International Journal of Innovation and Applied Studies
ISSN 2028-9324 Vol. 25 No. 2 Jan. 2019, pp. 733-737

http://www.ijias.issr-journals.org/

A rare case of myeloma light chains: Data and discussion

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ABSTRACT: Multiple myeloma is a little-known disease in young adults, it is rarely reported before the age of 30, even less if it is light chains. We report a case illustrating one of these exceptional situations. It has characteristics as organic sounding extended and favorable response to treatment despite diagnostic delay. We wanted to take the opportunity to raise awareness about the possibility of myeloma in adults at any age.

KEYWORDS: multiple myeloma; light chains; the young adult; organic sounding; diagnostic delay.

1 INTRODUCTION

The multiple myeloma, rare pathology at the young age, is defined by the malignant proliferation of a plasma cells clone being accompanied by the secretion of a monoclonal immunoglobulin [1]. The myelomas with intact immunoglobulin are most frequent (80%), those with light chains account for only 15 to 20% of the cases [2]. But they generate important complications and particularly at the renal level. Those can be avoided or slowed down if the disease is labelled in times. Where from importance of the early diagnosis, and there the place of biology is considerable. Indeed, while limiting itself to the clinic and to epidemiologic data, one can miss it with all the consequences which ensue from it. To enrich more the already available data , we considered useful to bring back and to discuss the case of a myeloma with light chains occurring before the age of thirty years: situation far from being common.

2 OBSERVATION

H.M. 29 years old woman was hospitalized for exploration of a paraparesy of the lower limbs. The interrogation and the exploitation of some old medical documents allowed to note the following datas: - no notable pathological histories, no tobacco nor of contact with pesticides, - seven months before: chronic inflammatory pains becoming invalidating at the sternocostal and dorsolumbar level, - microcytic hypochromic non-regenerative anemia uncorrected by an iron therapy, - deterioration of the general state.

The first intention physical examination revealed only neurological disturbances. A specialized examination ended in a paraparesy with thermo-algic hypoesthesy arriving up to the xiphoidian level, as well as an abolition of the cutaneous abdominal reflex. In the biological exploration, the complete blood count showed a bicytopenia: platelets in 130.000 elements/mm3 and a normochromic normocytic non-regenerative anemia (haemoglobin = 7 g/dl). The erythrocyte sedimentation rate (ESR) was in 48 mm. The imaging explorations, in particular by magnetic resonance imaging (MRI) showed

an osteolytic vertebral body collapse of D4, D7 and D10 with a spinal cord compression in the opposite side, and many lytic lesions on the coasts level and skull's bones . The tumoral etiology with suspicion of bone metastasis was evoked.

A serum proteins electrophoresis (SPE) was performed at the same time (on Sebia's Capillarys®), and revealed a small monoclonal peak in gamma globulins (10.9 g/l) with a serum protein rate in 75g/l (Figure1).

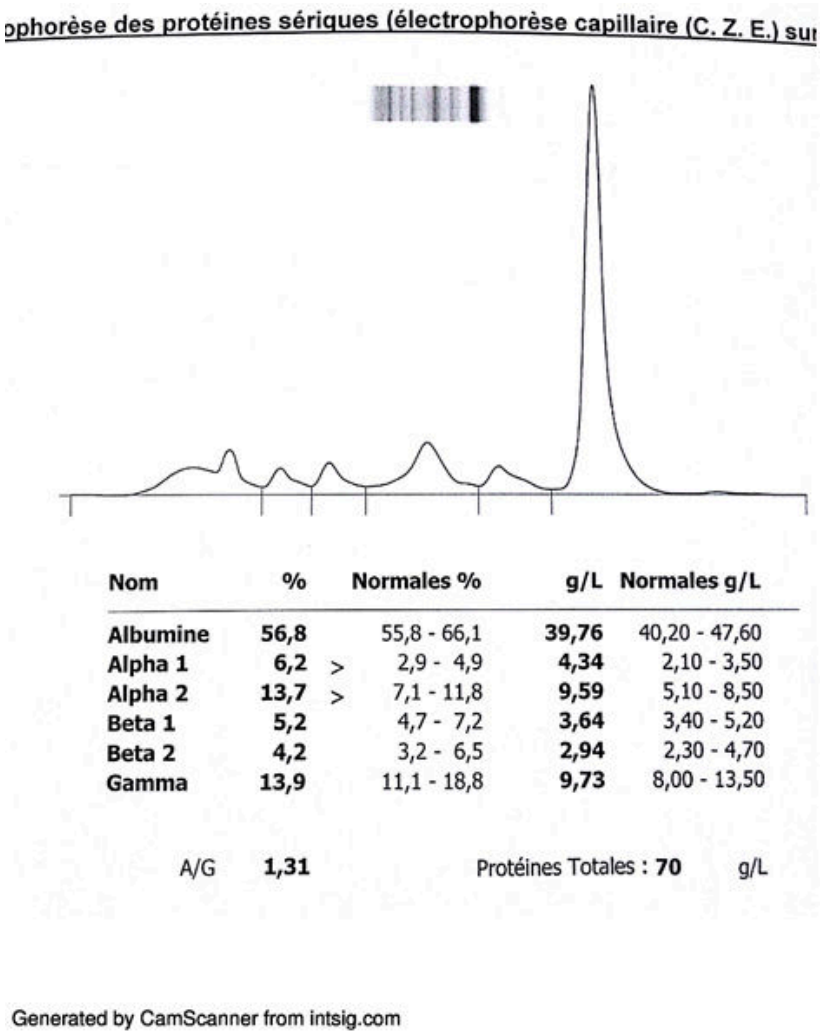

Fig. 1. Serum proteins electrophoresis showing a small monoclonal spike in gamma globulin

The serum's immunofixation on Agarose gel (Hydragel 1 IF®, Sebia) with the immuns serums anti-Ig G, anti-Ig A, anti-Ig M, anti-Ig E, anti-Ig D, anti-Kappa and anti-Lambda highlighted an isolated strip from light chains Lambda (Figure 2 and the gel with anti D and anti E: a and b). A Bence Jonce protein, made of free light chains, was also located at the urinary and serum level by immunofixation (Agarose gel hydragel I BJ®) (Figure2: c and d). The quantitative examinations showed [Kappa] = 5.2 mg/L and [Lambda] =103.3 mg/L. From where a ratio K/L = 0.05 (reference value: 0,26-1,65).

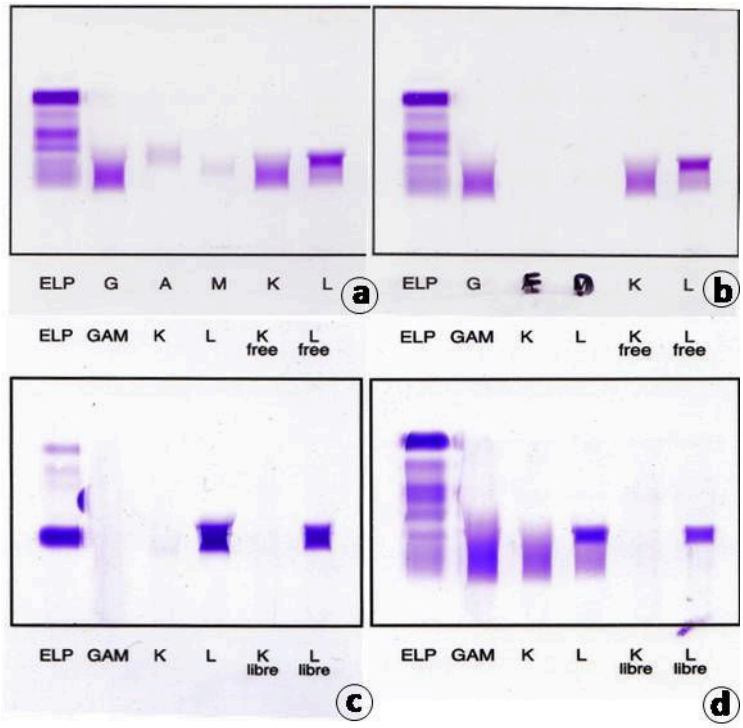

Fig. 2. ***<u>a et b</u> : Serum immunofixation electrophoresis with agarose gel (Hydragel 1 YEW ®, Sebia) with immun serums anti-Ig G, anti-Ig A, anti-Ig M, anti-Ig E, anti-Ig D, anti-kappa and anti-lambda highlighting an isolated band of Lambda light chains.***

<u>c et d</u> : Serum and urinary immunofixation electrophoresis with agarose gel (Hydragel I BJ ®) revealing the presence of a Bence Jonce protein, made by Lambda free light chain.

A myelogram from a bone marrow sternal aspiration concluded to a dystrophic plasma cells infiltration up to 12% (Figure3). The diagnosis of multiple myeloma with Lambda light chains was then made according to the Southwest Oncology Group (SWOG) diagnostic criteria. The value of the B2-microglobulin (9.05mg/l) classifies it at the stage III of International Staging System (the ISS). Other elements made possible to list it stage IIIA of Durie and Salmon (bone lesions, haemoglobin in 7 g/dl and a creatinin < 20 mg/l). The cytogenetics do not show anomalies: normal medullary chromosomic chart and the fluorescent hybridization in situ (FISH) also (no deletion p53 nor T (4; 14)).

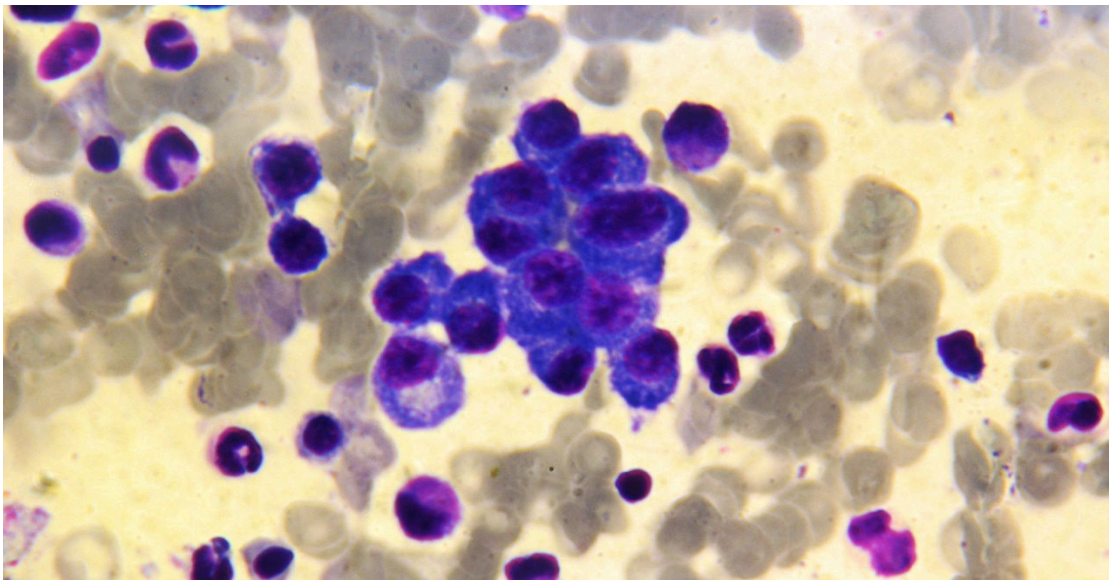

Fig. 3. ***Medullary smear seen with the zoom x100 showing a dystrophic plasma cells infiltration of the bone marrow.***

The patient was sent to the Mohamed V's instruction military hospital for an appropriate care. After five cures of VTD (Velcade®= Bortezomib, Talidomide, Dexamethasone) followed by a therapeutic intensification (Melphalan 200mg/m2) and then an autograft, the patient is in complete remission with a eight month backward.

3 DISCUSSION

The multiple myeloma (MM) is a malignant blood disease characterized by a clonal proliferation of tumoral plasma cells invading hematopoietic bone marrow [1],[2]. It represents 1.4% of all cancers and approximately 10% of hematologic ones, what places it at the second rank in term of frequency after the lymphomas [3]. It affects preferentially men (sex-ratio H/F close to 1.4). Before the age of 40 years, this pathology is scarce, not exceeding 2% of the cases. It is even rarer before age of 30 years and only some cases were reported in the literature [1],[2]. This scarcity associated with an important organic repercussion constitutes one of the reasons which encouraged us to bring back this observation.

The immunofixation blood test is the test of choice to characterize the type of the immunoglobulin (Ig) in cause [3]. Usually, it is practiced after having an electrophoretic aspect in touch with the myeloma, but sometimes even with a normal aspect of pace. Indeed, an electrophoresis without apparent anomalies does not exclude a immunoglobulinopathy (migration in β zone : IgA and light chains for example), a suspect clinical symptoms for example would be enough to require a immunofixation. The most met monoclonal immunoglobulins are IgG type (60% to 70% of the cases), followed by IgA (25% of the cases) whereas the light chains are only seen in 15% of the cases and Kappa is twice more involved than Lambda [2],[4]. The immunofixation enabled us to highlight in the blood and the urines of this patient light chains Lambda. Even then we register additional element in support of the rarity of this case (myeloma with light chains Lambda twice less frequent than with light chains Kappa).

The myelogram is inescapable in the good diagnostic approach of the MM. Indeed, it is the test which allows to confirm a plasma cells infiltration and to characterize its quantitative and qualitative scale [1],[5]. This one was 12% at our patient and in spite of this low infiltration, the clinical symptoms were more severe. As a matter of fact, the located bone lesions are wide and deep having led to functional disorders of a neurological nature due to a medullary compression. So marked osteolysis would be the witness of a particular toxicity of the monoclonal protein and/or aggressiveness of other secretions of the plasma cells clone. Would these peculiarities have a link with the age? Can be, from the moment when the biological potential is closely related to this parameter.

The early diagnosis would allow to avoid the complications as well as the optimization of the coverage of the disease, which would have a positive impact directly on the patient and the State finances [6]. In this sense and considering the serious consequences of the delay, it would be of a great interest to think of this pathology each time the slightest element of suspicion appears [7]. This case of myeloma should have been detected in time if such an attitude were adopted. Indeed, anemia discovered eight month ago associated to a high erythrocyte sedimentation rate were sufficient arguments to try at least a serum protein electrophoresis. Microcytosis, hypochromy and hypoferritinemy pushed in the sense of a deficiency origin of anemia, especially if one considers the age of the patient and the epidemiologic context of the martial deficit in the country. The osteolytic images were attributed rather to a primitive tumour having metastasis at the bone level. Insidiously, a myeloma in early phase set up itself and in spite of the location of some of its elements in time (high ESR + anemia to 7 g/dl) the diagnosis was missed. It was necessary to wait for the complications to realize it, this would be due to the fact that we are confined in rules of strict definition of pathologies by omitting the particular situations. The work that we present here has the main purpose to recall, to draw more the attention and to take part in the rising awareness on these situations which we can avoid and their heavy consequences. All that precedes encourages with more rigour in the logic and the reasoning, which must remain more scientific. The human body is a very complexed system and it is impossible to control in entirely, it would be preferable not to argue anymore in term of impossible situations. The case we report shows it well, a simple fact like age misled us therefor if we were more rigorous we would have preferred to risk spending additional (price of a SPE) at the risk of delaying the diagnosis of a myeloma. Intensive chemotherapy with peripheral hematopoietic stem cells autograft remains a standard treatment for the young patients with multiple myeloma [8]. The patients less than than 50 years old have a survival fitted to the age as well as a rate of survival at 10 years which are significantly longer with regard to older patients [8],[9]. The main explanatory factors are low stage ISS at the time of diagnosis and the other prognostic factors, generally more favorable at patients of less than 50 years [3],[5],[6],[7]. We find nothing of that in our patient however widely younger. She is indeed at the stage III with unfavorable prognostic factors. This constitutes an element moreover, making distinguishing this case which deserves well to be discussed.

The patient in spite of her stage of infringement by the myeloma is currently in complete remission after having benefited from the therapeutic protocol reserved to the young people. Indeed, after an induction phase made of tritherapy with VTD and an intensification by the melphalan, the autograft was a success, the patient is until our days asymptomatic and all the parameters normalized and particularly the ratio K/L.

4 CONCLUSION

The multiple myeloma ends by complications which carry the patient, the early diagnosis allows a care in times. This way, while protecting the comfort of the existence of the patient, we manage to also improve his life expectancy. This pathology is very rare before the age of 30 years old, however this epidemiological data should not make us forget to think of it even by default. This is more justified if we consider the pejorative consequences of a diagnosis carried lately. An anemia with less than 10 g/dl of hemoglobin associated to an erythrocyte sedimentation rate even moderately high must bring us to prescribe at least a serum protein electrophoresis, even when the patient is less than 30 years old.

REFERENCES

[1] Bouataya A, Hizema S, Ben Youssef Y, Sayaria F et al. Myélome multiple: aspect clinique, diagnostic biologique et pronostic. Immuno-analyse et biologie spécialisée 2013 ; 28 : 30-35.

[2] Bidet A, Marit G, Bérard AM. Intérêt du dosage des chaînes légères libres des immunoglobulines. Ann Biol Clin 2008 ; 66 (4) : 427-31.

[3] Manier S, Leleu X. Myélome multiple : diagnostic clinique et perspective de traitement. Recommandations de l'International Myeloma Working Group (IMWG). Immuno-analyse et biologie spécialisée 2011; 26 : 125-36.

[4] Lopez J, Dauwalder O, Joly P, IDimet I et al. Intérêt et limites des dosages sériques et urinaires des chaînes légères libres pour le diagnostic et le suivi des dysglobulinémies monoclonales. Ann Biol Clin 2006 ; 64 (3) : 287-97.

[5] Carole E. Le myélome multiple : actualités biologiques. Option Bio 2015 ; 531 :20-21.

[6] Durie BGM, Salmon SE. Clinical staging system for multiple myeloma correlation of measured myeloma cells mass with presenting clinical features, response to treatment and survival. Cancer 1975; 36: 842-54.

[7] Kyle RA, Rajkumar SV. Criteria for diagnosis, staging, risk stratification and response assessment of multiple myeloma. Leukemia 2009;23:3-9.

[8] Fouquet G, Gay J, Demarquette H, Bonnet S, Leleu X. Maintenance dans le myélome multiple chez les sujets jeunes et les sujets âgés. Hématologie 2012 ; 18(3) :170-4.

[9] Stewart AK, Richardson PG, San-Miguel JF. How I treat multiple myeloma in younger patients. Blood 2009;114: 5436-43.