Original Research Paper

Volume - 12 | Issue - 05 | May - 2022 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Pathology

CYTOLOGICAL DIAGNOSIS OF CUTANEOUS MYELOID SARCOMA-A RARE CASE REPORT

Junu Devi Associate Professor, Department of Pathology, Gauhati Medical College, Guwahati.

Prabal Das Post graduate trainee, Department of Pathology, Gauhati Medical College, Guwahati.

ABSTRACT **Introduction:** Granulocytic sarcoma or myeloid sarcoma also known as chloroma is a rare extramedullary tumour which may occur as a manifestation of acute myeloid leukaemia, myelodysplastic syndrome or blast crisis in chronic myeloproliferative disorder or may precede systemic leukaemia. Most common site includes skin, soft tissue and lymph nodes. Orbit is most commonly involved in paediatric age group.

Case Report: A case of 51 years old female was admitted in department of haematology, presented with multiple nodules in nasal cavity, forehead, bilateral arms and whole abdomen. Bone marrow aspiration cytology shows 21% myeloid blast with transformation of the CML to AML.FNAC was done from multiple nodules which showed plenty of myeloid precursors and blast and diagnosis of granulocytic sarcoma was given. BCR-ABL study came out positive and karyotyping for haematological malignancy showed t (5; 12)(q31;24.3). Patient was given chemotherapy, but showed no improvement.

Conclusion: Granulocytic sarcoma (GS) is a rare malignant solid tumour in adults. Diagnosis of GS has been a problem for pathologist because of relatively immature nature of tumour cells and mostly misdiagnosed as Non Hodgkin's lymphoma. Diagnosis of GS is considered as an adverse prognostic factor but early confirmation of diagnosis and treatment initiation might improve the prognosis.

KEYWORDS : FNAC, chloroma, granulocytic sarcoma, AML

INTRODUCTION

• Myeloid sarcoma is a rare condition occurring in extramedullary site.
• The World Health Organization defines myeloid sarcoma as "tumor mass consisting of myeloid blasts, with or without maturation, occurring at an anatomical site other than the bone marrow". [1]
• Also known as granulocytic sarcoma or chloroma. [2]
• The term chloroma was first coined by King in 1853 because of its green colour secondary to the enzymatic action of myeloperoxidase in the tumor cells. But not all lesions show greenish color, thus the preferred term is myeloid sarcoma. [2][3]
• The most commonly affected site are skin, lymph nodes, gastrointestinal tract, soft tissue, and testes and in <10% cases presents at multiple anatomical site.
• Most common age of presentation is between 45 and 55 years of age.
• The presentation of the disease is highly variable and may precede or occur concomitantly with acute and chronic myeloid leukemias, other myeloproliferative disorders, and myelodysplastic syndromes, or occur without known hematological disease. [3][4]
• Myeloid sarcoma may also develop in cancer patients treated previously with chemotherapy, secondary to therapy and can appear at any age and involve virtually any anatomic site. [4]

IMAGES

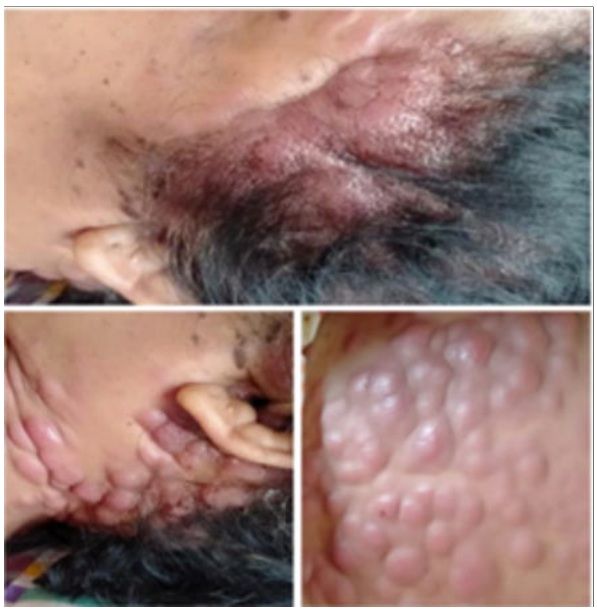


Fig 1: Cutaneous nodules

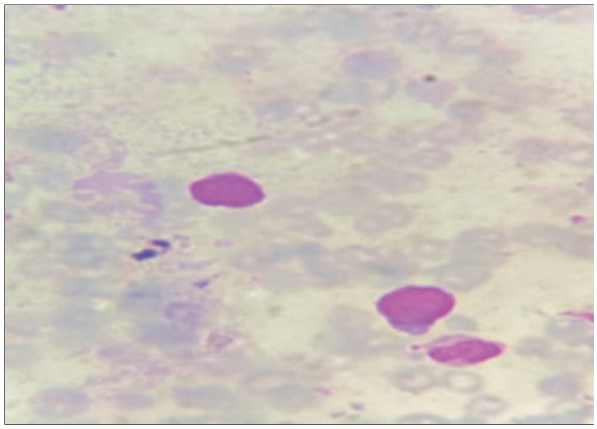


Fig 2: Blast in PBS

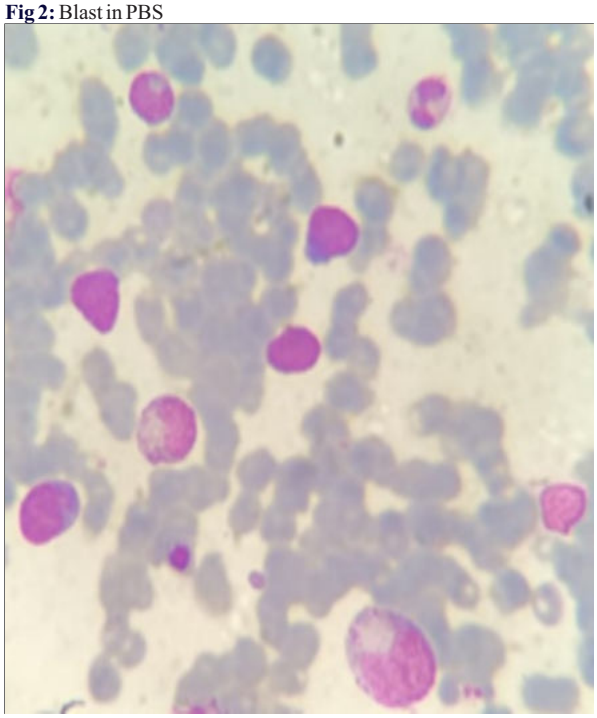


Fig 3: Granulocytic Precursors In PBS

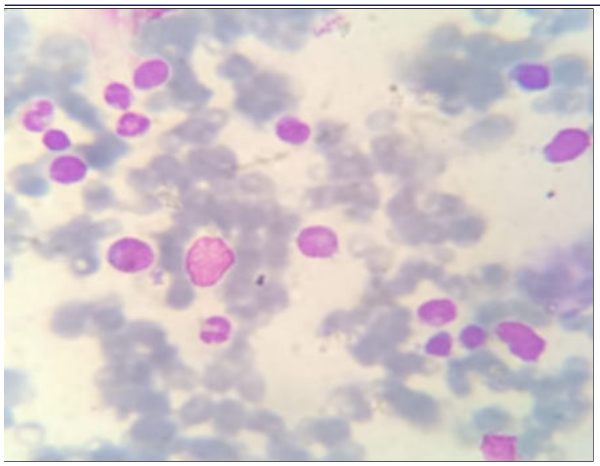


Fig 4: Neutrophil And Granulocytic Precursors

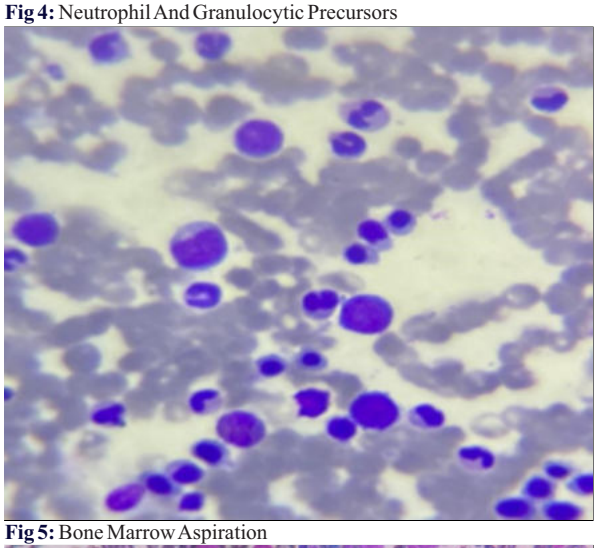
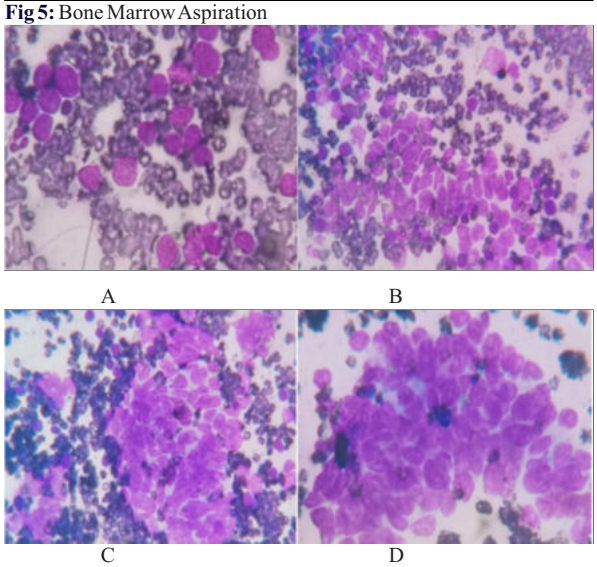


Fig 5: Bone Marrow Aspiration



A B C D

Fig 6: FNAC Showing Blastic Cells In Sheets Of Dissociated Cells (A, B) And In Groups (C, D) With High N: C Ratio

CASE REPORT

• A 51 years old female was admitted in Department of Haematology, Gauhati Medical College and Hospital as a known case of Chronic Myeloid Leukaemia.
• Before admission she was treated with Imatinib and latter Dasatinib.
• The lady presented with innumerable, non-pruritic, non-tender, red and purple papules and nodules in nasal cavity, forehead, bilateral arms and thighs, back and over the abdomen for over 3 months. (Fig 1)
• Peripheral blood smear reveals neutrophilic leukocytosis with shift to left and presence of 16% myeloid blast. (Fig 2, 3, 4)
• Bone marrow smears show normocellular marrow fragments with predominance of granulocytes and their precursors, 21% myeloid blast with transformation of the CML to AML. (Fig 5)
• Fine Needle Aspiration Cytology was done from multiple cutaneous nodules which revealed plenty of myeloid precursors and sheets of dissociated and small groups of small to medium blastic cells or blast with high N: C ratio, scanty cytoplasm, and round to oval large nuclei with fine to coarsely granular chromatin with multiple nucleoli. (Fig 6)
• BCR-ABL study was done using real time PCR assay and it was positive.
• Karyotyping for haematological malignancy was abnormal which revealed t(5;12)(q31;24.3) .
• Patient was given chemotherapy, but showed no improvement and expired 21 days after admission.

DISCUSSION

• Myeloid sarcoma occurs in the absence of an underlying AML or other myeloid neoplasm in about one quarter of cases and its diagnosis is considered equivalent of diagnosis of AML.[1]
• Cutaneous involvement in MS accounts for 17% to 28% of the cases.[4]
• Isolated myeloid sarcoma occurs in 8-20% of patients who have undergone allogeneic stem cell transplantation.[1]
• MS is sub-classified according to the most abundant cell type into granulocytic, monoblastic or myelomonocytic and according to cell maturation into immature, mature and blastic types.[5]
• Diagnosis of MS is based on morphological evaluation of tissue from involved sites and bone marrow aspiration cytology as well as biopsy.[6]
• The diagnosis of myeloid sarcoma is also based on Immunohistochemistry where myeloperoxidase and lysozyme are markers used to define the myeloid origin of the infiltrate.[7]
• In cases without associated AML, MS are frequently misdiagnosed, most often as non-Hodgkin lymphoma. Other conditions include undifferentiated cancer, malignant melanoma, extramedullary hematopoiesis and inflammation.[6]
• Tyrosine Kinase Inhibitors (imatinib) are considered the first-line treatment in the vast majority of cases of chronic myeloid leukemia.
• In our case MS was of blastic type with transformation of CML to AML.

CONCLUSION

• Patients with AML, CML or MDS concomitant myeloid sarcoma had worse survival than patients with isolated myeloid sarcoma.[8]
• Allogenic Hematopoietic Cell Transplantation in the setting of MS with concurrent AML may improve the outcome of these patients in adjunct to chemotherapy.[7]
• Though diagnosis of MS is considered as an adverse prognostic factor but early confirmation of diagnosis and treatment initiation might improve the prognosis.

REFERENCES

1. Pileri SA Orazi A.Falini B. Myeloid sarcoma.WHO classification of tumours of haematopoietic and lymphoid tisuues.pg167-168
2. Richard Bakst, Ann Jakubowski, and Joachim Yahalom. Recurrent Neurotropic Chloroma: Report of a Case and Review of the Literature. Volume 2011 |Article ID 854240
3. Erica Rodrigues de Araujo Vasconcelos, Alexander Richard, Bauk Mayra, Carrijo Rochae. Cutaneous myeloid sarcoma associated with chronic myeloid leukemia. DOI: http://dx.doi.org/10.1590/abd1806-4841.20176042
4. Yahya Daneshbod, Shiraz Molecular Pathology Research Center; and L. Jeffrey Medeiros. Dermal myeloid sarcoma as an initial presentation of acute myeloid leukemia. BLOOD, 23 FEBRUARY 2017 x VOLUME 129, NUMBER 8
5. Batia Avni, and Maya Koren-Michowitz. Myeloid Sarcoma: Current Approach and Therapeutic Options. Ther Adv Hematol. 2011 Oct; 2(5): 309–316.
6. Wronska M, Golbari NM, D'Abreo N and Sticco K. Cutaneous Myeloid Sarcoma. Journal of Hematology & Multiple Myeloma. Published: 13 Sep, 2018
7. Amador-Ortiz C, Hurley MY, Ghahramani GK, Frisch S, Klco JM, Lind AC, et al. Use of classic and novel immunohistochemical markers in the diagnosis of cutaneous myeloid sarcoma. J Cutan Pathol. 2011;38:945-53.
8. Omar A. Shahin and Farhad Ravandi. Myeloid sarcoma. Curr Opin Hematol 2020, 27:000–000