis was normal. Serum CA-125 level was elevated (63.2 iu/ml). The cerebrospinal fluid (CSF) examination showed proteins 143 mg/dl, sugar 50 mg/dl, chlorides 116 mEq/l, LDH 43 iu/l and CA-125 of 384 iu/ml. However, no malignant cells were detected on CSF cytology. The patient received dexamethasone and had symptomatic improvement. Subsequently, she received local radiotherapy to the spine and oral Etoposide (50 mg OD, D1-15, every 21 days). MRI of the spine at the end of six cycles of chemotherapy showed complete regression of the metastatic lesion. CT scan of thorax, abdomen and pelvis continued to remain normal. At last follow up (May 2005), patient continued to be in complete remission and has an excellent quality of life.

Discussion

Neurologic manifestations in a patient with malignancy may be due to paraneoplastic syndrome, metastases, infection, vascular event or an adverse effect of the treatment received.

In stage IV epithelial ovarian cancer, liver and lung are the commonest sites of metastases besides widespread intra-abdominal disease. Involvement of the central nervous system by metastatic epithelial ovarian cancer is rare. Whenever it occurs, these lesions are usually a part of widespread systemic dissemination.^[1,2] Ovarian cancer accounted for only 1% of the cases.^[3]

Advances in the management of ovarian cancer by use of aggressive surgery and effective platinum-based

chemotherapy have lengthened survival, which may have changed the metastatic pattern of the disease (e.g., spread to unusual sites has become more common).^[2] Also, with the availability of more sensitive imaging techniques, these tumors are being diagnosed with increasing frequency.^[3]

The common sites of CNS involvement are the brain parenchyma (cerebrum, cerebellum and pons), leptomeninges and very rarely the spinal cord.^[4] Median survival from diagnosis of CNS metastases was 5 months.^[4] Our patient has survived for 33 months without any evidence of disease.

Intramedullary spinal cord involvement occurs in 8.5% of all patients with metastasis to the CNS and in 2.1% of all cases of cancer.^[5] Carcinoma of the lung is the most common source of intramedullary metastases, followed by breast carcinoma, melanoma, renal-cell carcinoma, colorectal tumors, cervical carcinoma and lymphoma.^[6]

Three distinct patterns of spinal cord involvement might suggest the spread of tumor to the cord by different routes. Most likely, it is a result of hematogenous spread.

In other cases, there is direct extension of leptomeningeal metastatic tumor across the pia into the parenchyma of the cord or the tumor may involve the medulla along the perineural sheets.^[7]

Patients with spinal cord involvement can present with radicular pain, weakness, paresthesia and bowel and bladder involvement. Sometimes, they can be subtle and nonspecific. A high index of suspicion is essential in order to prevent permanent neurologic deficit.

MRI is a sensitive modality for the detection of nervous system involvement. In epithelial ovarian cancer, measurement of CA-125 levels in the cerebrospinal fluid may be contributory to establishing the diagnosis. In our patient, the CSF CA-125 levels were elevated at the time of diagnosis of spinal cord metastases and declined after the treatment completion.

Neurosurgical resection may be of benefit in selected patients if the tumor is well encapsulated, the systemic disease is under control and the tumor type is radio resistant. The role of chemotherapy in the management of CNS involvement from ovarian carcinoma remains unclear. Recent reports have demonstrated objective response of CNS metastases from ovarian cancer treated with platinum-based chemotherapy. It has been suggested that diffusion of systemically administered

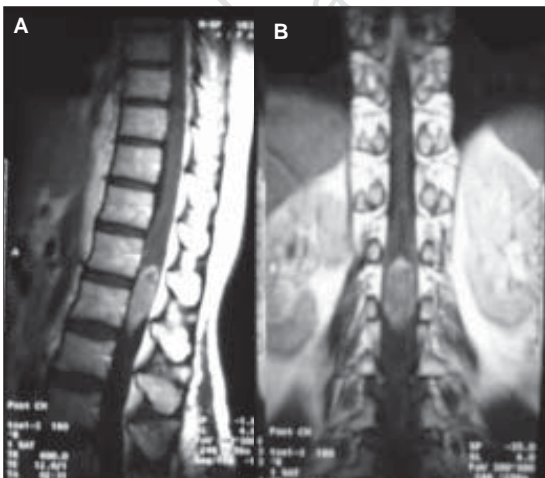


Figure 1: A. MRI (sagittal) shows intramedullary ovoid mass at the level of L1 and L2 (T2 W). B. MRI (coronal) shows intramedullary enhancing lesion at the level of L1 and L2 post contrast (T1W)

cytotoxic drugs into the CNS might be related to an alteration of the blood-brain barrier by intracranial lesions as well as radiotherapy. It is of interest that in the reported patient, carboplatin had good activity in the spinal cord metastasis.^[7]

To our knowledge, only four patients with isolated intramedullary spinal cord involvement from epithelial ovarian carcinoma have been reported. First reported case received steroids and radiotherapy.^[2] Second patient survived for 10 months after the diagnosis of intramedullary metastases and received steroids, surgical resection and carboplatin.^[7] The third patient underwent excision only and there was no disease recurrence till 24 months.^[8] Fourth one, reported recently, underwent surgery and postoperative radiotherapy with a disease-free follow-up of 16 months.^[6] However, our patient with isolated intramedullary spinal cord metastasis from epithelial ovarian cancer has responded very well to radiotherapy and chemotherapy and is in complete remission for the last 33 months.

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