CASE REPORT

GRANULOCYTIC SARCOMA OF BREAST: AN ALEUKEMIC PRESENTATION

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ABSTRACT

Granulocytic sarcoma is a rare extramedullary tumor composed of immature myeloid cells. It is usually associated with leukemia or other myeloproliferative disorders but can also occur without overt hematologic diseases. The breast is an uncommon site of presentation and requires a high index of suspicion for diagnosis. We report such a case in a 45-year-old female, who presented with nontender left breast lump of 6 months’ duration. A peripheral smear and bone marrow examination at that time was normal. A lumpectomy was done. An H and E diagnosis of lobular carcinoma vs. non-Hodgkin’s lymphoma was entertained. Immunostains, however, revealed myeloperoxidase, naphthol AS-D chloroacetate esterase and CD43 positivity, indicating a diagnosis of granulocytic sarcoma. It appears that early initiation of systemic AML-type chemotherapy is beneficial and may delay or avert the development of AML in bone marrow and blood. Eight months later, the patient presented with an orbital mass; bone marrow and peripheral smear involvement by AML.

Key words: Breast, granulocytic sarcoma

INTRODUCTION

The term granulocytic sarcoma designates an infrequent solid tumor composed of aggregates of immature granulocytic precursor in extramedullary sites. These neoplasms are known by a variety of other names in literature, including monocytic sarcoma, extramedullary myeloid cell tumor, myeloblastoma and chloroma. The lesion generally occurs either during the natural course of AML or after a remission has been achieved; however, it may rarely represent the initial manifestations of the disease.[1] as was the case in our patient, who presented with a granulocytic sarcoma of the breast 8 months prior to the appearance of acute myeloid leukemia. Myeloid sarcoma presenting as a breast mass is uncommon, with only 61 cases reported in literature. Most cases reported occurred in patients with
a history of AML or other myeloid disorders. We have identified six cases in literature with adequate follow-up that occurred as an isolated breast mass, without a history or subsequent development of AML.

CASE REPORT

A 45-year-old female presented with a left-sided nontender breast lump of 6 months’ duration. A peripheral smear at that stage was normal. Mammography showed a single noncalcified, irregular mass with poorly defined feathery margin. A lumpectomy was done, following an inconclusive fine needle aspiration cytology report, which was scanty and nonrepresentative in nature.

Gross examination

Gross examination revealed a well-demarcated but unencapsulated tumor measuring 6 × 5 × 2.5 cm, covered by fibroadipose tissues. Cut section was firm, grayish white and solid [Figure 1].

Histopathology

Histopathology revealed a diffuse discohesive proliferation of small round-to-oval cells (myeloblasts), with high N/C ratio, hyperchromatic vesicular nuclei, with raised mitotic activity. The rest of the neoplastic cells in all stages of maturation included promyelocytes, myelocytes, metamyelocytes and stab forms. Tubule formation was not seen. An Indian file and targetoid pattern were seen at places [Figures 2, 3]. The stroma was densely desmoplastic. A diagnosis of lobular carcinoma v/s. non-Hodgkin lymphoma (NHL) was made based on the HandE slides.

Immunohistochemistry

Immunohistochemistry study revealed myeloperoxidase, naphthol AS-D chloroacetate esterase and CD43 positivity. LCA, CK, and EMA were negative, establishing a diagnosis of granulocytic sarcoma and ruling out diagnoses of lymphoma and carcinoma.

Peripheral smear and bone marrow examination were performed after diagnosis of GS on lumpectomy and IHC, but they revealed normal findings. Eight months later, the patient presented with an orbital mass, bone marrow and peripheral smear involvement by acute myeloid leukemia. Peripheral smear showed 50% myeloblasts, and bone marrow aspirate showed 80% myeloblasts. The blasts were myeloperoxidase-positive, showing auer rods; and naphthol AS-D chloroacetate esterase positive, showing myeloid differentiation. There was no hepatosplenomegaly, lymphadenopathy, and the other breast was normal.

DISCUSSION

This primary extramedullary lesion may indeed represent a diagnostic and therapeutic dilemma for both the hematopathologist and oncologist and requires a high index of suspicion for diagnosis. It may follow, accompany or signal AML or CML. Granulocytic sarcoma may also occur in patients with myelodysplastic syndrome, where it is a sign of imminent disease progression. In our case, it antedated the presentation of AML by 8 months, as described in literature.

The primary sites of occurrence are usually the lymph nodes, skin, CNS and small intestine, but the breast is an uncommon site of presentation. The age at presentation ranges from 31-73 years, with an average of 52 years. Our patient was 45 years of age. The patients are usually female, as was our case, though it has been reported in males too, who present with gynecomastia. Histologically well-differentiated, poorly differentiated and blastic forms have been described in literature. Our case was a well-differentiated form [Figures 2, 3].

The differential diagnosis should include all tumors with a diffuse proliferation of small tumor cells, i.e., lymphoma, NHL, carcinomas and melanomas. Among the carcinomas, lobular carcinoma and undifferentiated carcinoma enter the differential diagnosis. Non-neoplastic conditions like inflammation and extramedullary hemopoiesis should also be considered. In our case also, the initial diagnosis was lobular carcinoma v/s. NHL. It was only after immunohistochemistry was done, which revealed CD45 positivity, LCA, CK and EMA negativity, that a diagnosis of granulocytic sarcoma was made, for which the patient was treated as acute myelogenous leukemia with systemic chemotherapy. Eight months later, the patient presented with an orbital mass, bone marrow and peripheral smear involvement by acute myeloid leukemia. Our case presented with isolated...
mass in the breast, without history of acute myeloid leukemia at last follow-up. Immunohistochemical studies were extremely helpful for recognizing isolated myeloid sarcoma. Such isolated presentation is extremely rare, and to diagnose such cases early is beneficial and may delay or avert the development of AML in bone marrow and blood.

REFERENCES


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Announcement

Dr. J. C. Patel Birth Centenary Celebration Committee

The year 2008 is the Birth Centenary Year of Dr. J. C. Patel. Some of his students/admirers felt that it would be a good idea to celebrate this Centenary Year by organizing CMEs, Orations/Lectures, Conferences, etc. during the year. He was associated with many professional bodies, which meet regularly every year; during these annual meetings/conferences, a lecture/symposium, etc can be organized as a part of Centenary celebrations. We would like to form a Dr. J. C. Patel Birth Centenary Celebrations Committee. All his past students/admirers are invited to join the committee (without any financial commitment). Kindly communicate your name, designation, postal address, telephone number and E-mail ID to Dr. B. C. Mehta at Flat 504, Prachi Society, Juhu-Versova Link Road, Andheri (W0, Mumbai 400 053 (drmehta.bc@gmail.com).