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Multiple myeloma associated a breast cancer in the same patient: A case report at the department of clinical hematology of University Hospital of Yopougon, Abidjan (Côte d'Ivoire)

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Abstract
Multiple myeloma is a hematological malignancy whose clone derived from the B-lymphocytes. The bone pain, the anemia, the increased blood calcium, the bone lesions are evocate as the symptôms. Breast cancer is a solid tumor of women often revealed by breast nodules. The coexistence of two malignant clones, one a lymphoid homeopathy, a other, a solid cancer in the same patient is an unusual situation. We report the case of a woman who was 66-year-old with a family history of solid cancer and hematological malignancy, addressed for anemia on breast cancer. She was treated with chemotherapy including adriblastina and cyclophosphamide. The incidental discovery of dysmorphic plasma cell in marrow bone examination led to the diagnosis of multiple myeloma. The interest of this study resided firstly in the exceptional character of this association with constituted a first description of the kind in our department and secondly complete the data of the literature wich suggested the role of the genetic factors in the occurrence of neoplasms.

Keywords: multiple myeloma, breast cancer, Abidjan

Introduction
Multiple myeloma or Kahler disease is a malignant homeopathy characterized by the proliferation in the bone marrow of an abnormal plasma cell clone, secreting a complete or incomplete monoclonal immunoglobulin [1]. It is the second most common blood cancer after non-Hodgkin's lymphoma. It accounts for about 1% of all cancers. It is a condition of the patient of more than 50 years with predominance of male sex [2, 3]. There are exposure factor that can be genetic factors and environmental factors. The diagnosis requires the clinical, radiological, biochemical and cytological elements [4]. Breast cancer is the most common and serious cancer in women. Its incidence is 210 per 100,000, rising to more than 300 per 100,000 women by the age of 70, and more than 430 per 100,000 women over the age of 80 [5]. It occurs at an average age of 43 to 47 years, while sporadic cancer occurs at an average age of 63 years [6]. Generally, the etiological factors are the hormonal factors, reproductive factors, genetic and environmental factors. The coexistence of breast cancer and myeloma is an exceptional situation. We report in this study a rare association of a myeloma and a breast cancer in the same patient wich constituted a first description of the kind in our department.

Case Report
Mrs. D.H, 66-year-old with a medical history of appendicitis, was under medical surveillance at the department of oncology for right breast cancer. Her mother had died for cancer of colon. She had a brother who had died for a cerebral lymphoma and a niece also had died for ovarian cancer. According to the anamnesis, the symptoms started a year ago with appearance of a tumor of breast, painless wich the size increased. She consulted the department of oncology. The mammography confirmed a tumor of 3cm. the histology found a non-specific infiltrating carcinoma. She was treated with chemotherapy combining: Adriblastina, cyclo formamide. In the evolution, we noted the occurrence of a repetitive anemia who's the blood transfusion was inefficiency. Then, she was referred to the hematology unit for exploration. The clinical examination noted a performance status of WHO to stage me, the signs of anemia and the presence of tumor wich size was 4 cm, not painful located at the right breast. There was no bone pain and no lymphadenopathy. The biology examination noted at blood cell count, a central anemia with hemoglobin at 7g/dl and reticulocytes at 50000/mm^3. The other parameters was: Leukocyte: 2990/mm^3, lymphocyte at 1554/mm^3, the neutrophil at 672/mm^3 and the blood platelet at 154000/mm^3. Because of central anemia, we performed the bone marrow examination wich found 28% of dysmorphic plasma cell. Then we performed the blood protein electrophoresis wich showed a monoclonal gammopathy and blood albumin at 26g/l. The immunofixation of blood protein found a monoclonal proliferation of immunoglobulin G with kappa light chain. The radiography of the pelvis and skull performed showed the multiple lytic lesions. The β2 microglobulin was 4,5mg/l. With the results of marrow bone examination, the radiography, the blood examination (blood cell count, blood protein electrophoresis), we retained the diagnostic of multiple myeloma according to the International myeloma Working Group. In total, the diagnosis of breast cancer and Stage II IgG multiple myeloma was retained.

Discussion
Multiple myeloma is the second most common blood cancer after non-Hodgkin's lymphoma (NHL). It accounts for about 1% of all cancers and 10% and 20% of all hematological malignancies among Caucasians and African-Americans [7]. The incidence of this pathology in Europe is 4.5-6.00 / 100,000 inhabitant / year [8]. While, in the United State it is 4.3 per 100,000 inhabitant [9]. In Côte d'Ivoire, the hospital's incidence is estimated at 2.9 cases / year during the years 1991 to 2005 [10]. It is a condition. It is a condition of the

patient of more than 50 years with predominance of male sex [2, 3]. According to the physiopathology, there are, several arguments allow to understand the carcinogenic mechanism of this affection: the role of cytokines and marrow bone environment in the survival and proliferation of malignant plasma cells and the understanding of the mechanisms of osteopathy. Cytologically the malignant cell in multiple myeloma is the plasma cell that proliferates in the bone marrow. Several stages explain the oncogenesis: the proliferation of B cells in the germinal center, the appearance of monoclonal gammopathy of undetermined significance called MGUS. The latter under the effect of cytogenetic abnormalities that may occur such as the translocation t (11,14), t (4, 14), t (14,16), t (6,14) wich can progress to multiple myeloma [6, 8]. The diagnosis of multiple myeloma is not easy because of its clinical and biological polymorphism. This requires clinical arguments (general condition, bone pain), biological arguments (the study of bone marrow, proteins in the blood and urine, hemoglobin levels, serum calcium, and serum creatinine) and radiological arguments [11]. The positive diagnosis is currently based on the criteria of the IMWG [4]. Breast cancer is the most common cause of death in women worldwide and the death rate is highest in developing countries [12]. In the United States, it is the most common cancer in women after skin cancer and the most common cause of death after lung cancer [13]. In Côte d'Ivoire, it is the most common cancer of women with an incidence of 25.7% [14]. The average age of onset is 42.5 years [15]. The signs are dominated by breast nodules, breast skin changes, mastalgia, and breast flow [15]

The coexistence multiple myeloma and breast cancer in a same patient is an exceptional situation. Generally, tumors that associate with the same patient had the same clone. Either both derived from haematological malignancies, such as the cases of Eddou H *et al* [16] and Laibe S at al [17] who successfully reported an association of chronic lymphoid leukemia with multiple myeloma and a coexistence of follicular lymphoma with multiple myeloma. Other studies had suggested that there are common factors involved in the pathogenesis of these malignant hemopathies. [16]. Unlike our study, it was a hematological malignancy and a solid cancer. For our knowledge, no study has proved the common relation between these two Neoplasms. However, the studies showed that there is an increased risk of developing non-Hodgkin lymphoma and hodgkin lymphoma in families who had a several cases of hematopoietic malignancy [18, 19]. One of our patient's brothers had died of a cerebral lymphoma that we could not retrieve the file. Altieri *et al*. found a greater risk of developing myeloma in non-hodgkin lymphoma families [20]. Elsewhere, our patient's mother had also died of colonic Neoplasm and her niece of ovarian cancer. Nkondjock A *et al* [21] and Marcus J *et al* [6] described the role of genetic factors as the gene BRCAI1 / 2 in familial breast cancer. Antoniou *et al* [22] attributed this mutation to a 40% risk of developing ovarian cancer. It would be important to know if the existence of this mutation in our patient's family could explain both her niece's ovarian neoplasm and her breast cancer. Unfortunately for lack of financial means the exploration was not carried out. However, in our series, genetic susceptibility to the occurrence of lymphoid hemopathies and familial cancers may explain, at least in part, the simultaneous and exceptional discovery of myeloma and breast cancer.

Conclusion

We describe an unusual association of hematological malignancy and solid cancer in a family with cancerous genetic susceptibility.

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