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Olgu Sunumu

# Liver Plasmacytoma Mimicking Solid Tumor Metastasis in a Relapsed Myeloma Patient: Case Report and Review of the Literature

Nüksetmiş Myelomalı Hastada Solid Tümör Metastazını Taklit Eden Karaciğer Plazmasitoması: Olgu Raporu ve Literatür Derlemesi

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## Abstract

**Aim:** Involvement of the extra-medullary tissues is quite rare in Multiple Myeloma. The aim of this case report is to demonstrate a case of nodular hepatic plasmacytoma which can easily be confused with solid tumor metastasis.

**Case:** Here we present an interesting case of multiple nodular hepatic plasmacytoma in relapsed myeloma patient. The diagnosis is confirmed by magnetic resonance imaging and trucut biopsy of liver.

**Conclusion:** If elevated liver enzymes are detected in a patient with myeloma, the patient should be evaluated for liver plasmacytoma. In case of doubt, imaging and biopsy should be performed.

**Keywords:** Multiple Myeloma; plasmacytoma; metastasis

## Öz

**Amaç:** Multiple Myelomada medulla dışı tutulum oldukça nadirdir. Bu olgu sunumunun amacı kolaylıkla solid tümör metaztazı ile karışabilecek nodüler hepatik plazmasitomalı bir hastayı göstermektir.

**Olgu:** Relaps myelom hastasında multiple noduler hepatik plazmasitom saptadığımız ilginç bir vakayı sunuyoruz. Tanı magnetik rezonans görüntüleme ve trucut biyopsi ile doğrulanmıştır.

**Sonuç:** Myelom hastalarında karaciğer enzimlerinde artış izlendiğinde, plazmasitom da ayırıcı tanılarımız arasında yer almalıdır.

**Anahtar Sözcükler:** Multiple myelom; plazmasitom, metastaz

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## Introduction

Multiple Myeloma (MM) represents about 1.8% of all malignancies and MM is the second most common hematologic neoplasia (1). Although MM is not a curable disease yet, 5-year survival can be achieved in 50% of patients (1). The prevalence of extramedullary disease (EMD) increases as the survival of patients prolong. EMD of MM can develop at the time of diagnosis or relapse. EMD usually occurs as skin and soft tissue involvement. Rarely, malign clones may involve the gastrointestinal system (2). Nodular hepatic plasmacytoma is also rare and can be confused with solid tumor metastasis. Here we present an interesting case of multiple nodular hepatic plasmacytoma in relapsed myeloma patient treated with D-PACE (dexamethasone, cisplatin, doxorubicin, cyclophosphamide and etoposide) chemotherapy.

## Case

A 70-year-old male patient, who was followed for 3 years due to Ig G lambda monoclonal gammopathy of undetermined significance (MGUS), presented with back pain in March 2016. On shoulder MRI, a lytic lesion with cortical destruction in the scapula was detected. The bone marrow aspiration confirmed the presence of 40% plasma cells. The patient's hemoglobin was 12.2 g / dl, creatinine 0.90 mg / dl, Ig G 4182 mg / dl and Ig A and Ig M were suppressed. The patient's M protein was 4.1 g/dL, kappa 46 mg / dl, lambda 803 mg / dl (ratio 17.4), B2 microglobulin 4.46 mg / l, albumin 3.9 g / dl. The patient was accepted as ISS stage II and R-ISS stage II due to the normal levels of Lactate Dehydrogenase (LDH) and absence of genetic mutations. After 4 cycles of bortezomib -cyclophosphamide –dexamethasone (VCD) therapies, stem cell collection was made with very good partial response but the patient refused to have autologous stem cell transplantation and received 4 more cycles of VCD. He was followed with lenalidomide and dexamethasone maintenance for 18 months. At the end of the 18th month, lenalidomide was switched to pomalidomide due to biochemical progression. After 1 year of pomalidomide and dexamethasone therapy, daratumumab-bortezomib-dexamethasone treatment was initiated due to the progressive disease. Carfilzomib treatment was initiated due to the hypercalcemia that was developed in the third cycle of daratumumab. However, carfilzomib was stopped due to the development of acute coronary syndrome in the first cycle. Bendamustine was started with off-label consent. During the follow-up, an abdominal ultrasound (USG) was performed because of the rapid elevation of liver enzymes as aspartate aminotransferase (AST) 330 U / L (0-50), gamma glutamyl transferase (GGT) 520 (0-55) U/L. Approximately 28-35 mm in size, numerous hypoechoic lesions suggestive of metastasis with a heterogeneous internal structure and bilobar distribution in the liver were reported by the abdominal USG. Afterward, magnetic resonance imaging (MRI) was performed.

On MRI, the presence of metastatic lesions, the largest of which was 3 cm in size, causing an increase in the size of the liver and showing a bilobar distribution was observed (Figure 1). A trucut biopsy was performed due to the differential diagnosis of secondary malignancies and EMD of MM. The biopsy revealed CD56, CD38, CD 138 and lambda light chain positive plasma cell infiltration in the liver (Figure 2).

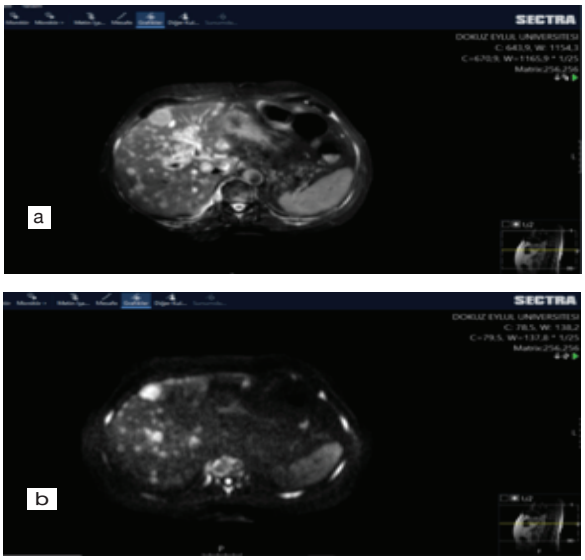


**Figure 1.** T2 weighted MRI image shows nodular hyperintense lesions with bilobar distribution in liver parenchyma (a) , diffusion weighted image reveals diffusion restricted areas representing the metastatic foci (b).

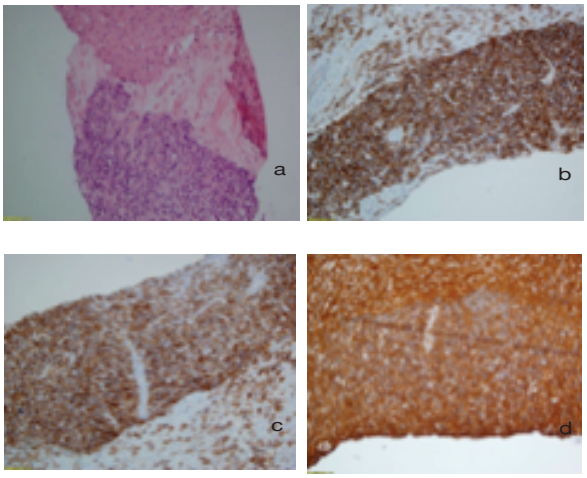


**Figure 2.** Neoplastic infiltration in liver biyopsy showed by H&E staining (x200) (a), immunhistochemical staining shows membranous CD56 (x100) (b), cytoplasmic C38 (x100) (c), and lambda (x200) (d) expression in plasma cells

D-PACE chemotherapy was initiated. After the 3 cycle of chemotherapy approximately 40-50% numerical and dimensional regression in the lesions was observed with a parenchymal signal lost on the follow-up MRI. During the 5th cycle of D-PACE chemotherapy, the patient died due to pneumonia and cytopenias. All the therapies received by the patient were given in the table 1. This study was conducted in accordance with the declaration of Helsinki. Informed consent was received.

**Table 1.** Treatment history of the patient

| Therapy Line | Therapy Type | Duration | Response |
|---|---|---|---|
| 1 | Cyclophosphamide, bortezomib, dexamethasone<br><br>(Stem cell collection after 4 cycle) | 8 cycle | VGPR |
| 2 | Lenalidomide, dexamethasone | 24 cycle | VGPR |
| 3 | Pomalidomide, dexamethasone | 12 cycle | VGPR |
| 4 | Daratumomab, bortezomib, dexamethasone | 5 weeks | Progression |
| 5 | Carfilzomib, dexamethasone | 1 week (due to cardiac toxicity) | Can not tolerate |
| 6 | Bendamustine | 2 ccle | Progression |
| 7 | D-PACE | 5 cycle (go on) | PR |

VGPR: Very good partial response, PR: Partial Response, D-PACE: Dexamethasone, cisplatin, doxorubicin, cyclophosphamide and etoposide

## Discussion

Extramedullary disease is detected at a frequency of 3-5% at the time of diagnosis and 6-20% in relapse / refractory disease (3). Generally, skin and soft tissue involvement occurs during the diagnosis. The frequency of distant organ involvement increases in the progressed disease (4). EMD is more common in patients with male gender, young age, light chain myeloma / non secretory type and in the presence of anemia, renal insufficiency, high levels of M protein and LDH (3-6). Malignant plasma cells become more immature in relapsed / refractory patients who receive multiple lines of treatment. Therefore, these malignant clones may proliferate in more unusual regions such as kidneys, lymph nodes, central nervous system, pleura, pericardium, and liver (2). Our patient had lytic lesions and there was no finding of EMD at the time of diagnosis. Liver plasmacytoma was detected 56 months after the diagnosis of MM. Dhakal et al. reported a patient with liver plasmacytoma at a younger age as 47 and after the first line of chemotherapy (7).

Cytogenetics may also have an effect on the formation of EMD. In a study of 834 patients, 4.8% and 3.4 % of the patients had EMD at diagnosis and relapse respectively. P53 deletion was detected more frequently in the group with EMD than in the group without EMD (34.5% vs. 11.9%; p = 0.037) (6). In another study, 19 patients with EMD were screened and cytogenetic anomalies were detected in 79% of the patients. 38% of these patients had MYC over expression, 33% had del17p13 and 31% had del13q14 mutations (8). No cytogenetic mutations were detected in our patient.

In another study consists of 3744 patients, the incidence of EMD was 6.5% in 2005 and 23.7% in 2014 (3). These results can be interpreted as the increase in imaging opportunities such as PET-CT/MRI and the prolonged survival of the patients. Although there are some studies hypothesizing that malignant clones so the incidence of EMD have increased with the use of new agents, this is not a proven theory yet (4,9).

It is known that direct radiographies are insufficient to detect EMD early. In a meta-analysis consists of 14 patient's data, PET-CT imaging was shown to have a sensitivity of 96% and a specificity of 77.8% (10). Similarly, MRI was shown to be sufficient in evaluating EMD and soft tissue lesions (11). We detected the lesions of the liver by MRI and confirmed the diagnosis by liver biopsy in our patient.

## Conclusion

The clinicans should be careful about the extramedullary involvement in MM patients. In case of doubt, imaging and biopsy should be performed. If elevated liver enzymes are detected in a patient with MM, the patient should be evaluated for liver plasmacytoma. This case has been presented as a contribution to the literature.

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## References

1.SEER Cancer Stat Facts: Myeloma. National Cancer Institute. Bethesda, MD, https://seer.cancer.gov/statfacts/html/mulmy.html (accessed Nov 2018).

2.Blade J. Soft-tissue plasmacytomas in multiple myeloma: incidence, mechanisms of extramedullary spread, and treatment approach. J Clin Oncol. 2011;29:3805-12.

3.Gagelmann N, Eikema DJ, Iacobelli S, Koster L, Nahi H, Stoppa AM et al. Impact of extramedullary disease in patients with newly diagnosed multiple myeloma undergoing autologous stem cell transplantation: a study from the chronic malignancies working party of the EBMT. Haematologica. 2018;103:890-7.

4. Varettoni M, Corso A, Pica G, Mangiacavalli S, Pascutto C, Lazzarino M. Incidence, presenting

features and outcome of extramedullary disease in multiple myeloma: a longitudinal study on 1003 consecutive patients. Ann Oncol. 2010;21:325-30.
5.Usmani SZ, Heuck C, Mitchell A, Szymonifka J, Nair B, Hoering A et al. Extramedullary disease portends poor prognosis in multiple myeloma and is over-represented in high-risk disease even in the era of novel agents. Haematologica. 2012;97:1761-7.
6.Deng S, Xu Y, An G, Sui W, Zou D, Zhao Y et al. Features of extramedullary disease of multiple myeloma: high frequency of p53 deletion and poor survival: a retrospective single-center study of 834 cases. Clin Lymphoma Myeloma Leuk. 2015;15:286-91.
7.Dhakal A, Chandra A. A Multiple Myeloma Patient Presenting with Multiple Hepatic Masses. Journal Of Medical Cases. 2013;4:673-5.
8.Billecke L, Murga Penas EM, May AM, Engelhardt M, Nagler A, Leiba M et al. Cytogenetics of extramedullary manifestations in multiple myeloma. Br J Haematol. 2013;161:87-94.
9.Varga C, Xie W, Laubach J, Ghobrial IM, O'Donnell EK, Weinstock M et al. Development of extramedullary myeloma in the era of novel agents: no evidence of increased risk with lenalidomide- bortezomib combinations. Br J Haematol. 2015;169:843-50.
10.Lu YY, Chen JH, Lin WY, Liang JA, Wang HY, Tsai SC et al. FDG PET or PET/CT for detecting intramedullary and extramedullary lesions in multiple myeloma: a systematic review and meta-analysis. Clin Nucl Med. 2012;37:833-7.
11.Dimopoulos MA, Hillengass J, Usmani S, Zamagni E, Lentzsch S, Davies FE et al. Role of magnetic resonance imaging in the management of patients with multiple myeloma: a consensus statement. J Clin Oncol. 2015;33:657-64.