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# TUMOR LYSIS SYNDROME DUE TO TARGETING OF HEPATOCELLULAR CARCINOMA ASSOCIATED WITH CHRONIC MYELOMONOCYTIC LEUKEMIA

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**Running Title:** HEPATOCELLULAR CARCINOMA ASSOCIATED WITH CHRONIC MYELOMONOCYTIC LEUKEMIA

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Targeting hepatic tumors through locoregional application is feasible for anti-tumoral management (1). Transarterial chemoembolization (TACE) aims to localize chemotherapeutic drugs solely to the tumor, avoiding the systemic toxicities (2). Co-existence of hematological malignancies may adversely affect those aims. We would like to point out systemic medical risks via sharing our TACE experience in a patient with hepatocellulary carcinoma (HCC) and chronic myelomonocytic leukemia (CMML).

A 61-year-old male patient with a past medical history of CMML was admitted to the our hospital with the findings of right upper quadrant pain and hepatosplenomegaly. Physical examination revealed hepatosplenomegaly compatible with extramedullary hematopoiesis. The patient clinically presented as CMML based on the presence of persistent monocytosis, leukocytosis and dysplastic circulating cells (Figure 1). Although cytogenetic result was found to be normal karyotype, detailed histopathological bone marrow examination clearly demonstrated CMML with the usual nature of clonality. Four cycles azacytidine epigenetic therapy was given just after the diagnosis of CMML. Hepatitis B surface antigen was positive in our patient. Hepatitis B viral load was high. The diagnosis of chronic hepatitis B infection was reached with histopathological confirmation (fibrosis and hepatitis). On present admission, his laboratory tests were as follows; alanine aminotransferase 64 U/L, aspartate aminotransferase 53 U/L, alkaline phosphatase 190 U/L, gamma glutamyl transferase 162

U/L. Hepatobiliary ultrasound disclosed 86×66 mm and 67×55 mm hypoechoic lesions with necrosis in the right lobe of the liver. Abdominal magnetic resonance imaging (MRI) revealed two heterogeneous mass lesions (5,3 cm and 5 cm, respectively) (Figure 2). In the histopathological examination of liver, HCC had been detected. Liver biopsy also showed increments in CD34 positive cells and extramedullary hematopoiesis which was consistent with CMML. The patient was diagnosed as HCC, which classified into the stage B according to the Barcelona Clinic Cancer staging. Transarterial ethanol and lipiodol embolization (TACE) therapy was done for tumor ablation. Before TACE, his laboratory tests were leukocyte $24.5\times10^3$/ μL, hemoglobin 7.9 g/dL, absolute neutrophil count $15.6\times10^3$/μL, platelet $100\times10^3$/ μL, creatinine 1.18 mg/dL, LDH 240 U/L, uric acid 6 mg/dL, calcium 8.3 md/dL, potassium 4 mEq/L, phosphorus 4.3 mg/dL. During the clinical follow-up, two weeks after the procedure, biochemical studies revealed acute renal failure. Renal function tests were as follows; creatinine 6.3 mg/dL, phosphorus 7.1 mg/dL, potassium 4.7 mEq/L, calcium 8.8 mg/dL and uric acid 30.6 mg/dL**.** Tumor lysis syndrome was suspected and the patient was hospitalized. Supportive intravenous hydration was started immediately. Allopurinol 300 mg twice a day was initiated. After two days, his urine output decreased below 100 ml/day and hemodialysis was started. Even though uric acid levels decreased to 7 mg/dL, the patient remained anuric. His clinical condition detoriated and he developed respiratory distress caused by hemothorax. The complication of hemothorax ascribed to haemorrhagic diathesis/leucostasis of CMML. The patient was lost due to those systemic complications after 10 days of treatment. Metabolic complications of the patient were ascribed to the TACE procedure during the clinical follow-up.

Chronic myeloid neoplasms of the elderly are associated with a poor prognosis (3). CMML and solid tumors can be observed concurrently (4). HCC is a malignant tumor due to infection of hepatitis B virus and hepatitis C virus (5). In our patient, there was hepatitis B positivity and CMML. Moreover, the striking finding of this patient was neoplastic CD 34 positive cells and malignant tumor cells in the liver microenviroment. This is the first coexistence in the published literature. TACE is a targeting therapy for HCC lesions with numerous complications (6). However, clinicians should be aware of the fact that targeting tumors can not only cause "local" complications but also could generate systemic medical adverse events such as tumor lysis syndrome and related metabolic disorders especially in the existence of hematological malignancies (7).

**Keywords:** Leukemia, Myelomonocytic, Chronic, Tumor Lysis Syndrome, Hematologic Neoplasms

**Contributor's Statement**

Authors made substantial contributions to:

1. the conception and design of the study: MO and ICH.
2. collecting of data: MO and SC.
3. drafting the article or revising it critically for important intellectual content: MO and ICH.

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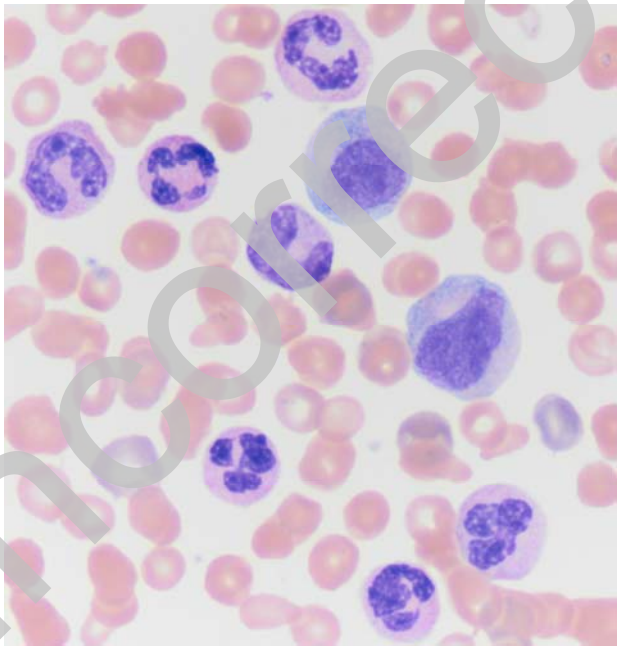

Figure_1._peripheral_blood_smear_of_the_patient

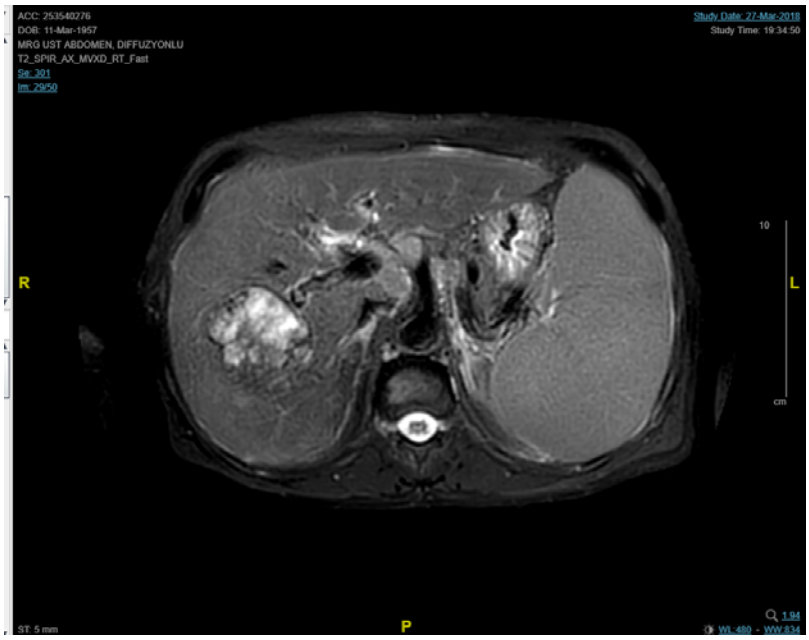


Figure_2._Hepatic_tumor_in_abdominal_magnetic_resonance_imaging2