T3-4 intradural extramedullary adenocarcinoma: A case report
Chun-Hsun Chen¹, Ming-Dar Tsai¹,²,*

ABSTRACT

Metastases to the spine are a common manifestation of breast cancer considerably reducing the quality of life. Surgeons must consider various available approaches for decreasing pain, reducing tumor burden, ensuring spinal stability, and treating neurological disorders. Intradural lesions are rare, accounting for only 5% of spinal metastases. This case was a 57-year-old female with a history of breast cancer and an intradural extramedullary lesion at the T3-4 level of the thoracic spine. She had suffered from left hip numbness and lower left limb weakness for 2 weeks. After completion of T2-3-4 decompressive laminectomy with complete removal of the tumor, her left hip numbness was relieved and lower left limb muscle strength improved. Intradural metastases are rare and often associated with limited survival time and focal neurological deficits. In this case, the patient experienced marked improvement to her neurological deficit through decompression surgery and resection of the tumor.

Keywords: Spinal metastasis, intradural tumor, metastatic breast cancer

INTRODUCTION

Metastases to the spine are a common manifestation of breast cancer, considerably reducing the quality of life of a patient[1, 2]. Surgeons must consider various available approaches for decreasing pain, reducing tumor burden, ensuring spinal stability, and treating neurological disorders[3, 4]. Intradural lesions are rare, accounting for only 5% of spinal metastases[5]. Herein, a case of a single solid intradural metastatic tumor is presented and discussed.

CASE PRESENTATION

A 57-year-old female with a history of left breast invasive ductal carcinoma, status postmodified radical mastectomy 3 years prior, had been regularly followed up for her disease at a general
surgery outpatient clinic. Recently, the patient presented at a neurological clinic complaining of left hip numbness and a 2-week progressive weakness. She noted that it was accompanied by a burning sensation and pain in the left hip area, and she was unable to walk long distances. A neurological examination indicated an increased deep tendon reflex at her bilateral knees and ankles, and that the muscle strength of her lower left limb was grade 3. The sensory level revealed numbness under the bilateral inguinal areas and pain at her left hip area. The anal tone was intact, she denied urinary incontinence, and her Babinski sign was normal. Initially, a lesion at the T12-L1 region was suspected because of her sensory level. However, a magnetic resonance image (MRI) of her thoracic spine showed an enhanced intradural mass with cord compression on the right side at the T3-4 level. (Figure 1.)

With the knowledge of a T3-4 intradural extramedullary tumor, the patient underwent T2-3-4 decompressive laminectomy. During the operation, the tumor was found surrounding the T3-4 cord of the left dorsal portion of the spine. The demarcation of the tumor and cord was clear, but because the tumor had adhered tightly to the cord, total excision was not feasible. A near-total radical excision of the tumor was performed, and the subsequent frozen pathological report indicated adenocarcinoma. The pathological report also revealed a proliferation of round and polygonal neoplastic cells bearing highly atypical hyperchromatic and pleomorphic nuclei in a microscopic presentation. Using a special stain, an immunohistochemical (IHC) study of CK7 was positive, but hormone studies of estrogen receptors, progesterone receptors, and IHC 2/neu were negative.

Postoperatively, the patient received regular radiotherapy (50 cGy/d, five times/wk for 6 weeks), and chemotherapy with Taxotere (110 mg in D5W 200 c.c. IVF run 1 hour) and Cisplatin (53 mg in N/S 400 c.c. IVF run 5 hours) cycled every 21 days for six cycles. Subsequently, the patient showed better clinical recovery; her left hip numbness was relieved and the muscle strength of her lower left limb improved to grade 5. Because of the potential for cerebrospinal fluid dissemination, the brain and a spinal MRI were examined; no lesions besides the T3-4 level were noted.

**DISCUSSION**

Although cancer patients currently survive longer because of improvements in treatments, metastases to the spine affect quality of life as well as survival[6]. Of all cancer patients, 50% to 70% have metastases at the time of their death, with the spine being the most common osseous site. Approximately 50% of spinal metastases arise from one of three primary cancer types—breast, lung, or...
prostate—with additional cases occurring from renal, gastrointestinal, and thyroid sarcoma, as well as lymphoreticular malignancies, lymphoma, and multiple myeloma[7]. The thoracic spine is the most common site of spinal metastases (70%), followed by the lumbar spine (20%) and cervical spine (10%). The disease can arise from any of three locations: the vertebral column (85%), the paravertebral region (10% to 15%), or, rarely, the epidural or subarachnoid and intramedullary space (< 5%). Thus, this case of thoracic metastatic adenocarcinoma from breast cancer with one consolidated intradural tumor was very rare. Intradural spinal cord metastases (ISCM) are even less frequent. A PubMed literature search for ISCM from breast cancer yielded only nine other cases[9, 10, 11].

The most common symptom of spinal metastases is pain, which is generally accompanied by neurological signs of spinal cord compression over a prolonged period. There are two types of pain: mechanical and tumor-related. Tumor-related pain typically begins insidiously and is progressive as a dull and constant pattern. Additionally, it may be related to the venous engorgement of a tumor, causing an increased mass effect on surrounding pain-sensitive structures such as the periosteum, dura, nerve roots, cauda equina, or spinal cord. Conversely, mechanical pain is the result of severe vertebral destruction, with enough structural abnormality to cause instability. Standing, increased activity, and coughing increase pain, whereas assuming a supine position decreases pain; this is similar to the pain of traumatic instability[7]. Neurological symptoms can be broadly categorized as radiculopathy and myelopathy, the features of which depend on the level and extent of the disease. Myelopathy often presents as a gait disturbance, followed by spasticity, generalized weakness, sensory loss, and autonomic dysfunction; radiographs are abnormal in 85% of patients with metastatic epidural compression. Among spinal cord tumors, the epiconus group displays upper motor neuron syndrome and the conus group displayed lower motor neuron syndrome. Spinal cord tumors have been frequently misdiagnosed as intervertebral disc diseases because of similar symptoms; therefore, spinal cord tumors should be considered in differential diagnoses of back and leg pain, and routine lumbar MRIs that examine the thoracolumbar junction are highly recommended[12]. In this case, the patient suffered from left hip pain, but an MRI revealed no spine structure problems; instead, her pain was related to tumor compression with upper-motor-neuron-associated radiculomyelopathy.

Approaches can involve chemotherapy, radiation therapy, surgery, or a combination of these approaches. Indications for surgery include radioresistant tumors (e.g., sarcoma, lung, colon, renal cell, breast), obvious spinal instability, clinically significant neural compression secondary to a retropulsed bone or from spinal deformity, intratable pain unresponsive to nonoperative measures, and radiation failure resulting from the progression of the deficit during treatment or exceeding spinal cord tolerance. In this case, the patient’s symptoms were related to intradural compression; hence, decompression surgery was performed to alleviate her neurological deficit. Resection of intradural extramedullary spine tumors appears to substantially improve patient quality of life by decreasing patient disability and pain[8]. This patient had a positive outcome with decompressive laminectomy.
and radical debulking, following a timely discovery of the tumor during a follow-up appointment post-breast cancer treatment.

**CONCLUSIONS**

Although a metastatic intradural extramedullary tumor is rare (< 5%), clinical physicians should be aware of this diagnosis if patients present with cord compression syndrome.

**REFERENCES**


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一般而言乳癌轉移至脊椎會降低患者生活品質，外科醫師必須考慮不同的處理方式來減少疼痛，減少腫瘤範圍以及增加脊椎穩定性來改善神經學上造成的疾患。脊椎管內癌症轉移一般占所有脊椎腫瘤百分之五。這位個案為 57 歲女性，本身為乳癌患者，併有轉移至胸椎第三四節脊椎管內髓外處，入院前患者發現左側臀部麻痛及左側下肢無力兩週。患者接受胸椎第二三四節減壓性椎板切開術及腫瘤切除手術後，左側臀部麻痛和下肢無力的情形改善。因為單純脊椎管內轉移個案臨床少見，且通常伴隨有限的存活時間和局部神經學的缺損。此個案臨床神經學疾患也在手術切除腫瘤後，得到較好的控制和復原。

關鍵字：脊椎轉移，脊髓膜內腫瘤，轉移性乳癌

中文摘要

1台北市新光吳火獅紀念醫院神經外科
2新北市新莊區私立輔仁大學醫學系
投稿日期：2016 年 05 月 13 日
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*通訊作者：蔡明達 電子信箱：tmdlhealer@gmail.com