Indian J. Hematol. Blood Transfus 24(4):188–189

CORRESPONDENCE

Anaplastic myeloma: a morphologic diagnostic dilemma

Seema Rao · Rakhee Kar · Hara Prasad Pati

Received: 4 July 2008 / Accepted: 8 September 2008

Dear Editor,

We present a case of a 58-year-old man who was referred to our hospital with complaints of transfusion dependent anemia (20 units in one year) and recurrent fever over a year. There was no history of alteration in urinary or bowel habits. He was previously diagnosed as acute myeloid leukemia and metastatic tumor/anaplastic large cell lymphoma on bone marrow examination on two separate occasions from two different hospitals. He had not received any treatment so far.

On examination, he was noticeably pale, but did not reveal any icterus or bleeding manifestations. There was no sternal tenderness, organomegaly or lymphadenopathy. On routine investigations his hemoglobin was 8.8g/dl, total leucocyte count 2200/cmm and platelet count was 47000/cmm. Peripheral smear showed normocytic normochromic red cells and a normal differential leucocyte count. No rouleaux formation was seen. Erythrocyte sedimentation rate was raised. Bone marrow examination revealed diffuse replacement of marrow elements by poorly differentiated pleomorphic tumor cells arranged in sheets, clusters and scattered singly (Fig. 1) along with numerous bizarre looking tumor giant cells (Figure 1:Inset). Most of the cells were quite anaplastic and primitive in appearance but plasmacytoid differentiation was evident in some areas with many plasmablasts (Fig. 2). A differential diagnosis of Anaplastic myeloma and ? Metastatic tumor deposit was suggested and further investigations were advised on these lines.

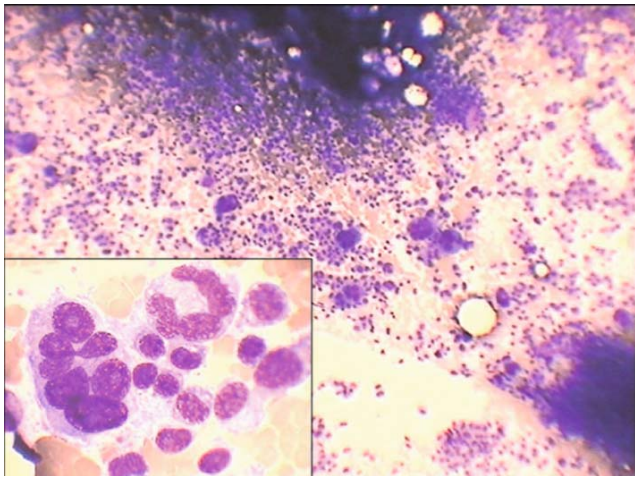

Fig. 1 Bone marrow aspirate smear showing diffuse replacement of marrow elements by tumour cells with many giant cells (Jenners Giemsa 100X). Inset: Tumour giant cells at a higher magnification (Jenners Giemsa 1000X).

Radiological investigations did not reveal any occult primary malignancy. Subsequently, on serum electrophoresis, a narrow M-band was detected in β-region (10.2%, 0.4g/dl) with overall reduction of polyclonal γ-globulins. Immunofixation studies showed 'M'band to be lambda (λ) light chains. Bone scan revealed diffuse osteopenia. Serum calcium was within normal limits. A final diagnosis of anaplastic plasma cell myeloma was made based on the presence of serum IgG- λ paraprotein and proliferation of malignant plasma cells in the marrow.

S. Rao · R. Kar · H. P. Pati
Department of Hematology,
IRCH Building, All India Institute of Medical Sciences,
New Delhi - 110 029, India

S. Rao (✉)
e-mail: seemarao1974@yahoo.co.in

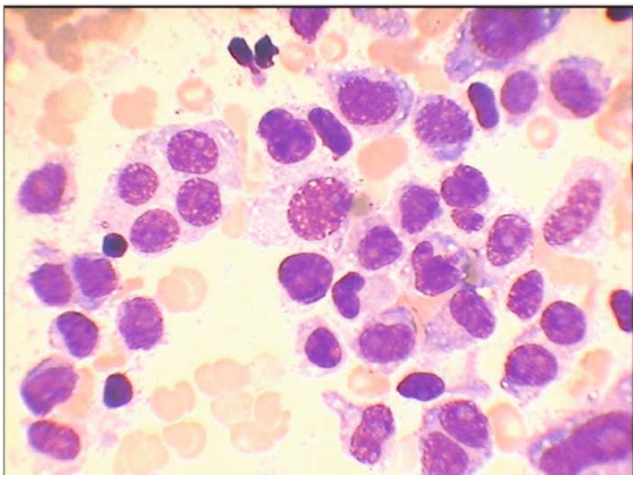

Fig. 2 Plasmacytoid differenciation in many tumour cells with plasmablastic morphology (Jenners Giemsa 1000X).

Anaplastic myeloma has been described by many names in literature like plasma cell sarcoma, aggressive phase myeloma, dysplastic myeloma etc. Suchman et al [1] described 5 patients of aggressive myeloma variant in 1981 which commonly presented with pancytopenia and unexplained fever as was seen in the index case. Foucar et al [2] reported two cases of anaplastic myeloma with poorly differentiated cells extensively involving intra-abdominal and retroperitoneal sites with a fatal clinical course. Similar observations of a predisposition to involve extramedullary sites and a poor prognosis have been reported by many other authors [1, 3, 4]. However no such evidence of any extramedullary involvement was present in our case. The clinical, morphologic and flow cytometric (for DNA/RNA content) features of anaplastic myeloma are different from either typical multiple myeloma or extramedullary plasmacytoma [2]. Anaplastic morphology may be present from the very beginning or may appear later in the course of disease in form of morphologic dedifferentiation [1, 2, 4]. Immunoperoxidase staining has suggested a relationship between differentiated and undifferentiated cells [5, 6]. Immunophenotypic studies on a case have shown these cells to have dim expression of CD56 antigen and moderate positivity for CD38 and cytoplasmic light chains [7]. An association between cytologic atypia and increased DNA content has been reported [2, 8]. Maslovsky et al [9] demonstrated a complex karyotype in anaplastic myeloma and associated it with a poor prognosis.

Anaplastic myeloma has been postulated to represent a distinct, aggressive variant of multiple myeloma, which may present at the onset or may result from transformation of a well differentiated myeloma cell to poorly differentiated one. This case emphasizes that a high degree of suspicion is required to diagnose anaplastic myeloma as morphology can be quite variable and peculiar. Moreover, it is important to ask for relevant serological investigations to make a definite diagnosis.

References

1. Suchman AL, Coleman M, Mouradian JA, Wolf DJ, Saletan S (1981) Aggressive plasma cell myeloma: A terminal phase. Arch Intern Med 141:1315–1320
2. Foucar K, Raber M, Foucar E, Barlogie B, Sandler CM, Alexanian R (1983) Anaplastic myeloma with massive extramedullary involvement. Cancer 51:166–174
3. Butler RC, Thomas SM, Thompson JM, Keat ACS (1984) Anaplastic myeloma in systemic lupus erythematosus. Ann Rheum dis 43:653–655
4. Davis BW, Cousar JB, Collins RD (1981) Dysplastic myeloma: An aggressive variant of multiple myeloma (Abstr). Lab Invest 44:14A
5. Holt JM, Robb-Smith AHT (1973) Multiple myeloma: Development of plasma cell sarcoma during apparently successful chemotherapy. J Clin Pathol 26:649–659
6. Taylor CR, Russell R, Chandor S (1978) An immunohistological study of multiple myeloma and related conditions, using an immunoperoxidase method. Am J Clin Pathol 70:612–622
7. Park HK, Kim HJ, Kong SY, Park Q, Jung CW, Kim HS, Kim SH (2004) A Case of Anaplastic myeloma: Role of Immunophenotyping in Initial Diagnosis. Korean J Lab Med 24: 203–206
8. Latreille J, Barlogie B, Johnston DA, Maxwell B, Drewinko B, Alexanian R (1981) Ploidy and proliferative characteristics in monoclonal gammopathies. Blood 59:43–51
9 Maslovsky I, Lugassy G, Blumental R, Ducach A, Yehuda O, Abeliovich D (1999) Multiple chromosomal abnormalities in fulminant anaplastic myeloma. Clin Lab Hematol 21:207–210