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Clinical Professor of Neurological Surgery, School of Medicine, State U. of NY at Stony Brook

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Case Report

Myeloid sarcoma of the thoracic spine: A case report

Tarika Deepak Patel[1], Ikechukwu Uzoaru[2], Bradley P. Sutton[3], Paul M. Arnold[4]

[1]Department of Carle Illinois College of Medicine, University of Illinois Urbana-Champaign, Urbana, Illinois, United States, [2]Department of Pathology and Laboratory Medicine, Carle Foundation Hospital, Urbana, Illinois, United States, [3]Department of Bioengineering, University of Illinois Urbana-Champaign, Urbana, Illinois, United States, [4]Department of Neurosurgery, Carle Foundation Hospital, Urbana, Illinois, United States.

E-mail: Tarika Deepak Patel - tdp2@illinois.edu; Ikechukwu Uzoaru - ike.uzoaru@carle.com; Bradley P. Sutton - bsutton@illinois.edu; *Paul M. Arnold - paul.arnold@carle.com

***Corresponding author:**
Paul M. Arnold,
Department of Neurosurgery,
Carle Foundation Hospital,
Urbana, Illinois, United States.

paul.arnold@carle.com

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ABSTRACT

Background: Myeloid sarcoma is an uncommon malignant neoplasm that typically arises at extramedullary sites and is associated with a diagnosis of acute myeloid leukemia. While myeloid sarcoma can involve any organ, central nervous system involvement is rare, particularly in the adult population.

Case Description: An 87-year-old female presented with progressive paraparesis of 5 days' duration. The magnetic resonance imaging (MRI) revealed an epidural tumor from T4 to T7 with cord compression. When she underwent a laminectomy for tumor resection, the pathology revealed a myeloid sarcoma with monocytic differentiation. Although she improved postoperatively, she elected to pursue hospice care and expired 4 months later.

Conclusion: Myeloid sarcoma is an uncommon malignant spinal neoplasm rarely seen in adults. For this 87-year-old female, MRI-documented cord compression warranted decompressive surgery. Although this patient did not opt for adjuvant therapy, other patients with such lesions may undergo additional chemotherapy or radiation therapy. Nevertheless, optimal management for such malignant tumor is still undefined.

Keywords: Chloroma, Cord compression, Granulocytic sarcoma, Myeloid sarcoma

INTRODUCTION

Myeloid sarcoma, also known as "granulocytic sarcoma" and "chloroma," is a malignant neoplasm of hematopoietic origin that arises at extramedullary sites.[7] It is commonly associated with myeloid neoplasms such as acute myeloid leukemia (AML).[2-4,6,10] Within the central nervous system (CNS), involvement with the spinal cord is more frequent than with the brain.[7] Epidural involvement only occurs in about 0.2% of patients with AML.[9] Although surgical resection is recommended for symptomatic spinal cord compression, 19.2% of cases report complete remission of CNS myeloid sarcoma following chemotherapy or irradiation.[7] Here, we report a 87-year-old female with an isolated myeloid sarcoma from T4 to T7 (i.e., with a simultaneous diagnosis of AML) who underwent decompressive spinal surgery.

CASE REPORT

An 87-year-old female presented with progressive paraparesis (i.e., left leg 3/5 and right leg 2/5) of 5 days' duration. The patient was started on Rocephin for a urinary tract

infection, but computed tomography angiogram of the head and neck and magnetic resonance imaging of the thoracic spine showed extensive bony metastatic disease with an epidural tumor at T4–T7 with severe cord compression [Figure 1]. She underwent a T3–T8 laminectomy for tumor resection. Preoperatively, she was given intravenous immunoglobulin, platelet transfusion, fresh frozen plasma, and Vitamin K to normalize her international normalized ratio (INR). The pathology revealed a myeloid sarcoma with monocytic differentiation and CD68-positive immunohistochemical staining [Figures 2 and 3]. Postoperatively, she regained some strength in her lower extremities. However, once a bone marrow biopsy revealed diffuse involvement with myeloid sarcoma and monocytic differentiation, she elected no further treatment (i.e., chemotherapy or radiation) and expired 4 months later.

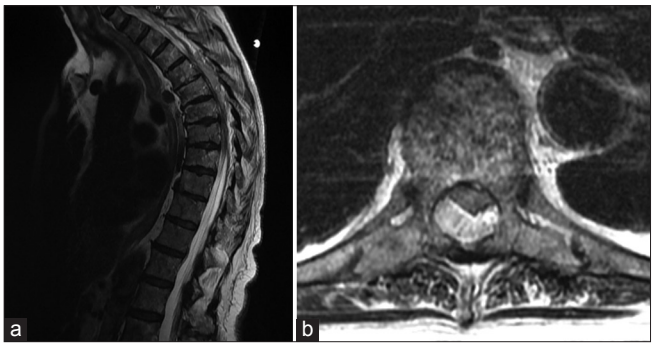

Figure 1: (a) Sagittal T2 magnetic resonance imaging (MRI) show severe spinal cord compression at T5, (b) axial T2 MRI show severe spinal cord compression at T5.

DISCUSSION

Myeloid sarcoma is an uncommon, extramedullary neoplasm derived from malignant myeloid cell precursors.[1] In most cases, patients with spinal cord involvement present with bowel/bladder dysfunction or back or lower limb weakness and/or pain [Table 1]. Histological examination is vital for a diagnosis, but variations are seen according to degree of differentiation.[8] Optimal treatment strategies are still to be clarified due to the rarity of the disease. Myeloid sarcoma has been seen to be sensitive to radiation and chemotherapy; however, relapses are not uncommon.[9] Other treatment modalities include surgical resection, intrathecal chemotherapy, and allogeneic stem cell transplantation.[9] The 1-year survival rate with systemic chemotherapy treatment was 46% and only 16% with other treatment modalities.[5] Survival rate can vary from a few days to up to several months or years.[1] Thus, comprehensive history, early diagnosis, and defining a treatment strategy should be the priority in patients who are suspected to have myeloid sarcoma because the prognosis of the patient could be significantly impacted.

Table 1: Summary of spine myeloid sarcoma cases in adults with AML from 2000 to present.

Case	Age (years)/Sex	Location	Deficits	Management	Outcome
1[2]	47/M	Intrathecal involvement from L4 to L5	Back pain radiating to the left leg with associated weakness and diminished sensation	Laminectomy, radiation	Alive
2[3]	59/M	Epidural involvement from T7 to T10	Paraplegia, bowel and bladder incontinence	Laminectomy, intrathecal chemotherapy	Alive with paraplegia still present
3[4]	20/M	Epidural involvement from T4 to T9	Weakness and numbness in lower limbs	Decompression and radiation	Deceased 5 months later
4[6]	29/M	T7–T9 with spinal canal and foramina involvement	Back pain	Laminectomy, chemotherapy	Alive and in remission
5[7]	23/M	Left S2	Left buttock pain radiating into his left posterior thigh	Chemotherapy, radiation, allogeneic transplant	Alive and in remission
6[8]	64/M	T6–T9 bilateral neural foramina, epidural space, and paraspinal tissue	Cauda equina syndrome	Radiotherapy and systemic chemotherapy	Deceased 4 months later
7[10]	28/F	Right fourth lumbar root	Back pain and numbness	N/A	N/A
8-Patient	87/F	Epidural involvement from T4 to T7	Weakness of lower limbs	Laminectomy	Deceased 4 months later in hospice

AML: Acute myeloid leukemia, F: Female, M: Male, N/A: Not Applicable

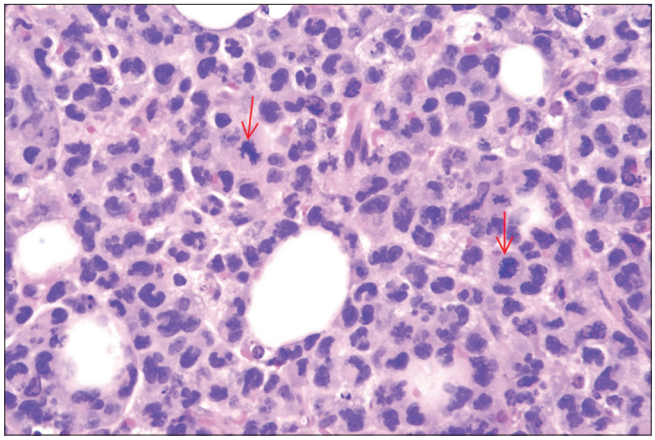

Figure 2: Myeloid sarcoma with monocytic differentiation (red arrows show mitosis). H&E ×400.

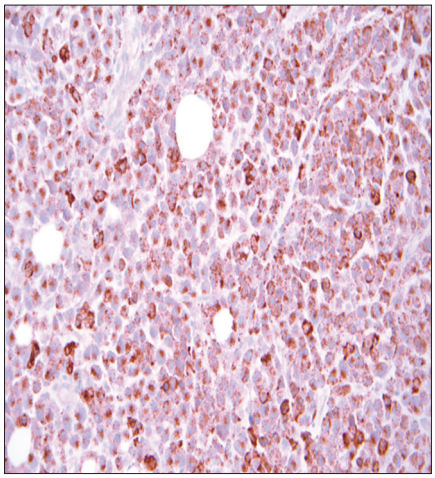

Figure 3: Immunohistochemical staining of CD68 ×200.

CONCLUSION

Myeloid sarcoma rarely presents in the extra-axial spine and although the optimal management for these lesions is not well-defined, surgical excision followed by chemotherapy or radiotherapy would most likely be considered.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Conflicts of interest

There are no conflicts of interest.

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