

*Case Report***Granulocytic Sarcoma - Cytodiagnosis of Two Cases**S Aruna¹, Jadhav M N¹, Haravi Rekha M¹, Kittur S K², Gudaganatti Sunil B³¹Associate Professor, ²Professor & HOD, ³Post Graduate;
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*Received: 06/06/2014**Revised: 26/06/2014**Accepted: 30/06/2014***ABSTRACT**

Granulocytic sarcoma, also termed as chloroma or extramedullary myeloid tumor is a rare manifestation characterised by focal masses of immature myeloid cells. This tumor may be found in any location of the body and in head and neck region can pose diagnostic challenge. It can occur in patients with acute myeloid leukemia as well chronic myeloproliferative disorders and myeloid metaplasia. We are presenting two cases where FNAC was instrumental in making the diagnosis and confirmed by peripheral smear and bone marrow examination.

1. A 5 yrs male child presented with swelling over left temporal region with history of trauma. CT scan showed soft tissue neoplastic lesion. FNA smears revealed predominance of myeloblasts and promyelocytes. Hence the case was diagnosed as granulocytic sarcoma (AML). Peripheral smear and bone marrow examination showed features of acute myeloid leukemia (AML M2).
2. A 40 yrs male presented with scalp swelling since 8 months. FNA smears revealed numerous myeloid precursors in various stages of maturation with eosinophilic precursors and basophils. Hence a diagnosis of granulocytic sarcoma was made (CML). Peripheral smear and bone marrow examination showed features of chronic myeloid leukemia (chronic phase).

Keywords: Granulocytic sarcoma, chloroma**INTRODUCTION**

Granulocytic sarcoma also termed as chloroma or extramedullary myeloid tumor was coined by Rappaport in 1966.^[1] It is a rare manifestation of leukemia characterised by focal masses of immature myeloid cells. This tumor may be found in any location of the body and in head and neck region can pose diagnostic challenge. It can occur in patients with acute myeloid leukemia, chronic myeloproliferative disorders as well as in myeloid metaplasia. It is most common in pediatric population. It may present anytime in the course of the disease, either concurrently with onset of leukemia or

during a remission or relapse. It may be the initial manifestation of acute myeloid leukemia and the appearance of disease in the blood and marrow may follow weeks or even months later.^[2] We present two such cases.

CASE REPORT

Case 1: A child aged 5 yrs presented with swelling over left temporal region with history of trauma of 20 days duration and clinically diagnosed as hematoma (Fig 1a). The case was treated with antibiotic and anti-inflammatory drugs but swelling did not

subside, hence case was referred to pathology department for FNAC.

On examination a round, firm, non-tender swelling over left temporal region measuring 5 X 3 cms with shiny skin, not attached to underlying tissue or to skin was seen. No significant past medical history. General physical examination was unremarkable.

CT scan showed a large well defined heterogeneous lesion in the left temporal pericranial soft tissue region favouring the diagnosis of soft tissue neoplastic lesion (Fig 1b).

Pathological Findings: FNA of swelling yielded scanty pale watery material. Smears stained with MG Giemsa and Papanicolaou stains showed moderate cellularity with scattered non-cohesive large cells with high nuclear-cytoplasmic ratio, large round nuclei with fine dispersed chromatin and 2-3 nucleoli. The cytoplasm was scanty and basophilic. Few cells showed Auer rods (Fig 2a).

The diagnosis of Granulocytic sarcoma was made.

Hematological investigations were carried out- Hemoglobin-10.2 gm%, TLC – 10,800/cu mm, Platelet count – 70,000/cu mm and ESR- 10mm/hr.

Peripheral smear examination showed normocytic hypochromic anemia. Total leukocyte count was within normal limits with presence of immature myeloid series cells and blasts with few showing Auer rods (Fig 2b). Platelets reduced in numbers. Peripheral smear was reported as Subleukemic leukemia.

Bone marrow aspiration was done and showed predominantly myeloblasts and promyelocytes with Auer rods (Fig 3a & b). Blast cells demonstrated Myeloperoxidase positivity in more than 20% of blasts. Bone marrow reported as Acute myeloid leukemia –M2 (AML-M2).

Case was finally diagnosed as granulocytic sarcoma.



Fig 1a. Photograph of left temporal swelling (arrow).



Fig 1b. CT scan showing heterogeneous soft tissue lesion.

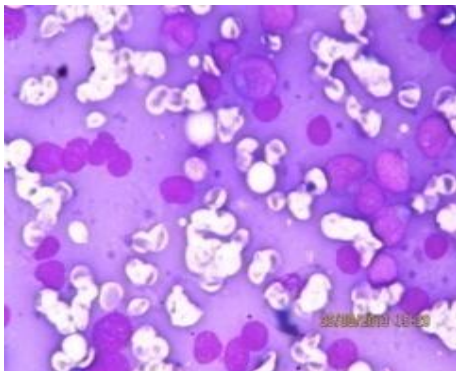


Fig 2a. FNA smear showing scattered blasts with 2-3 prominent nucleoli (MG Giemsa, 400X)

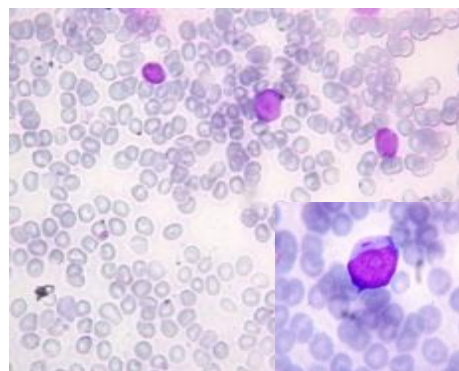


Fig 2b. Peripheral smear showing scattered myeloblasts with 2-3 nucleoli and Auer rod (inset) (Leishman, 400X).

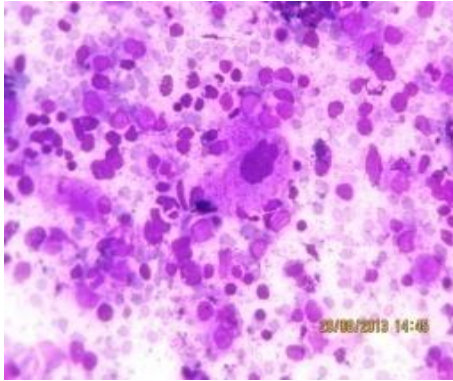


Fig 3a. Bone marrow aspirate showing increased number of myeloblasts (Leishman, 400X)

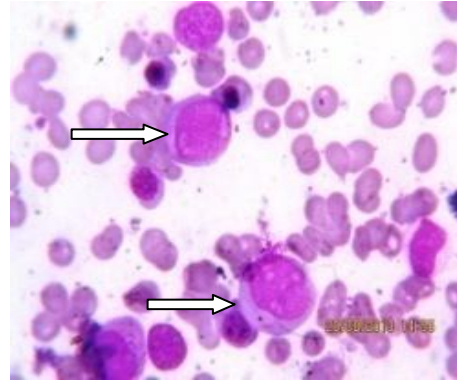


Fig 3b. Myeloblast with Auer rods (arrows) (Leishman, 1000X).



Fig 4a. Photograph of scalp swelling (arrow).

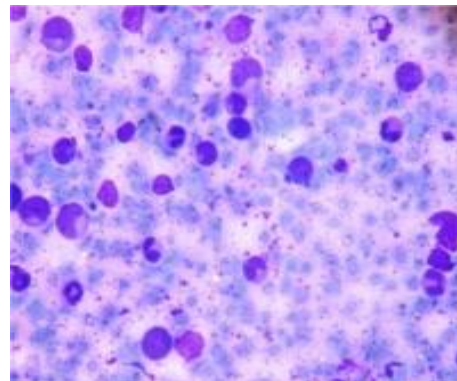


Fig 4b. FNA smear showing myeloid precursors in varying stages of maturation (MG Giemsa, 400X).

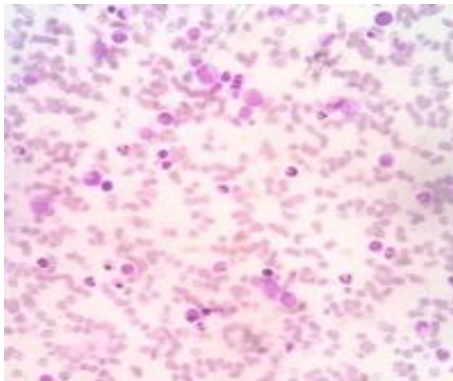


Fig 5a. Peripheral smear showing myeloid precursors of all stages of maturation and basophils (Leishman, 400X)

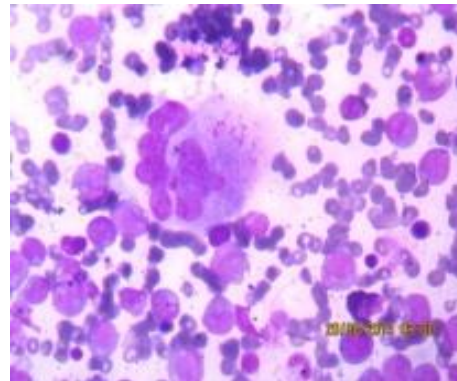


Fig 5b. Bone marrow aspirate showing myeloid precursors in varying stages of maturation (Leishman, 400X)

Case 2: A male aged 40 yrs presented with painless scalp swelling of 8 months duration with clinical diagnosis of sebaceous cyst. On examination a firm mobile mass with shiny skin measuring 10 X 9 cm was seen (Fig4a).

Pathological Findings: FNA of swelling was performed and smears stained with MG Geimsa and Papanicolaou stain. Smears were highly cellular composed of numerous dispersed myeloid precursors in various stages of maturation with occasional blasts.

Many mature neutrophils, eosinophils and basophils were also seen (Fig 4b).

A diagnosis of granulocytic sarcoma was made.

Retrospective clinical examination revealed massive splenomegaly. Hematological investigations (Fig5a) and bone marrow aspiration (Fig5b) confirmed the diagnosis of chronic myeloid leukemia (chronic phase).

DISCUSSION

Granulocytic sarcoma is a pathologic diagnosis for extramedullary proliferation of myeloid precursors of one or more lineages that disrupt the normal architecture of the tissue in which it is found. It was first described by Burns in 1811 and was originally called chloroma by King in 1853. The term granulocytic sarcoma was given by Rappoport in 1966. These tumors occur in 5% of acute myeloid leukemia.^[2]

Sood et al reported a case of granulocytic sarcoma in a 27 yr old male with facial palsy as first presentation of acute myeloid leukemia.^[3] It can develop in absence of acute myeloid leukemia. Granulocytic sarcoma arising in non-leukemic patients does not necessarily progress to AML.^[4,5]

Gangane et al reported a case of granulocytic sarcoma of liver in a 65 yr old woman with multiple nodules in the liver. They concluded that cells of all three lineages may not be always seen and one cell line may predominate causing a diagnostic dilemma.^[6]

Bilateral granulocytic sarcoma of breast in CML in blast crisis was reported by Kwatra et al. Bone is the favoured site for granulocytic sarcoma. Khunger et al reported a case in the humerus with initial manifestation of acute myeloid leukemia.^[7,8]

Bangerter et al reported the results of FNAC in 26 patients with granulocytic sarcoma. Seventeen patients suffered from

acute myeloid leukemia and 9 from chronic myeloid leukemia.^[9]

Granulocytic sarcoma was the initial manifestation in both of our cases.

Both cases were referred to higher centre for further treatment and are under follow up.

CONCLUSION

Granulocytic sarcoma can occur in patients with acute myeloid leukemia, chronic myeloproliferative disorders as well as in myeloid metaplasia. The tumor mass can occur anywhere in the body and has to be differentiated from lymphoma, undifferentiated carcinoma or infectious process. It may present anytime in the course of the disease, either concurrently with onset of leukemia or during a remission or relapse. This study demonstrates the clinical utility and diagnostic accuracy of FNAC in the evaluation of granulocytic sarcoma.

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