Case Report

Different Outcome of Myeloid Sarcoma with Spinal Cord Compression Preceding Acute Myeloid Leukemia: Report of Two Cases and Review of Literatures

Qiang Yin[1], Yang-yang Zhou[2*], Duo Chen[2], Wen-liang Li[1**]

[1]*Key Laboratory of Cancer Prevention and Therapy, Department of Neurosurgery and Neuro-oncology, Tianjin Medical University Cancer Hospital, Tianjin 300060, China;* [2]*Department of Neurosurgery, Shengjing Hospital Affiliated to China Medical University, Shenyang, China*

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ABSTRACT

Myeloid sarcomas (MS) preceding acute myeloid leukemia (AML) are rare, which presenting as acute spinal cord compression is even rare. Here we report two new cases of myeloid sarcoma patients, whose outcomes were different. Twenty-seven patients with spinal MS preceding AML have been reported to date, including the two cases presented in this article. Surgical decompression was performed in 25 of the 27 patients, and 23 of these received additional anti-AML therapy. Considering our patients and the published cases in the literature we suggest that immunohistochemical study plays an essential role in arriving at a correct diagnosis of MS, and that emergency surgery to resect spinal MS is an available treatment to make neural function recovery, and that the disease must be treated with intensive chemotherapy similar to that used to treat AML as soon as possible after resection or irradiation of the tumor.

Key words: Spine; Myeloid sarcoma; Immunhistochemistry; Acute myeloid leukemia;

INTRODUCTION

MS can arise anywhere, but usually occur in the bone, skin, and lymph nodes[1]. Occurrence in the central nervous system and spinal cord is uncommon[2]. Once the incident occurs, the neurological dysfunction becomes worse and worse. So, emergency surgical decompression is an available treatment to make neural function recovery. To reduce the risk of subsequent AML in patients with nonleukemic MS, it is important to emphasize the need to treat patients who had nonleukemic MS with AML-type therapy, except of resection or irradiation[3,4]. Herein, we report two cases of patients with MS with spinal cord compression preceding AML. They accepted different therapies and their outcomes were different.

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*Contributed equally to this study.
**Corresponding author.
E-mail: lwlyq1982@126.com

CASE REPORT

Case One

A 28-year-old previously healthy man presented with progressive low back pain and numbness of his legs for 10 days and bladder incontinence for 1 day. At physical examination, he was awake, alert, and fully oriented. His cranial nerves were intact. Sensory assessment revealed hypoesthesia below L12 and motor examination revealed 2/5 paraparesis. Deep tendon reflexes were hyperactive and Babinski signs were bilaterally positive. Laboratory evaluation revealed a white blood cell count of 3,900/mm^3, a hemoglobin level of 11.0 g/dl and a hematocrit of 38.2%. Magnetic resonance imaging of the spine revealed a posterior epidural mass between T12 and L1 (Figure 1). High-dose methylprednisolone was given initially, and he underwent emergent spinal cord decompression with T12-L1 laminectomy and tumor resection. A soft and grayish tumor compressing the

spinal cord was identified. Histologically the tumor was composed of a relatively uniform population of immature cells (Figure 2A). Immunohistochemical staining revealed the expressions of CD68, CD45, CD43, CD117 and lysozyme but not of MPO, CD20(Figure 2 B-H). The result suggested a diagnosis of MS in vertebral canal. There was nothing wrong with both bone marrow biopsy and his blood. After 10 days he gradually gained strength in his lower extremities and his bladder function was recovered. But the patient refused standard chemotherapy and radiation therapy to the spinal axis and tumor bed. After 4 months he presented with progressive low back pain and a high fever. At that time we found immature monoblasts from his blood (Figure 3A). And bone marrow biopsy results were consistent with acute myelocytic leukemia. The results of bone marrow slides showed that bone marrow hyperplasia was supreme, and most of the myeloid cells were immature monoblasts (Figure 3B). The patient was treated with anti-AML therapy, but died of sepsis finally.

Case Two

A 20-year-old girl presented with progressive back pain and numbness of her legs for 3 days. Sensory assessment revealed hypoesthesia below T7 and motor examination revealed 3/5 paraparesis. She was unable to stand or walk independently. Deep tendon reflexes were hyperactive and Babinski signs were bilaterally positive. Laboratory evaluation revealed a white blood cell count of 4,900/mm^3, a hemogloin level of 12.2 g/dl and a hematocrit of 37.2%. Magnetic resonance imaging of the thoracic spine revealed a posterior epidural mass between T7 and T9 (Figure 4). She underwent emergent spinal cord decompression with T7-T9 and tumor resection. A soft tumor compressing the spinal cord was identified. Histologically the tumor was composed of a relatively uniform population of immature cells, most of them were monocaryon (Figure 5A). Immunohistochemical staining revealed the expressions of CD68, CD45, and lysozyme, but not of MPO, CD20 (Figure 5B-F). These findings were consistent with a diagnosis of MS. There was nothing wrong with both bone marrow biopsy and her blood. After 9 days she gradually gained strength in his lower extremities. The patient accepted standard chemotherapy and radiation therapy to the spinal axis and tumor bed. During the 20 months follow-up she was with no evidence of leukemia disease, and there was nothing wrong with results of her three bone marrow biopsy.

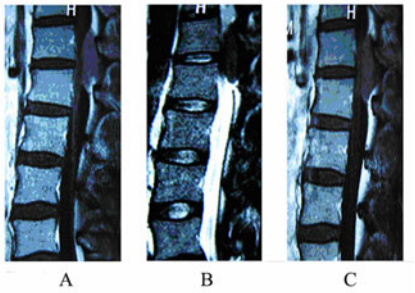

Figure 1. MRI studies at the level of the T12-L1 disc space demonstrating the posterior epidural mass with near total obliteration of the spinal canal. (A): T1-weighted MRI scan; (B): T2-weighted MRI scan; (C): T1-weightd gadolinium-enhanced MRI scan.

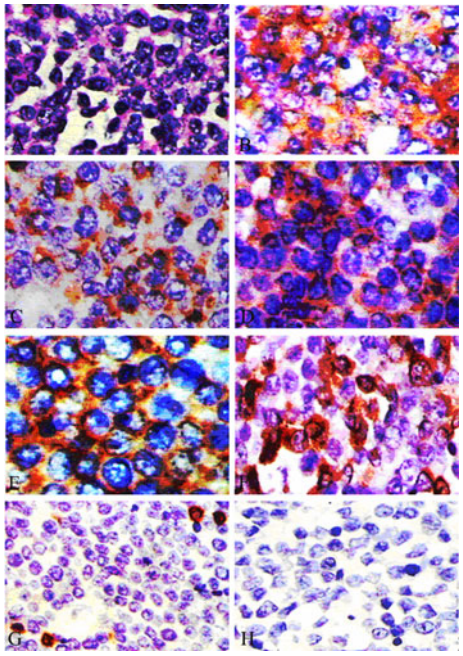

Figure 2. The histological and immunohistochemical study (case one). (A): Micrograph showing a meyloid sarcoma composed of atypical cells (Hematoxylin and eosin stain ×400); (B-H): Photomicrographs demonstrating positive immunohistochemical staining for CD68(B), CD45(C), CD43(D), CD117(E), Lysozyme(F) and negative for MPO(G), CD20(H).

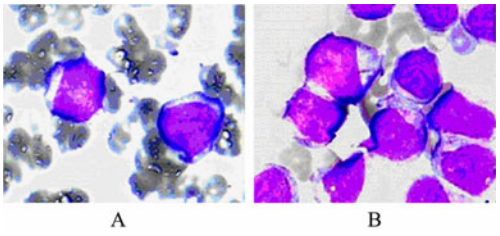

Figure 3. photomicrograph showing immature mono- blasts in peripheral blood. (A) and in bone marrow (B).