Case Report

Management of Plasmacytoma and its outcome in a low resource setting

[1]Ajayi Adeleke Ibijola, [1]Oluwafemi Johnson Adegbamigbe, [2]Oluwole Olarinmoye Oyeleye, [3]Olagoke Olaseinde Erinomo, [3]Olawale Morenikeji Adeniyi

[1]Department of Haematology and Blood Transfusion, Federal Teaching Hospital, Ido Ekiti/Afe Babalola University, Ado – Ekiti, Ekiti State. Nigeria.
[2]Department of Surgery, Federal Teaching Hospital, Ido – Ekiti /Afe Babalola University, Ado Ekiti, Ekiti State, Nigeria.
[3]Department of Morbid Anatomy, Federal Teaching Hospital, Ido -Ekiti / Afe Babalola University, Ado- Ekiti, Nigeria.

Corresponding author: Ajayi Adeleke Ibijola, Department of Haematology and Blood Transfusion, Federal Teaching Hospital, P.M.B 201, Ido Ekiti, Ekiti state, Nigeria/ Afe Babalola University, Ado Ekiti, Ekiti state, Nigeria.ibijolaaa@abuad.edu.ng; +2348028514127

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ABSTRACT

Background: Plasmacytoma is a rare solitary malignancy of plasma cell disorder in which there is proliferation of monoclonal plasma cells in tissues without evidence of overt multiple myeloma. It represents 3-7% of myeloma disorder. It is very radiosensitive, but the impact of chemotherapy in its management remains debatable with controversial literature.
Case summary: We report a case of solitary bone plasmacytoma in a middle-aged man who presented with three months history of upper back pain and one month history of inability to walk. He had decompressive laminectomy surgery following magnetic resonance imaging of the spine that showed cord compression with signal intensity at D2-D3. Histology of the surgical specimen turned out to be plasmacytoma. The patient had only chemotherapy with full recovery of neurological deficit without radiotherapy.
Conclusion: Even though the gold standard for the management of plasmacytoma is surgical excision and radiotherapy, the role of novel chemotherapy agents like Lenalidomide in combination with Dexamethasone in low resource settings where Radiotherapy is not readily available cannot be over emphasized as seen in our patient who regained total neurological deficit with improved quality of life post-surgery and chemotherapy.

Keywords: Plasmacytoma, Radiotherapy, Chemotherapy

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INTRODUCTION

Plasmacytoma is a solitary form of multiple myeloma. There are usually two types, solitary bone plasmacytoma and solitary extramedullary plasmacytoma.[1] Solitary bone plasmacytoma has worse prognosis than extramedullary plasmacytoma [2]. Solitary plasmacytoma represents 3-7% of myeloma [3].

There is no known cause.[4,5] However, genetics, viral infection and inhaled irritants have been implicated. [6] Plasmacytoma is usually located in the vertebral bodies of the thoracic and lumbar spine of patients. The median age of onset is 55- 60 years.[7] Incidence is higher in males than females.[8]

Plasmacytoma clinical features may include backpain and paraplegia secondary to spinal cord compression. [1] It is very radiosensitive hence the treatment of choice is radiotherapy which may achieve up to 80% control rate.[6,9-11] Surgery may offer partial or complete removal of the tumors both for diagnosis and therapeutic purposes when combined with radiotherapy. Recurrence rate is high in patients who had surgery alone without radiotherapy.[9,12] The impact and importance of chemotherapy in the management of solitary plasmacytoma remains debatable and controversial as reported by most studies. [13-15] However, some studies advocated that chemotherapy may be considered in patients who do not respond to radiotherapy [9,12]

Patient profile:

DG is a 48year old male, right-handed, civil servant referred to neurosurgery clinic from a tertiary health facility because of lack of neurosurgeon in that facility. He is married with three children. He is from Yoruba tribe of Nigeria and there is no family history of paraplegia. He is not known to have diabetes or hypertensive.

Clinical Presentation.

He was apparently well prior to the insidious onset of upper back pain of three months duration and one month history of inability to walk. The pain was persistent, radiating to the chest without any known aggravating or relieving factor. The inability to walk was preceded by bilateral lower limb weakness which was worse on the right initially and gradually progressed to the point where the patient could not walk and currently on a wheelchair. There is impaired sensation from the nipple region downwards and paraesthesia in both legs. No antecedent history of fall or trauma to the back, no bisphincteric dysfunction or incontinence, no history of chronic cough, no drenching night sweat or contact with anyone with chronic cough. There was history of some weight loss.

Examination findings.

Middle-aged man on a wheelchair, afebrile, not pale, anicteric, not dehydrated, no significant peripheral lymphadenopathy, nil pedal oedema.

Vital signs were normal.

No abnormality detected in the chest, cardiovascular and abdominal examination.

Central nervous system:

GCS 15.

Pupils 4mm bilaterally, briskly reactive to light.

No ophthalmoplegia or facioparesis

Power Chart	C5	C6	C7	C8	T1	L2	L3	L4	L5	S1
Right	5	5	5	5	5	0	0	0	0	0
Left	5	5	5	5	5	1	0	0	0	0

Investigations

Retroviral screening: Non-reactive

Sputum gene expert: Mycobacterium tuberculum not detected.

Serum electrolytes urea and creatinine were normal.

Liver function test was normal

eGFR:113ml/min

Complete blood count: PCV 42%, WBC 6.5X 109/L, Platelet: 264x 109/L

Magnetic resonance imaging of the whole spine showed:

Cervical spine: Multilevel degenerative disc changes with symmetric disc bulge with bilateral existing and traversing nerve root indentation at C3 /C4, C4/C5, C5/C6 levels.

Thoracolumbar spine:

Collapse of the D2 vertebral body. Vertebral expansion due to soft tissue thickening and epidural extension causing spinal canal narrowing and cord compression noted at D2-D3 Level. There is involvement of the posterior elements.

Cord compression with signal intensity changes noted at D2-D3 level.

Diffuse disc bulge compressing the thecal sac and the bilateral existing and traversing nerve roots noted at L3-L4 and L4-L5 levels.

Following clinical findings and investigation reports, assessment of non-traumatic L3 myelopathy was made

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for which he had T2 decompressive laminectomy and T1 T3 posterolateral fusion with pedicle screw.

Operation findings include expansile lesion of the laminae transverse processes and pedicles of T2 vertebra with soft greyish white lesion in the marrow of the bone. Severe cord compression at T2 vertebral bone was also noted.

Histology of the operation specimen showed bone tissue with dense sheets of plasma cells and plasmablastic cells with uniform round nuclei and coarse granular chromatin, in areas there are deposition of amorphous eosinophilic materials, findings are in keeping with plasma cell neoplasm, plasmacytoma.

HISTOLOGY SLIDES

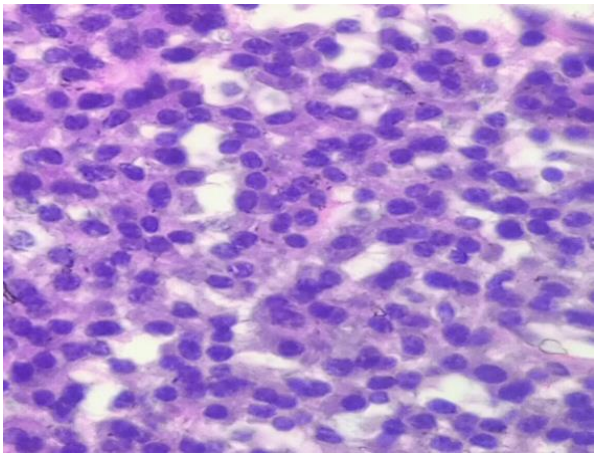
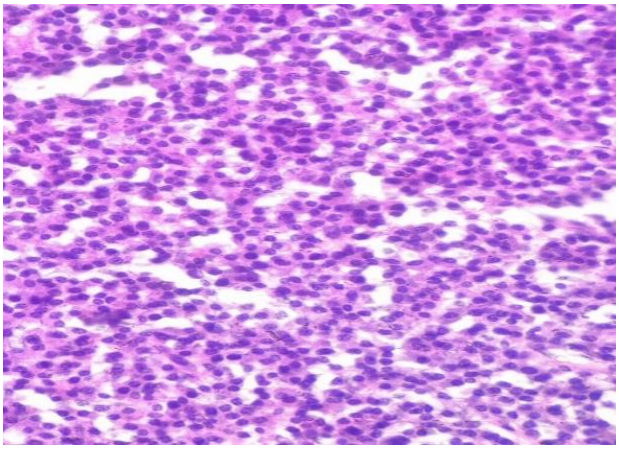


Fig 1: Haematoxylin and Eosin section showing sheet of plasma cells and Plasmablastic cells.



F**ig 2:** Haematoxylin and Eosin section showing sheet of Plasma cells

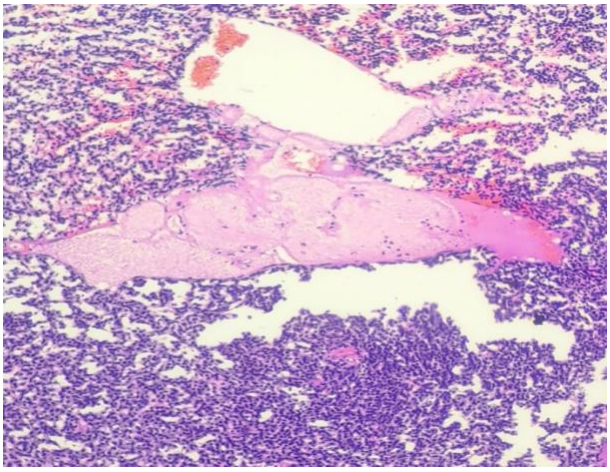


Fig 3. Haematoxylin and Eosin section showing focus of Eosinophilic amorphous material.

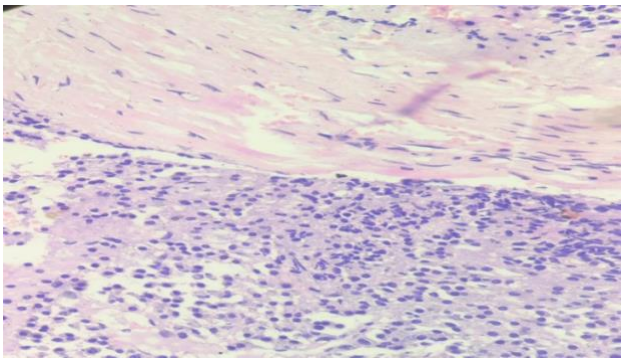


Fig 4: Haematoxylin and Eosin section showing the tumor and adjacent connective tissue.

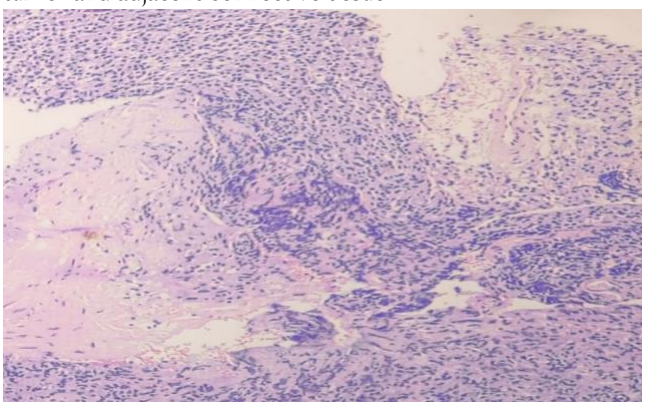


Fig 5: Haematoxylin and Eosin section showing infiltration of the tumor to the adjacent connective tissue.

Diagnosis: non-traumatic L3 myelopathy secondary to solitary plasmacytoma

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Treatment and follow up: He had eight cycles of Lenalidomide and Dexamethasone 28days cycle. Tabs Lenalidomide 25mg daily, Days 1-21, Tabs Dexamethasone 40mg daily, days 1-4, 9-12,17-20. Tabs aspirin 75mg daily, Tabs allopurinol 300mg daily, and Tabs Omeprazole 20mg daily. Patient reported a progressive improvement from the first cycle, and this became very significant and obvious after the third cycle when he started standing from the wheelchair with support. He started walking with support after the fifth cycle and after sixth cycle with regular physiotherapy he began to walk gradually without support. Neurosurgeon review at the end of the eighth cycle showed the power in both lower limbs which were zero at presentation and pre decompression laminectomy has been fully restored. He is now actively back at work, happy and ambulating without stress or difficulty.

However, he couldn't get radiotherapy throughout the period of his management because of the unavailability of the service in our center, the inability to secure space for him in the few tertiary hospitals that have the facility and financial constraint to access the service in private facilities.

He is now eighteen (18) months post diagnosis and twelve months last cycle of chemotherapy and being followed up in both Haematology and Neurosurgery clinics.

DISCUSSION

The most common site of solitary bone plasmacytoma is in the vertebrae, especially thoracic vertebrae as seen in this patient[8]. Back pain and paraplegia as presented in this patient is a common finding due to lesion cord compression. [16,17]

Diagnostic criteria for solitary plasmacytoma by the international myeloma working group include, proven solitary lesion, normal bone marrow with no evidence of clonal plasma cells, normal skeletal survey, and MRI OR CT of spine except for the primary solitary lesion and absence of end organ damage, all these criteria for diagnosis were met by our patient.[2]

Regional radiotherapy continues to be the gold standard for the treatment of solitary bone plasmacytoma at a dose of 40-50Gy over four weeks with a response rate of about 94%.[9]

However, this patient had only chemotherapy because of unavailability of radiotherapy in our center and his financial incapability to assess it from private institutions coupled with the long queues for radiotherapy appointments in the few government hospitals that render such services.

The target of treatment in solitary plasmacytoma of the spine is to preserve or re-establish stability of the spine, achieve local control of the disease and help prevent or improve neurological deficit, decompressive surgery as indicated in cases of canal encroachment.

The median survival for patients with solitary bone plasmacytoma is approximately 10 years on average. [18-20] According to Soutour and colleagues, 75% of solitary bone plasmacytoma patients usually progress to multiple myeloma while less than 30% of solitary extramedullary progress to multiple myeloma.[21]

Even though, many retrospective studies did not find significant benefits of chemotherapy alone in the treatment of plasmacytoma. [13,14,22] nevertheless, our patient had stability of spine reestablished through decompressive laminectomy, local control through chemotherapy and regained neurological deficit as evidenced by his ability to ambulate without support after 8 cycles of Lenalidomide and Dexamethasone.

He is eighteen months' post diagnosis, off chemotherapy in the last (12) twelve months, and he is being followed up both in Haematology and Neurosurgery clinics.

CONCLUSION

Despite the fact that the gold standard of treatment for plasmacytoma is surgical excision with radiotherapy,(plasmacytoma being very radiosensitive) Physicians should be aware that treatment with chemotherapy in centers where radiotherapy is not available with novel chemotherapy agents especially lenalidomide with Dexamethasone are also very promising as seen in our patient who had only chemotherapy post decompressive laminectomy and was able to regain his spine stability, neurological deficit of paraplegia and now fully ambulant without support and happily back to active work as a civil servant. These findings are contrary to previous studies that concluded that chemotherapy does not really have any significant benefit in the treatment of plasmacytoma without radiotherapy.

Declarations

Authors' contribution: Dr Ibijola and Dr Adegbamigbe wrote about the haematological aspect and chemotherapy management. Dr Oyeneye provided the neurosurgical intervention and findings at surgery.

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Dr Erinomo and Dr Adeniyi provided the histological slides and the histology reports
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Consent: Informed consent was obtained from the patient for the publication of this case report.
Declaration of conflicting interest: NIL

REFERENCES

1. Rao KS, Priya NS, Umadevi HS, Smitha T, Reshma V, Shebha G. Solitary bone plasmacytoma of the maxilla — A rare case report. Int J Clin Dent Sci. 2011; 2:37–40. [Google Scholar]
2. Beksac M, Cavo M, Goldschmidt H, et al. International Myeloma Working Group updated criteria for the diagnosis of multiple myeloma. Lancet Oncol 2014; 15:538–48. Doi: 10.1016/S1470-2045(14)70442-5
3. Kanthan R, Torkian B. Solitary Plasmacytoma of the parotid gland with crystalline inclusions: A case report. World J Surg Oncol. 2003;1:12. doi: 10.1186/1477-7819-1-12. [DOI] [PMC free article] [PubMed] [Google Scholar]
4. Lombardo EM, Maito FLDM, Heitz C. Solitary plasmacytoma of the jaws: therapeutical considerations and prognosis based on a case reports systematic survey. Braz J Otorhinolaryngol. 2018 Nov-Dec;84(6):790-798. [PMC free article] [PubMed] doi: 10.1016/j.bjorl.2018.05.002.
5. Lalla F, Vinciguerra A, Lissoni A, Arrigoni G, Lira Luce F, Abati S. Solitary Extramedullary Plasmacytoma Presenting as Asymptomatic Palatal Erythroplakia: Report of a Case. Int J Environ Res Public Health. 2021 Apr 04;18(7) [PMC free article] [PubMed] doi: 10.3390/ijerph18073762
6. Gholizadeh N, Mehdipour M, Rohani B, Esmaeili V. Extramedullary Plasmacytoma of the Oral Cavity in a Young Man: a Case Report. J Dent (Shiraz). 2016 Jun;17(2):155-8. [PMC free article] [PubMed] PMCID: PMC4885674
7. Grammatico S, Scalzulli E, Petrucci MT. Solitary Plasmacytoma. Mediterr J Hematol Infect Dis. 2017;9(1):e2017052. [PMC free article] [PubMed] doi: 10.4084/MJHID.2017.052.
8. 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 Jun;121(5):749-57. [PubMed] PMID: 12780789 doi: 10.1097/MD.0000000000027288
9. Caers J, Paiva B, Zamagni E, et al. Diagnosis, treatment, and response assessment in solitary plasmacytoma: updated recommendations from a European Expert Panel. J Hematol Oncol 2018; 16:10. doi: 10.1186/s13045-017-0549-1
10. Tsang RW, Campbell BA, Goda JS, Kelsey CR, Kirova YM, Parikh RR, Ng AK, Ricardi U, Suh CO, Mauch PM, Specht L, Yahalom J. Radiation Therapy for Solitary Plasmacytoma and Multiple Myeloma: Guidelines from the International Lymphoma Radiation Oncology Group. Int J Radiat Oncol Biol Phys. 2018 Jul 15;101(4):794-808. [PubMed] doi: 10.1016/j.ijrobp.2018.05.009
11. Tanrivermis Sayit A, Elmali M, Gün S. Evaluation of Extramedullary Plasmacytoma of the Larynx with Radiologic and Histopathological Findings. Radiologia (Engl Ed). 2020 Oct 22. DOI: 10.1016/j.rx.2020.07.006
12. Kilciksiz S, Karakoyun-Celik O, Agaoglu FY, Haydaroglu A. A review for solitary plasmacytoma of bone and extramedullary plasmacytoma. ScientificWorldJournal. 2012; 2012:895765. doi: 10.1100/2012/895765. [DOI] [PMC free article] [PubMed] [Google Scholar]
13. Katodritou E, Terpos E, Symeonidis AS, et al. Clinical features, outcome, and prognostic factors for survival and evolution to multiple myeloma of solitary plasmacytomas: a report of the Greek myeloma study group in 97 patients. Am J Hematol. 2014;89(8):803-808. doi: 10.1002/ajh.23745.
14. Finsinger P, Grammatico S, Chisini M, Piciocchi A, Foà R, Petrucci MT. Clinical features and prognostic factors in solitary plasmacytoma. Br J Haematol. 2016;172(4):554-560 doi: 10.1111/bjh.13870.
15. Reed V, Shah J, Medeiros LJ, et al. Solitary plasmacytomas: outcome and prognostic factors after definitive radiation therapy. Cancer. 2011;117(19):4468-4474 doi: 10.1002/cncr.26031.
16. Thorn K, Williams J. Solitary osseus plasmacytoma as a cause of back pain in a young patient. Am J Emerg Med 1999; 17:615–7. doi: 10.1097/MD.0000000000027288
17. McLain RF, Weinstein JN. Solitary plasmacytomas of the spine: a review of 84 cases. J Spinal Disord 1989; 2:69–74. PMID: 2520065
18. Dimopoulos MA, Moulopoulos LA, Maniati A, Alexanian R. Solitary plasmacytoma of bone and asymptomatic multiple myeloma. Blood 2000; 96:2037–44. PMID: 10979944
19. L.Y. Chak, R.S. Cox, D.G. Bostwick, R.T. Hoppe

Print ISSN: 0189-9287 Online ISSN: 2992-345X

Solitary plasmacytoma of bone: treatment, progression, and survival
J. Clin. Oncol., 5 (11) (1987), pp. 1811-1815
doi: 10.1200/JCO.1987.5.11.1811.

20. R.H. Liebross, C.S. Ha, J.D. Cox, D. Weber, K. De lasalle, R. Alexanian
Solitary bone plasmacytoma: outcome and prognostic factors following radiotherapy Int. J. Radiat. Oncol. Biol. Phys., 41 (1998), pp. 1063-1067View PDFView articleView in ScopusGoogle Scholar doi: 10.1186/1471-2407-6-118
21. R. Soutar, H. Lucraft, G. Jackson, A. Reece, J. Bird, E . Low, D. Samson
Guidelines on the diagnosis and management of solitary plasmacytoma of bone and solitary extramedullary plasmacytomaClin.Oncol., 16 (6) (2004), pp. 405-413View PDFView articleView in ScopusGoogle Scholar
doi: 10.1111/j.1365-2141.2004.04834. x.
22. D. Knobel, A. Zouhair, R.W. Tsang, P. Poortmans , Y. Belkacémi, M. Bolla, F.D. Oner, C. Landmann , B. Castelain, M. Ozsahin. Prognostic factors in solitary plasmacytoma of the bone: a multicenter Rare Cancer Network study BMC Cancer, 6 (1) (2006) doi: 10.1186/1471-2407-6-118.

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