

Plasmacytoma of Skull Mimicking Meningioma and Metastasis

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Abstract

Plasmacytoma is a tumor arising from plasma cell, which mainly grows within soft tissue or within axial skeleton. When it is present as a discreet solitary mass it is called as solitary plasmacytoma and it is rare. We report a case of 46 years male presented to us with the complaints of painless swelling in the left front parietal region which is about 8.6x6.5cm in diameter. Magnetic resonance imaging(MRI) revealed an extra axial mass in fronto parietal region with overlying bone destruction mimicking meningioma with bony erosion. We did fronto parietal craniectomy and complete resection of tumor with bone margin subsequent cranioplasty also done. Histopathology of which revealed plasmacytoma. After that we did urinary bence jones protein which was negative.

Key words: plasmacytoma; meningioma; metastasis

Introduction

Plasmacytoma is malignant proliferation of plasma cell, mainly arise from proliferation of a single clone of B lymphocyte 3% of which present as solitary lesion [1]. The international myeloma working group lists three types of plasmacytoma: solitary plasmacytoma of bones, extramedullary plasmacytoma & multiple plasmacytoma. Solitary plasmacytoma occurs as lytic lesion. An osteolytic plasmacytoma lesion in skull with no systemic involvement is extremely rare.[2] Multiple myeloma, extramedullary plasmacytoma and solitary bone plasmacytoma all are the three subgroup of plasma cell tumor.[3]

We present a case of plasmacytoma present in frontoparietal region.

Case report

A 77 years male admitted to our department with complaints of gradual enlargement of a painless swelling on his vertex for one year. On examination we found a painless mass in left frontoparietal region measuring about 8.5 x 6.4 cm in diameter which was firm in consistency, not mobile, fixed with underlying & overlying structure, on general physical examination no other abnormality detected, neurological examination was also normal. He has no significant past medical or surgical illness. On MRI of brain revealed a iso to hypointense extra axial lesion involving the left frontoparietal region measuring about 8 x 6 cm causing mass effect over the brain parenchyma (Figure 1, 2, 3, 4).



Figure 1: Scalp swelling about 8.6 x 6.5cm.



Figure 2. MRI of brain in t1wi showing iso intense lesion.

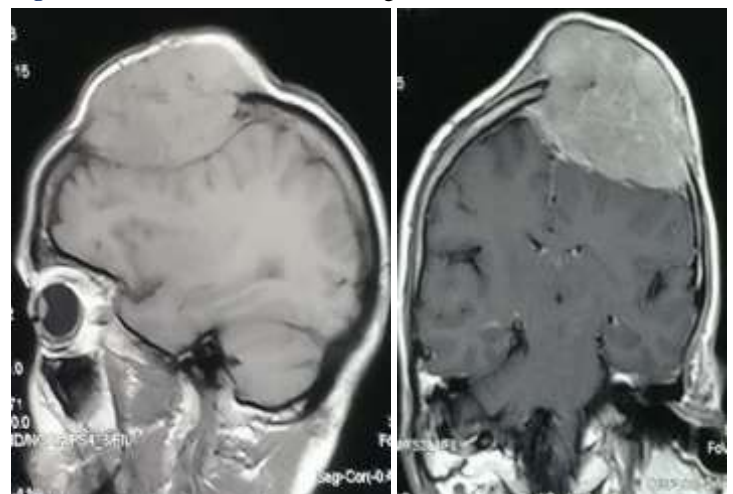


Figure 3 & 4: after intravenous gadolinium strong enhancement of lesion make it confused with meningioma.

After Intravenous gadolinium showed strong enhancement of the lesion. On CT scan of brain revealed there is a lytic lesion in left frontoparietal region causing a bone defect (Figure.5, 6).



Figure 5 & 6: Ct scan of skull in bone window shows erosion of frontoparietal part of skull.

On magnetic resonance venogram displayed the superior sagittal sinus is compressed by the tumor. complete blood count all are within normal range.as our initial diagnosis was may be a case of meningioma or metastasis so we did all metastatic work up eg.thyroid scan, Ultrasonography of whole abdomen and tumor marker but all were normal, He underwent craniectomy peroperative tumor was found to involve the subcutaneous tissue to bone upto dura & which was completely extradural, tumor was moderately vascular, total removal of tumor with involved bone was removed (Figure 7,8).



Figure 7 & 8: Peroperative tumor removal, after careful dissection of skin tumor found attached with underlying bone & after craniectomy.

Cranioplasty was done with bone cement (Figure 9,10).

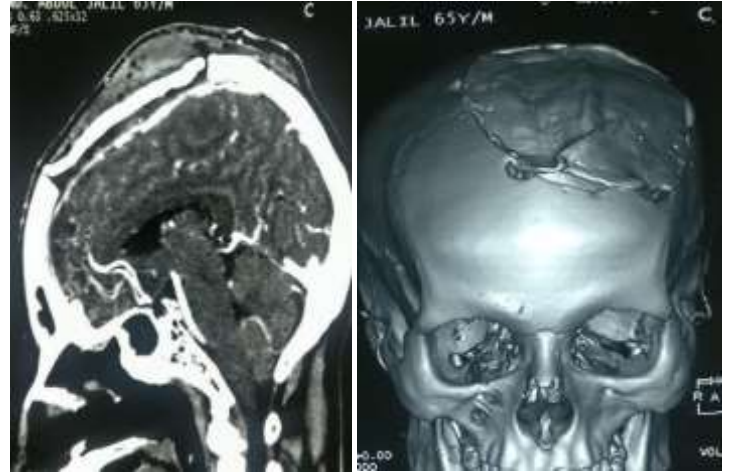


Figure 9 & 10: At 4th post-operative day, en bloc removal of tumor without any residual tumor with cranioplasty.

Histopathology revealed plasmacytoma .his post-operative period was uneventful, as there was no other site of lytic lesion and we removed tumor in en bloc with part of dura so radiotherapy was not performed.

Discusson

Plasma cell tumor are divided in three type solitary plasmacytoma of bone (SPB), extramedullary plasmacytoma & multiple myeloma. Multiple myeloma is systemic disease which involved multiple osteolytic lesions, atypical plasma cell in biopsy , amyloid deposit & abnormalities in immunoglobulin production, and the others are local form of plasma cell tumor , According to Bataille and Sany, the diagnostic criteria for SPB include an isolated tumor composed of malignant plasma cells; absence of other lesions on skeletal radiographic survey; absence of plasmacytosis in the bone marrow, absence of anemia, hypercalcemia, or renal involvement & the Vertebrae and pelvic bones are mostly involved by SPB.[3] Solitary plasmacytoma of skull is rare disease and considered to be curable with resection & radiotherapy.[4] Due to its rarity most of the time preoperatively it is misdiagnosed as meningioma or metastasis . As compared to SPB the prognosis of solitary plasmacytoma of skull is good if it is diagnosed on strict criteria. [1] so making the appropriate diagnosis is necessary for further management & follow up, though from some literature they think that solitary plasmacytoma is the initial presentation of multiple myeloma with progression of time this may convert into multiple myeloma. [5]

We went through published literature [Table:1(4,6-12)] of patients diagnosed as a case of solitary plasmacytoma of skull received en bloc removal of tumor including cranioplasty.



Study	Age & gender	Location of tumor	surgery	cranioplasty	Radio-therapy	Follow up	Recurrence
Arienta et al., 1987 [7]	64,F	Parietal	GTR	Yes (titanium mesh)	No	3 years	No
Du Preez et al.,1991[6]	30,F	Frontotemporal	GTR	Yes	No	1.5	No
Barone et al.,1992[8]	55,F	Frontal	GTR	Yes autograft	No	9months	No
Madsuda et al.,1996[9]	55,F	Temporal	GTR	Yes autograft	Yes	2 years	No
Tanaka et al.,1998[10]	55,M	Frontal	GTR	Yes	Yes	7 months	No
Gürbüz et.ai., 2013[11]	63,M	parietooccipital	GTR	Yes autograft	Yes		No
Mankotia et al., 2017[12]	36,M	Frontal	GTR	Yes cement	Yes	3 months	No
Kuo et al.,2018[4]	40,M	parietooccipital	GTR	Yes cement	No	1 year	No

Table 1: patients with solitary plasmacytoma of skull receiving surgery published in literature.

All of those patients are histopathologically proven plasmacytoma of skull among them four patients receive only surgery, no post-operative radiotherapy or chemotherapy, and four patients received surgery along with post-operative radiotherapy, and on follow up among them seven patient has no recurrence except one patient whom post-operative follow up is not available.

Radiotherapy is the definitive treatment for solitary plasmacytoma of bone, surgery along with radiotherapy is the treatment of choice based on tumor location and type of removal of tumor, chemotherapy is not needed until there is systemic involvement as like multiple myeloma.

[4] if there is gross total resection of tumor in case of isolated local tumor radiotherapy is needed or not is still in quarry, but as sometimes solitary plasmacytoma is the initial presentation of multiple myeloma regular follow up is necessary in all cases.

Conclusion

Isolated solitary plasmacytoma is a very rare tumor, en bloc tumor removal with removal of involved bone up to macroscopic healthy margin with cranioplasty is a treatment option but as radiotherapy is another option so regular follow up should be carried out.

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