Haematology Oncology Research Journal
ISSN: 2997-6677|
Volume 13 Issue 4, October-December, 2025
Journal Homepage: https://ethanpublication.com/articles/index.php/E25
Official Journal of Ethan Publication

EXPERIENCE IN THE DIAGNOSIS AND TREATMENT OF SOLITARY PLASMACYTOMAS: A SINGLE-CENTER STUDY FROM DAKAR, SENEGAL

Aissatou Marième Bassey
Department of Hematology, Cheikh Anta Diop University, Dakar, Senegal
DOI: https://doi.org/10.5281/zenodo.17405336

Abstract

Introduction: *Solitary plasmacytomas occur most frequently in bones, but can also be seen in soft tissues. The aim of this study was to describe the diagnostic, therapeutic and evolutionary aspects of plasmacytoma.*

Methodology: *We carried out a retrospective descriptive study from January 2017 to January 2022 in the clinical hematology department in Dakar. Clinical and paraclinical data were collected from patients physical medical records.*

Results: *Symptomatology was dominated by bone pain (3 cases), followed by spinal cord compression found in 2 patients; 1 case of localized swelling was noted. CT scans revealed bone masses in 4 patients; 2 patients had extraosseous localizations. Immunohistochemistry showed plasmacytoma of IgG Kappa phenotype in 5 patients; one patient had plasmacytoma of Ig G lambda phenotype. All patients underwent melphalan-prednisone chemotherapy. Five patients benefited from radiotherapy and only one patient underwent surgery. Progression was marked by complete remission in 3 patients, progression to multiple myeloma; 2 patients were lost to follow-up.*

Conclusion: *Solitary bone plasmacytoma and solitary extramedullary plasmacytoma represent a rare subgroup of plasma cell dyscrasias. As such, it has been difficult to build large cohorts and conduct clinical trials that would change the treatment paradigm for solitary plasmacytomas.*

Keywords: Plasmocytomas; Diagnosis; Treatment; Evolution.

Introduction

Plasma cell haemopathies, including solitary plasmacytoma, represent 1-2% of all human neoplasia and are characterized by the proliferation of a single clone of plasma cells, producing a monoclonal immunoglobulin, and may present as a single lesion (solitary plasmacytoma) or multiple lesions (multiple myeloma). Solitary plasmacytomas occur most commonly in bone (bone plasmacytoma), but can also be seen in soft tissue (extra medullary plasmacytoma) [1]. The diagnosis is essentially based on histology supplemented by immunohistochemistry; the risk of progression to multiple myeloma is 1% per year. The aim of this work was to describe the diagnostic, therapeutic and evolutionary aspects of plasmacytomas in our department.

Patients and Methods: We conducted a retrospective and descriptive single centre study from January 2017 to January 2022 (5 years) in the clinical haematology department of the University Hospital of Dakar.

Patients included Plasmocytomas diagnosed on the basis of histological and immunohistochemical study. Patients treated with one or more of the following therapeutic strategies: radiotherapy, surgery, chemotherapy

Methods: Sociodemographic, clinical and paraclinical data were collected from the patients' physical medical records.

We studied the following features:

Socio-demographic characteristics of patients: Age, gender.

Diagnostic parameters of plasmacytomas: Circumstances of discovery, time to diagnosis, clinical manifestations, flow cytometry, histology + immunohistochemistry, standard radiography, CT scan.

Différents therapeutic approaches: Radiotherapy.

Surgery: Mass resection.

Chemotherapy following the Melphalan - Prednisone (MP) protocol.

Evolution

Monitoring elements: Blood count, Serum protein electrophoresis, immunofixation, medullogram, and imaging.

Evolutive modalities according to the RECIST criteria

COMPLETE RESPONSE (CR): Complete disappearance of all abnormalities previously seen on radiographic imaging. For patients with secretory plasmacytoma, disappearance of monoclonal protein from serum and/or urine. For solitary plasmacytoma of the bone, the initial radiological abnormalities on MRI or CT must regress or stabilise over an observation period of at least 12 months to meet the requirements for a CR.

For extramedullary plasmacytoma, disappearance of the soft tissue mass is required for the definition of CR.

Very Good Partial Respond (VGPR): A CR regarding the clinical and radiological signs but with a positive immunofixation or a reduction ≥ 90% of serum monoclonal protein plus urinary monoclonal protein level < 100mg/24h.

Partial Respond (RP): A decrease of ≥ 50 % in serum or urinary monoclonal proteins.

Hematology and Oncology: Current Research

MedDocs Publishers

For solitary non-secretory plasmacytoma, radiological evidence (MRI/CT) or local assessment is required. In patients with extramedullary plasmacytoma, a 30% decrease in target lesion diameter should be observed.

Stationnary Condition (SC): Insufficient decrease to qualify as partial response nor sufficient increase to qualify as an evolving disease.

Evolving Condition (EC): The development of new lesions or an increase of at least 20% in the size of existing lesions, the occurrence of a myeloma-defining event, and an increase of >25% from the lowest response value in serum and/or urine monoclonal protein.
Lost to follow-up: Patients without news for more than a year.
Deaths
Statistics analyses: The data were collected from a survey form and analysed using StatAid software. For the descriptive part, we calculated the averages (plus or minus standard deviation) as well as the proportions with their confidence interval.
Results: In a population of 996 patients followed for haematological malignancies, 6 patients or 0.06% of the patients had a plasmacytoma. The sex ratio was 5:1 and the mean age was 52 years with a standard deviation of 8.74 (Figure 1). The average time between the appearance of the first symptoms and the consultation was 13 months. The symptomatology was dominated by bone pain (3/6 cases), followed by slow spinal cord compression found in 2 patients; there was 1 case of localized swelling. The general condition according to the WHO performans status was rated at 1 in 5 pati ents, only one patient was classified as WHO 2. The blood count was normal in 5 patients while it objectified microcytic anemia in one patient. The latter had presented erythrocyte rolls on blood smear as well as a monoclonal peak of IgG Kappa type on immuneelectrophoresis of serum proteins. The corrected calcemia was normal in all the patients, and the glomerular filtration rate calculated according to CKD-Epi was greater than 40 ml/min in all the patients. The medullogram showed plasmocytosis less than 10% in all patients, the mean was 4.75% with a standard deviation of 1.72. Imaging, in this case computed tomography, made it possible on the one hand to highlight masses developed or not at the expense of the bones and on the other hand to look for other locations in all patients. Thus, 4 patients had bone mass: 2 vertebral masses, 1 rib mass, 1 olecranon mass; 2 patients had extra-osseous locations: 1 lung mass, 1 thigh mass. Histological and immunohistochemical examination concluded that 5 patients had a plasmacytoma of IgG Kappa phenotype; one patient had a plasmacytoma of Ig G lambda phenotype (Table 1). Resume socio-demographic, clinical and paraclinical characteristics of the patients. Therapeutically, chemotherapy according to the melphalan-prednisone protocol was performed in all patients. Five patients received radiotherapy; average radiation doses were 51 Gy (40-60 Gy). One patient with pulmonary localization had received chemotherapy alone; a patient with a spinal tumor underwent surgery, radiotherapy and 4 cycles of postoperative chemotherapy according to the MP protocol. The evolution was marked by a complete remission in 3 patients, progression to multiple myeloma after a period of 16 months in a patient who presented a vertebral localization; 2 patients were lost to follow-up.

Haematology Oncology Research Journal
ISSN: 2997-6677|
Volume 13 Issue 4, October-December, 2025
Journal Homepage: https://ethanpublication.com/articles/index.php/E25
Official Journal of Ethan Publication

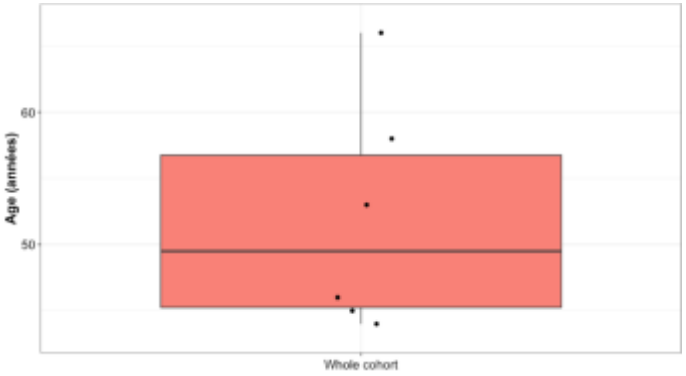

Figure 1: Distribution of patient ages.

Table 1: Sociodemographic, clinical, biological and radiological parameters of patients.

Parameters	**Number (%)**
Demographic parameters	**6**
Age : < 50 ans / > 50 ans	3 (52,7%) / 3 (47,2%)
Gender : M/W	5 (69,4%) / 1 (36,5%)
Delay of diagnostic	**6**
< 10 mois	2 (80,55%)
> 10 mois	4 (52,77%)
Circumstances of discoveries	**6**
Bone pain	3 (61,1%)
Medullary compression	2 (30,5%)
Localised swelling	1 (8,3%)
Biology	**6**
Haemoglobin > 12 g/dl	5 (86,1%)
Heamoglobin < 12 g/dl	1

GFR according to CKD Epi > 40 ml/mn	6 (100%)
Corrected calcaemia< 105 mg/l	6 (100%)
Medullogram	**6**
Plasmocytosis < 10 %	6 (100%)
Plasmocytosis < 5 %	12 (33,3%)
Serum protein electrophoresis	**1**
Monoclonal Pic< 30 g/l	1 (100%)
Immunofixation of serum proteins	**1**
IgG Kappa	1 (100%)
CT–Scan	**6**
Vertebral mass	2
Costal mass	1
Olecranon mass	1
Thigh mass	1
Pulmonary mass	1

N: Total effectif %: Percentage; **M**/W: Man / woman; GFR:Glomerular
Filtration Rate IgG: immunoglobulin G; IgA: immunoglobulin A; Kappa, Lambda: light Chains**;** C.R.A.B : Calcaemia, renal function, Aneamia, osteolytic lesions.

Hematology and Oncology: Current Research
MedDocs Publishers

Discussion

Plasma cell neoplasia can present in different clinical forms. Multiple myeloma is usually located in the bone marrow and is associated with a wide range of clinical, laboratory and radiological abnormalities [2]. In contrast, Solitary Plasmacytoma (SP) is characterised by a single mass of clonal plasma cells, with no or minimal medullary plasmocytosis and no symptoms other than those derived from the primary lesion. It may present either as an extramedullary plasmacytoma, i.e. in soft tissus, or as a solitary bone plasmacytoma. Solitary plasmacytoma is a rare disease with a cumulative incidence of 0.15/100,000 [3].

The average age at diagnosis of plasmacytoma is in the fifth decade of life, about 10 years younger than the average age at diagnosis of MM [4]. Although the median age of our patients was 52 years, 50% were younger than 50 years. The youngest patient, who had EMP in the upper mediastinum, was 44 years old at the time of diagnosis, indicating that the disease can develop well before 50 years of age. The review of the literature supported the results of our study, with a median age at diagnosis between 50 and 60 years and a male predominance [4].

The diagnosis of solitary plasmacytoma is currently based on tissue biopsy and histological and immunohistochemical confirmation of the presence of a homogeneous infiltrate of monoclonal plasmocytes, which typically express CD138 and/ or CD38. In our study all patients had diagnostic confirmation.

The median time to progression to MM is 2-3 years. Solitary plasmacytoma of bone has a poor prognosis and increased progression to MM compared to extramedullary plasmacytoma [5]. Solitary Plasmacytoma of Bone (SPB) progresses to MM in 50% of cases, and the extramedullary form progresses to MM in 15% of cases [6]. For OSPs, poor prognostic factors include: age over 40 years, tumour size of 5 cm or more, spinal lesions, neurological symptoms associated with OSP, dose of radiotherapy [7], the existence of light chains, high levels of serum M protein [7], persistence of M-proteins after treatment, bone mar row infiltration by clonal plasmocytes and osteopenia [3]. In our study, one patient had progressed to multiple myeloma after 16 months of follow-up. He was over 40 years old and presented with a vertebral localization of his plasmocytoma; his medullary plasmocytosis at diagnosis was 7% and there was a monoclonal serum peak of the IgG Kappa type. This observation confirms the need for an initial prognostic assessment in order to plan optimal management in certain high-risk patients.

Plasmacytomas are treated with Radiotherapy (RT), surgery and chemotherapy as needed, depending on the disease status. In our study, 83.33% of patients had received radiotherapy. According to the literature, plasmacytoma is radiosensitive and radiotherapy is the treatment of choice in plasmacytoma, achieving a control rate of 80%. [8-11]. A fractional dose of ra diotherapy of 40 to 50 Gy over a period of 4 weeks is administered at a rate of 1.8 to 2.0 Gy per fraction.

One of our patients with a vertebral location had benefited from a decompressive laminectomy associated with radiochemotherapy. Studies have shown that some patients achieve partial or complete removal of tumors for diagnostic or therapeutic purposes and that surgery combined with radiation therapy provides better Progression-Free Survival (PFS). Surgery is also indicated in case of vertebral instability, fracture or neurological impairment [12]. Our patient presented spinal cord compres sion at diagnosis, which is why he underwent laminectomy. In addition, this surgical treatment was associated with radio-chemotherapy, thus giving him complete remission with complete neurological recovery.

In most studies, chemotherapy alone shows no beneficial effect on disease control or prevention of complications. Chemotherapy does not decrease the incidence of progression from plasmacytoma to

multiple myeloma (MM), but it increases the duration of progression to MM. Adjuvant chemotherapy may be considered for tumors larger than 5 cm and for tumors that do not respond to radiation therapy [12].

Conclusion

Solitary bone plasmacytoma and solitary extramedullary plasmacytoma represent a rare subgroup of plasma cell dyscrasias sometimes with atypical locations. Progression factors such as significant plasmocytosis disease and monoclonal peak at diagnosis should be taken into account in follow-up. Radiotherapy and surgery, more or less combined with chemotherapy, are the main therapeutic strategies.

References

Dimopoulos MA, Hamilos G. Solitary bone plasmacytoma and extramedullary plasmacytoma. Curr Treat Options in Oncol. 2002; 3: 255-9.

International Myeloma Working Group. Criteria for the classification of monoclonal gammopathies, multiple myeloma and related disorders: A report of the International Myeloma Working Group. Br J Haematol. 2003; 121: 749-57.

Weber DM. Solitary Bone and Extramedullary Plasmacytoma. Hematology. 2005; 2005: 373-6.

Caers J, Paiva B, Zamagni E, Leleu X, Bladé J, et al. Diagnosis, treatment, and response assessment in solitary plasmacytoma: Updated recommendations from a European Expert Panel. J Hematol Oncol. 2018; 11: 10.

Grammatico S, Scalzulli E, Petrucci MT. SOLITARY PLASMACYTOMA. Mediterr J Hematol Infect Dis. 2017; 9: 2017052.

Tsang RW, Campbell BA, Goda JS, Kelsey CR, Kirova YM, et al. Radiation Therapy for Solitary Plasmacytoma and Multiple Myeloma: Guidelines from the International Lymphoma Radiation Oncology