

# Acute Monocytic Leukaemia with Reactive Plasmacytosis

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## Abstract

An increased plasma cell count in bone marrow of patients of Acute Myeloid Leukaemia occurs in a subgroup of patients. There are very few case reports which document an increase in number of plasma cells at time of initial diagnosis of Acute Myeloid Leukaemia. Here we present a case of 45- year old- male diagnosed as Acute Monocytic Leukaemia with Reactive Plasmacytosis, which posed much difficulty in diagnosis. The production of paracrine interleukin- 6 by leukaemic blast cells is thought to cause this reactive increase in plasma cells.

**Keywords:** Acute myeloid leukaemia, Reactive plasmacytosis, Paracrine interleukin-6.

## Introduction

Reactive plasmacytosis occurring in patients of Acute Myeloid Leukaemia who are receiving chemotherapy is a well known phenomenon. However, cases having Reactive Plasmacytosis at the time of initial diagnosis of AML are very rare. In our case, patient presented with increased proliferation of plasma cells ,on bone marrow examination but the simultaneous presence of blasts led us to diagnosis of Acute Monocytic Leukaemia. This case was a diagnostic dilemma on account of confounding plasmacytosis.

## Case Report

A 45 year old man presented to us with complaints of high grade fever, cough occasionally containing blood and generalized weakness for last 6 months. On examination he was pale. Rest of the general physical examination was normal. Blood counts revealed pancytopenia with haemoglobin of 4.1 g/dl, Total leucocyte count of  $1.5 \times 10^3$ /ul, Platelet count of  $31 \times 10^3$ /ul. Marked rouleaux formation was seen on peripheral blood smear. The erythrocyte sedimentation rate was 160 mm Hg at the end of first hour. X ray chest showed infiltrative shadows. Cholelithiasis was detected on USG of the abdomen.

The bone marrow aspirate revealed Monocytic component of 80%, Blast were 20%.Plasma cells were increased and were approximately 14%. (Figures 1 & 2) The diagnosis of

Acute Monocytic Leukaemia with underlying Multiple Myeloma was considered and further tests were performed to confirm the diagnosis.

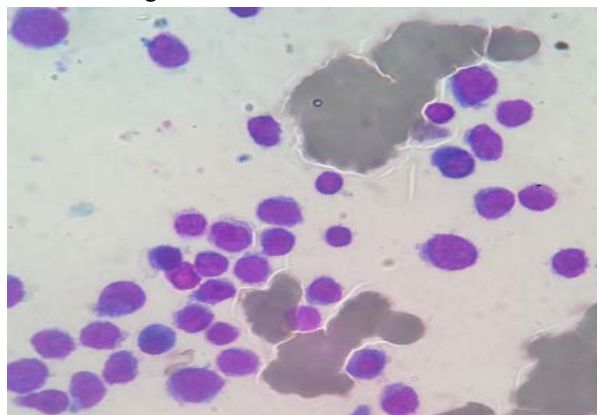


Figure 1. Many plasma cells (Wright X1000)



Figure 2. Binucleate forms of plasma cells (Wright X1000)

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Further investigations included estimation of gamma globulins on Serum Protein Electrophoresis. Monoclonality was ruled out as it revealed polyclonal expansion of gammaglobulins. No monoclonal protein was found even on urine protein electrophoresis. Thus, Multiple Myeloma was ruled out.

Cytochemistry was performed to evaluate the type of blasts. Sudan Black was negative,  $\alpha$  Naphthyl Butyrate Esterase was positive, thus identifying the blasts as Monocytic in origin.

Based on the laboratory evidence of positive Sudan Black, ANBE and a polyclonal expansion of gamma globulins on serum protein electrophoresis a final diagnosis of Acute Monocytic Leukaemia with Reactive Plasmacytosis was made.

## Discussion

In reactive plasmacytosis bone marrow shows an increase in number of plasma cells not usually exceeding 10-20% of all nucleated cells. It can occur in many conditions including viral and chronic bacterial infections, autoimmune diseases, cirrhosis, chronic liver disease, sarcoidosis and as paraneoplastic syndrome in various conditions like Hodgkins lymphoma, Non Hodgkins lymphoma, carcinomas<sup>1,3,8</sup> and in patients having AML undergoing chemotherapy.<sup>4</sup>

In the case under discussion, bone marrow of a 45 year old man was done that revealed a picture resembling multiple myeloma with 14% plasma cells. With the help of some special stains (Sudan black &  $\alpha$  Naphthyl Butyrate Esterase) and Serum Electrophoresis a final diagnosis of AML (FAB M5b) with Reactive Plasmacytosis was made.

Cases of AML that have increased numbers of plasma cell pose much diagnostic difficulty. Therefore, they should always be investigated further before a final diagnosis is made. Morphologic features which may suggest reactive nature of plasma cells include mature forms of plasma cells, perivascular location of plasma cells and plasmacytic satellitosis (orientation of plasma cells around histiocytes).<sup>5</sup>

There have been few cases reported in literature where plasmacytosis is present with AML at the time of initial diagnosis. In these cases plasma cells usually range between 10-20%.<sup>5,7</sup> A study by Rosenthal et al<sup>7</sup> included 149 cases of AML with only 2 cases showing plasma cell count >20%.

The basis of reactive bone marrow plasmacytosis is thought to be a physiologic response to antigenic stimulation.<sup>2,8</sup> Although release of paracrine growth factor by leukaemic cell is a possibility, yet this mechanism of bone marrow plasmacytosis has not been addressed. The release of interleukin (IL-6) by AML blasts may play a major role in growth of plasma cells.<sup>5</sup> But to establish a definitive role of IL-6 in AML- associated plasmacytosis a greater number of patients should be studied.

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