INTRAMEDULLARY SPINAL CORD METASTASIS IN BREAST CARCINOMA

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ABSTRACT

Intramedullary spinal cord metastasis (ISCM) is a rare complication of some tumours. In this article, the authors present the case of a 55-year-old woman with breast carcinoma who presented with lumbar vertebral pain radiating to the lower limbs and weakness in the legs progressing to moderate paraparesis over a short interval of time. Eighteen months prior to the onset of symptoms, the patient underwent partial mammectomy with dissection axillae (level I-III) due to breast cancer. After clinical investigation, a total resection of the intramedullar tumour was made, and pathological findings showed metastatic carcinoma of the breast.

Key words: spinal cord, intramedullary metastasis, breast carcinoma

INTRODUCTION

Intramedullary spinal cord metastasis (ISCM) is rare, but with increasing use of magnetic resonance imaging (MRI), its occurrence is being encountered with increasing frequency. The outcome of surgical treatment is considered to be poor. The question of optimal treatment remains controversial.

CASE REPORT

A 55-year-old woman was admitted to the neurosurgery department with complaints of deep aching low back pain radiating in both legs with progressive weakness over one month, numbness in the lower extremities and sphincter disturbance. Eighteen months prior to the onset of symptoms, the patient underwent a partial left mammectomy with dissection axillae (level I-III) due to breast cancer (Carcinoma ductale mammae invasivum HG3, NG3). Upon neurological investigation, there was muscle weakness and difficulty walking, bilateral positive Babinski’s sings and increasing deep tendon reflexes, and sensory impairment appropriate to segmental level (conus medullaris).

MRI of the lumbar spine revealed an intramedullar mass lesion extending to the inferior two-thirds of L1, with hyperintensity on a T2-weighted image with contrast enhancement (Fig.1).

Laboratory findings were normal, and metastases were not found outside of the spinal cord (CT of brain and X-ray of lungs were normal).

The patient underwent laminectomy Th 12-L2 with total removal of the tumour by microsurgery (Fig.2).

The patient showed neurological improvement after surgical treatment. After eight months, the patient died of breast cancer. After clinical investigation, a total resection of the intramedullar tumour was made, and pathological findings showed metastatic carcinoma of the breast.

Klučne rijeći: kičmena moždina, intramedularna metastaza, karcinom dojke

DISCUSSION

Primary spinal cord tumours represent about 15% of primary CNS tumours: extradural (45-55%), intradural but extramedullary (40-50%) and intramedullary (5%) [1,2].
Intradural but extramedullary metastases are rare (2-4%) and consist of leptomeningeal metastases of carcinoma or lymphoma, which cause malignant meningitis.

Intramedullary spinal cord metastases are very rare and account for symptomatic metastatic spinal cord lesions. Small cell lung carcinoma (49.1-64%), breast carcinoma (11.14.5%), melanoma (3.6-7.5%), colorectal (3-7.3%), lymphoma (3-12%), renal cell carcinoma (3-5.5%) and unidentified (1.8-3%) are the most commonly diagnosed primary tumours from which the metastasis arises [1,2,3,4,5]. Most lung tumours are thought to spread to the intramedullary spinal cord through the arterial route. The second way that tumours are thought to metastasise is via the vertebral venous plexus of Batson. Finally, the third method of spread to the spinal cord is by direct extension from the nerve roots or the cerebrospinal fluid with malignant cells from tumours found elsewhere in the central nervous system [5].

Clinical features of ISCM depend on the site and extent of the spinal cord lesion as well as the rate of growth. A central lesion initially damages second sensory neurons that cross to the lateral spinotomatal tract; pain and temperature sensations are impaired in the distribution of the involved segment. As the lesion expands, anterior horn cells are also involved, and lower motor neuron weakness occurs. Weakness and pain present early as compared to sensory loss. With a lesion in cervical region, the sensory deficit to pain and temperature extends downwards in a "cape"-like distribution. Involvement of the corticospinal tracts produces upper motor neuron symptoms in the limbs below the level of the lesion. The bladder is usually involved later. In the cervical cord, sympathetic involvement may produce unilateral or bilateral Horner's syndrome [6].

None of these features can reliably differentiate intramedullary spinal cord metastases from malignant extramedullary spinal cord compression; however, the duration of symptoms is generally shorter in the case of intramedullary spinal cord metastases.

The use of MRI has facilitated the identification and localisation of spinal cord tumours. MRI with contrast medium is now the method of choice to determine whether the tumour lies within or outside the dura or the spinal cord. The examination must involve both T1- and T2-weighted images, the former often repeated with gadolinium enhancement. MRI can differentiate a syrinx or a cystic swelling within spinal cord from the solid intramedullary tumour. Metastases appear as lumps that enhance within the cord. Myelography and CT myelography generally give negative findings, especially in patients with small lesions that do not alter the contour of the spinal cord [7]. Lumbar puncture may precipitate acute deterioration if there is cord compression and may damage the spinal cord if it is tethered to the lower lumbar or sacral vertebral bodies. CSF cytology may reveal malignant cells.

While surgery is increasingly recommended for benign and malignant primary spinal cord tumours, the role of surgery in spinal metastasis, i.e., cancer that has spread to
the spine, is controversial. Recent developments in imaging as well as new surgical tools and techniques such as the use of an ultrasonic aspirator and laser have significantly expanded the role of surgery as an intervention. Some doctors may only recommend surgery for patients with a single metastatic site and no evidence of cancer growing at another site. A high dose of steroids may allow for limited and transient neurological improvement. Radiotherapy should be decompressed on the spinal cord depending on tumour type and the clinical circumstances. There is a theoretical risk of radiation-induced oedema due to the fact that the spinal cord is even more sensitive to the effects of radiation than the brain. Radiosurgery with advanced devices may be an option for some patients. Patients with ISCM have a very short life expectancy. Median survival after diagnosis is made is 3 to 4 months and depends on both the type of tumour and treatment modality [8]. Regardless of treatment, many patients survive less than 1 year.

REFERENCES: