Metachronous Cutaneous Anaplastic Large T Cell lymphoma and Multiple Myeloma in the Same Patient

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Abstract Metachronous lymphomatous proliferations of B and T lineage in the same patient are a very rare event. We report the case of a 48-year-old male patient presenting with stage IIIb multiple myeloma treated with first line chemotherapy who developed six months later erythematous and ulcerated nodule in the anterior aspect of the thigh related with metastatic cutaneous anaplastic large T cell lymphoma.

Keywords Multiple myeloma; Cutaneous Anaplastic Large T Cell lymphoma

Introduction
Occurrence of multiple myeloma and another hematopoietic disorder in the same patient is well known and is usually attributed to coincidence (Bruyant, 1982). All the cases reported in the English language literature are described as case reports and usually associate mycosis fungoides (MF) or Sezary syndrome (SS) (Carton, 1999) to a multiple myeloma (MM) (Venencie, 1984; Gernone, 2002) or to a monoclonal gammapathy of undetermined significance (MGUS) (Ruffieux, 1984).

We report the clinical, histological, and laboratory features of an unusual case of multiple myeloma followed by a cutaneous anaplastic large cell lymphoma.

Case
A 48-year-old male came to our attention for lower back pain of several weeks duration with fatigue and anorexia. Physical examination revealed no apparent abnormality. His temperature was 37°C, pulse 90/min, and blood pressure 120/70. Laboratory data showed hemoglobin of 10.3 g/dl, creatinine 20 mg/l, calcium 147 mg/l, and gamma globulin peak on serum protein electrophoresis. Immunofixation on serum showed the spike to be IgG kappa. The test of distinctive tumor markers showed no abnormalities. Furthermore, skeletal surveys showed multiple and diffuse lytic lesions of lumbar vertebra. Vertebral biopsy showed a plasma cell infiltration. The cells expressed CD138+. Bone marrow cytomorphological examination showed that dystrophic plasma cells were about 20%. The diagnosis of multiple myeloma Stage III-b was made. The patient was treated with thalidomide-dexamethasone and received calcitonine as symptomatic treatment for hypercalcaemia. Three months later, the patient was better, serum electrophoresis, calcium level, and cell blood count were normal. Six Months later, he developed a raised erythematous and ulcerated nodule in the anterior aspect of the thigh. The patient denied any constitutional symptoms as fever, weight loss or night sweats. A contrast CT of chest, abdomen, and pelvis revealed magma of lymphadenopathy in the right groin. The skin and lymph node biopsies showed a dense and diffuse infiltrate made of large cells with irregular shaped nuclei, prominent nuclei and abundant eosinophilic cytoplasm. Tumour cells were admixed with small reactive lymphocytes and plasma cells. Immunohistochemical study showed that tumor cells stained positive with CD30, EMA, bcl2, CD45, and negative for CD3, CD8, CD5, CD20, CD79a, CD 138 and anaplastic lymphoma kinase (ALK) protein. The diagnosis of a metastatic cutaneous anaplastic large cell lymphoma was retained. Therapy was started by CHOP (Cyclophosphamide, Adriamycin, Oncovin, Prednisone) chemotherapy. Unfortunately, the patient died of a heart attack after his fourth CHOP cure.

Discussion
This case is striking because anaplastic lymphoma coincided with myeloma. We suppose that the origin
of those two diseases is unique and divert from the same malignant clone even if the immunoglobulins have different phenotypes. In fact, any cell lineage has the potential to differentiate into other lineages in the absence of a master gene expression (Graf, 2002). In transgenic mice model of NPM-ALK, development of thymic T cell lymphomas was associated with clonal B cell plasma cell neoplasms (Chiarle, 2003).

It is reported that pro-B cells have pluripotent differentiation potential and can differentiate into many other different lineages (Nutt, 1999). Authors found that multiple myeloma cells could be induced to differentiate into multiple cell types, including T cells (Liu, 2009; Jiang, 2013). This concludes that the occurrence of myeloma and anaplastic lymphoma in our case is probably due to the multilineage differentiation of pro B or plasma cell.

Anaplastic large-cell lymphoma, T, is a rare disease, accounting for less than 5% of all cases of non-Hodgkin’s lymphoma (Weisenburger, 2001). It occurs predominantly in adults. As in our patient, it mainly appears as solitary or localized skin lesion. Extra cutaneous dissemination is a rare event. Expression of EMA by anaplastic T lymphocytes in our patient raises the possibility of primary nodal origin. However, lack of expression of Ki-1 antigen argues for the primary cutaneous nature as it is consistently negative at this location and is present in the majority of systemic Anaplastic Large T Cell Lymphoma (Decoteau, 1996; Weedon, 2006). According to the Dutch Cutaneous Lymphoma Group, chemotherapy is indicated for patients presenting an extracutaneous dissemination (Bekkenk, 2000). In our patient, polychemotherapy was indicated because he was considered at metastatic stage with lymph node invasion. To the best of our knowledge, we report the fifth case which associates a multiple myeloma to a cutaneous anaplastic large cell lymphoma (Wickenhauser 1999; Quian, 2006; Nassiri, 2009; Tangour, 2011).

In summary, our case demonstrated a rare event of metachronous development of lymphoproliferative neoplasms of B and T-cell lineage in the same patient with poor response to therapy and fatal outcome. Compilation of additional cases with molecular studies will be helpful to investigate further the pathogenesis of these two neoplasms.

References
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