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Case Report

A cause of hyperlymphocytosis exceeding 800 G/L: Prolymphocytic leukemia T (PLL-T).

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Abstract: Prolymphocytic leukemia T (PLL-T) is a rare entity of mature lymphoproliferative syndrome, characterized by its evolution but especially by its poor prognosis. It is usually revealed by hyperlymphocytosis in the blood. We report a case of prolymphocytic leukemia T, revealed by blood hyperlymphocytosis higher than 800 G/L, diagnosed at the My Ismail military hospital of Meknès, Morocco**.**

Keywords: Prolymphocyte leukemia, hyperlymphocytosis, immunophenotyping.

INTRODUCTION

Prolymphocytic leukemia (PLL) is a mature lymphoproliferative syndrome characterized by malignant proliferation of blood prolymphocytes. There are two types of PLL (PLL-T and PLL-B). It has a pejorative prognosis. We report the observation of a patient with PLL-T, a rare form, representing approximately 2% of mature lymphoproliferative syndromes. It is characterized by the proliferation of atypical lymphoid cells of post-thymic phenotype infiltrating the haematopoietic organs (blood, bone marrow and ganglia), and others (liver and spleen) [1]. Viewed these aspects, we propose to study the epidemiological, clinical and biological characteristics of this type of LPL through this case.

NOTE

It's about a patient of 62-year-old, with a pathological antecedent: cervical cancer treated with radio-chemotherapy 11 years ago. One year ago, a hyperlymphocytosis at 21.5 G/L without evident cause, and placed under surveillance. One year later, she re-consulted in the department of haematology at the My Ismail military hospital of Meknès for diffuse headaches, asthenia and visual disturbances. On examination, she had conserved general condition, a blood pressure at 120/70mmHg, anemic syndrome (cutaneous-mucous paleness) and a tumoral syndrome (splenomegaly measuring 15 cm) without peripheral adenopathy. No edema of lower limbs, no abdominal pain. On the hemogram, a predominantly lymphocytic leukocytosis (GB: 850 G/L) (Lymphocytes: 816 G/L), an anemia (Hb: 7.3 g/dL) macrocytic (MCV: 105fL) Thrombocytopenia (Platelets: 44G/L). A blood smear revealed pleomorphic atypical lymphocytes with sometimes a prominent nucleolus and cytoplasmic protrusions (Figure 1), indicating the immunophenotyping which revealed a monotypic T lymphoid population: CD3 +, CD5 +, CD7 +, CD4 +, CD2 + , TCRa / b +, CD25 +, CD57-, CD34-, HLADR + which was in favor of prolymphocyte leukemia T (PLL-T). The cytogenetic study did not reveal karyotype abnormalities. Based on clinical, hemogram and immunophenotyping data, the diagnosis is prolymphocytic leukemia T (LPL-T). A thoracic radiograph and a thoraco-abdomino-pelvic computed tomography (CT), which showed only splenomegaly (20/21 cm), were aimed at prognosis and therapeutics. The pre-therapeutic assessment: LDH was at 2660 IU/L, GOT and GPT were twice normal, haemostasis was normal, serum creatinine and 24h proteinuria was normal. Viral serology was negative.

From a therapeutic point of view, the patient received chemotherapy according to the CHOEP (Cyclophosphamide Adriablastin Vincristine Etoposide Prednisone) protocol. The evolution was marked by complete haematological remission (regression of splenomegaly and normalization of the hemogram) but with a leukemic clan in flow cytometry. Currently the patient is still in complete remission with a follow-up of eight months.

COMMENTARY

The PLL-T, first described in 1973, accounts for about 2% of chronic and mature lymphoproliferative syndromes [3]. It affects more men than women (sex ratio M / F: 1.33), and affects mostly the elderly (median age: 65 years) [4]. In our study it is a woman, but this sample cannot have a significant value on the sex ratio given its smallness. According to the literature, the clinical picture is marked by a massive splenomegaly in 73% of cases, hepatomegaly in 40% of cases, lymph nodes in 53% of cases and skin lesions in 27% of cases (nodules, papules or plaques especially of the cephalic extremity and more rarely skin rash, erythroderma or bullous lesions) [5,6]. However, some of these signs have not been found in our patient, such as hepatomegaly, adenopathies and skin lesions. The haematological picture associates hyperlymphocytosis, made of atypical lymphocytes, often major (> 100 G/L). In our patient there was a hyperlymphocytosis at 850 G/L, associated with anemia and thombopenia. The typical cytological aspect must be known to the biologist, it is usually quite characteristic, and made of a lymphocytic infiltration by cells of small to medium size, irregular nucleus, mottled chromatin with a prominent nucleolus more or less visible depending on the intensity of the coloration. The cytoplasm is scanty and basophilic with frequent protrusions. However, this is not always the case. There are five different morphologically distinct forms according to the French Group of Cellular Hematology (GFHC) [5; 7; 8] (Table I).

Table-I: separate morphology according to GFHC (French Group of Cellular Hematology)

Shape	Description	Impacts
Typical form	Atypical pleomorphic lymphocytes with sometimes prominent nucleoli and cytoplasmic protrusions	**67%**
LPL-B form type	Lymphocytes of larger size, with a regular nucleus and a sharper nucleolus, the cells of this form of PLL-T resemble to those of prolymphocyte leukemia B (PLL-B)	**20%**
Flower cell type	The cells have a flowering or cloverleaf nucleus comparable to that observed in adult leukemia-T-cell (ATLL) cells	**5%**
Sezary cell type	The prolymphocytes have a cerebriform nucleus, comparable to that of the Sezary cells;	**2%**
Small round cell type	In exceptional cases, the morphology is no different from that of conventional chronic lymphocytic leukemia (CLL).	**6%**

Table-II: Immunophenotyping of Chronic Lymphoproliferative Syndromes T

	PLL-T	LGL-T	LGL-NK	ATLL	MF/SS
CD2	+	+	+	+	+
CD3	+	+	-	+	+
CD5	+	-	-	+	+
CD7	+	-	-	-	-
CD4	+	-	-	+	+
CD8	-	+	+/-	-	-
CD57	-	+/-	+/-		
CD16	-	+/-	+		
CD56	-	-	+		
CD25	-	-		+	-
TCRα/β	+	+	-	+	
TCRγ/δ	-	-	-	-	

ATLL: Adult Leukemia / T-Lymphoma HTLV-1; **LGL-NK:** leukemia with large T-cell lymphocytes; **LGL-T:** leukemia with large T-lymphocytes; **PLL-T:** prolymphocytic leukemia T; **MF / SS:** mycosis fungoide / Sézary syndrome

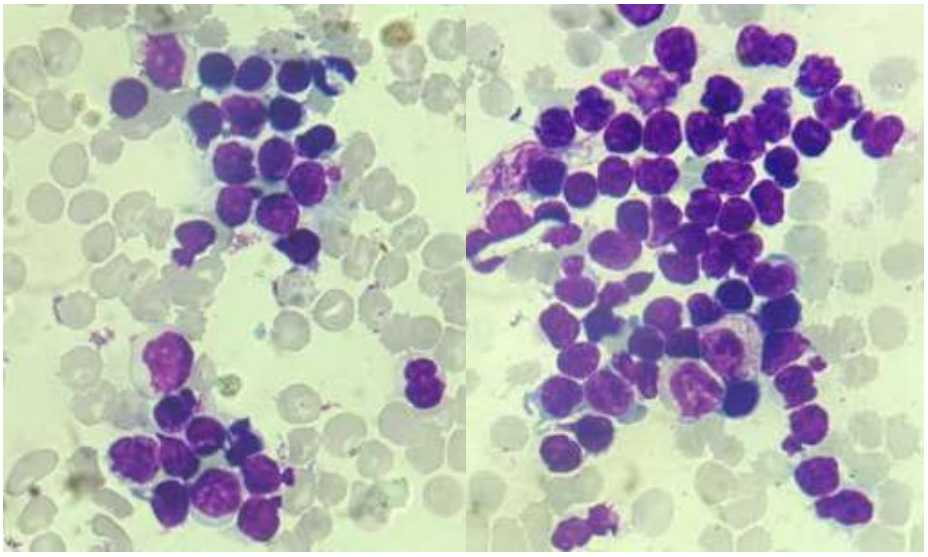

Fig-1: MGG-stained blood smear, magnification * 100, showing pleomorphic lymphocytes of small to medium size with occasional cytoplasmic protrusions

The phenotype of PLL-T is that of post-thymic mature T-cells, or termed peripheral T-type, CD3 +, CD5 +, CD7 +, TdT-, CD1 a-, CD2 +, with variable expression of CD4 antigens and CD8, CD4 + cells in 65% of cases, CD4 and CD8 can be coexpressed in 21% of cases and CD8 alone in 13% of cases [6]. Immunophenotyping therefore makes it easy to eliminate chronic lymphoproliferative syndrome B such as chronic lymphocytic leukemia (CLL) and PLL-B in particular or benign T lymphocytosis. And it is the strong expression of the CD7 antigen in the PLL-T that distinguishes it from other T lymphoproliferative syndromes, in particular Sezary's syndrome (Table 2). Whereas strongly expressed CD52 is used as a therapeutic target [7]. Hence, our diagnosis of PLL-T (strong expression of CD7). Nevertheless, the diagnosis of T lymphoproliferations is sometimes difficult and may require the search for clonality T by molecular biology techniques. The analysis of gene rearrangements for TCR has developed and it becomes an important diagnostic tool. The presence or absence of rearranged TCR genes makes it possible to distinguish between monoclonal proliferations, where the rearrangements are the same throughout the population, and the polyclonal populations, where we find a set of different rearrangements.

According to the literature in 80% of patients, the cytogenetic study of the blood, which did not reveal abnormalities in our patient, reveals inversion of chromosome 14 [inv14 (q11; q32)] and in 10% translocation t(14; 14) (q11; q32) inducing activation of the TCL1 oncogene. The expression of the MTCP1 gene which has homologies with TCL1 has been reported in rare cases of PLL-T [9, 10]. Activation of TCL1 appears to be the initiator of PLL-T oncogenesis.

The prognosis of PLL-T is very dark, with a median survival usually less than one year. Therapeutically, treatment with conventional immunochemotherapy remains disappointing. It has been shown that allograft therapy can provide a real possibility of disease control in previously selected patients [11].

CONCLUSION

This observation of a PLL-T with hyperleukocytosis greater than 800G / L is interesting because of the rarity of this entity of malignant haemopathies with a very aggressive and pejorative prognosis but also of the place of immunophenotyping for the diagnosis and Treatment.

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