



Humerus metastasis of hepatocellular carcinoma: A rare case report

Hepatosellüler kanserin humerus metastazı: Nadir bir olgu sunumu

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Hepatocellular carcinoma is the most common primary liver tumor. Hepatocellular carcinoma usually makes metastasis to bones. Prognosis of bone metastasis of hepatocellular carcinoma is becoming better with early diagnosis and improvements in treatment modalities. As survival increases, bone metastasis is faced more. However, humerus metastasis is very rare. Bone metastasis may result in symptoms and pathologic fractures. Hepatocellular carcinoma metastasis of bone worsens patients' quality of life. Early diagnosis and proper treatment are very important. Herein we report a rare case with humerus metastasis of hepatocellular carcinoma which is treated with resection and endoprosthesis

Key words: Hepatocellular carcinoma, humerus, metastasis

Hepatosellüler karsinom karaciğerin en sık görülen primer tümörüdür. Hepatosellüler karsinom sıklıkla kemiklere metastaz yapar. Hepatosellüler karsinom prognozu erken tanı ve tedavi modalitelerindeki ilerleme nedeniyle giderek daha iyi hale gelmektedir. Sağkalım arttıkça kemik metastazları ile daha çok karşılaşılmaktadır. Bununla birlikte humerus metastazı çok nadirdir. Kemik metastazları semptomlar ve patolojik fraktürlerle sonuçlanabilir. Hepatosellüler karsinomun kemik metastazı hastanın yaşam kalitesini kötüleştirir. Erken tanı ve uygun tedavi çok önemlidir. Burada hepatosellüler karsinomun humerus metastazı olan ve rezeksiyon ve endoprotez ile tedavi edilen nadir bir olguyu sunacağız.

Anahtar kelimeler: Hepatosellüler karsinom, humerus, metastaz

INTRODUCTION

Bone metastasis is common in hepatocellular carcinoma (HCC) and metastasis is frequently observed in advanced disease. The prevalence bone metastasis of HCC is in rising trend, recently (1). HCC usually metastases to axial skeletal bones and ribs but humerus metastasis is very rare. Presence of bone metastasis has been associated with worse prognosis (2,3).

Pathologic fractures and press due to bone metastasis worsen patients' quality of life and there is no specific guideline for the treatment of these patients (3-5).

Malignancies that metastases to humerus are lung, breast and prostate carcinoma at mostly. Metastasis of HCC to humerus is very rare (6,7). Herein we report a rare case with humerus metastasis of HCC which is treated with resection and endoprosthesis.

CASE REPORT

Sixty five years old male patient has been diagnosed liver cirrhosis related to hepatitis B virus 40 months ago and treated with tenofovir disoproxil fumarate. Seven months ago, his abdominal magnetic resonance imaging (MRI) revealed liver

mass with 7.7x3.5 in size, in the lateral portion of segment 6-7, in right liver lobe. The mass was hyperintense in T2 weighted images. The mass also showed diffuse homogenous contrast in arterial phase and wash-out in portal and venous phase. The mass was in favor of HCC in underlying chronic liver disease (Figure 1). The patient was treated with transarterial chemoembolization. After chemoembolization, lithic lesion at the neck of humerus was discovered in control abdominal and thorax computed tomography. Positron emission tomography (PET) has been performed to exclude other localizations for metastasis and no other metastasis has been diagnosed (Figure 2). Shoulder MRI revealed fracture line with oblique layout in

proximal metaphysis area of right humerus with a mass lesion of 41x36 mm in size, destructing cortex of the bone and hypointense in T1A weighted images and hyperintense in T2A weighted images. There was edematous area around the lesion with accompanying liquid signal augmentation between muscle plans (Figure 3-A and 3-B). He admitted to orthopedics department with shoulder pain and limited motion. On admission his laboratory values were as follows: white blood cell: 3.200, hemoglobin: 11.6 gr/dl, platelets: 93000, international normalized ratio: 1.27, aspartate aminotransferase: 40.7 U/L, alanine aminotransferase: 21.6 U/L, albumin: 3.6 g/dl, total bilirubin: 0.79, alkaline phosphatase: 191 microgram/L.



Figure 1. MRI revealed liver mass with 7.7x3.5 in size, in the lateral portion of segment 6-7, in right liver lobe. The mass was hyperintense in T2 weighted images. The mass also showed diffuse homogenous contrast in arterial phase and wash-out in portal and venous phase.

He was treated with tumor resection and placement of endoprosthesis with shoulder arthroplasty. The patient's direct radiographs were shown on Figure 3-C before and after surgery (Figure 3-D).

Postoperative pathologic examinations showed cells with glandular structures and tubular structures in hematoxylin-eosin preparations and in immunohistochemical staining showed cells those

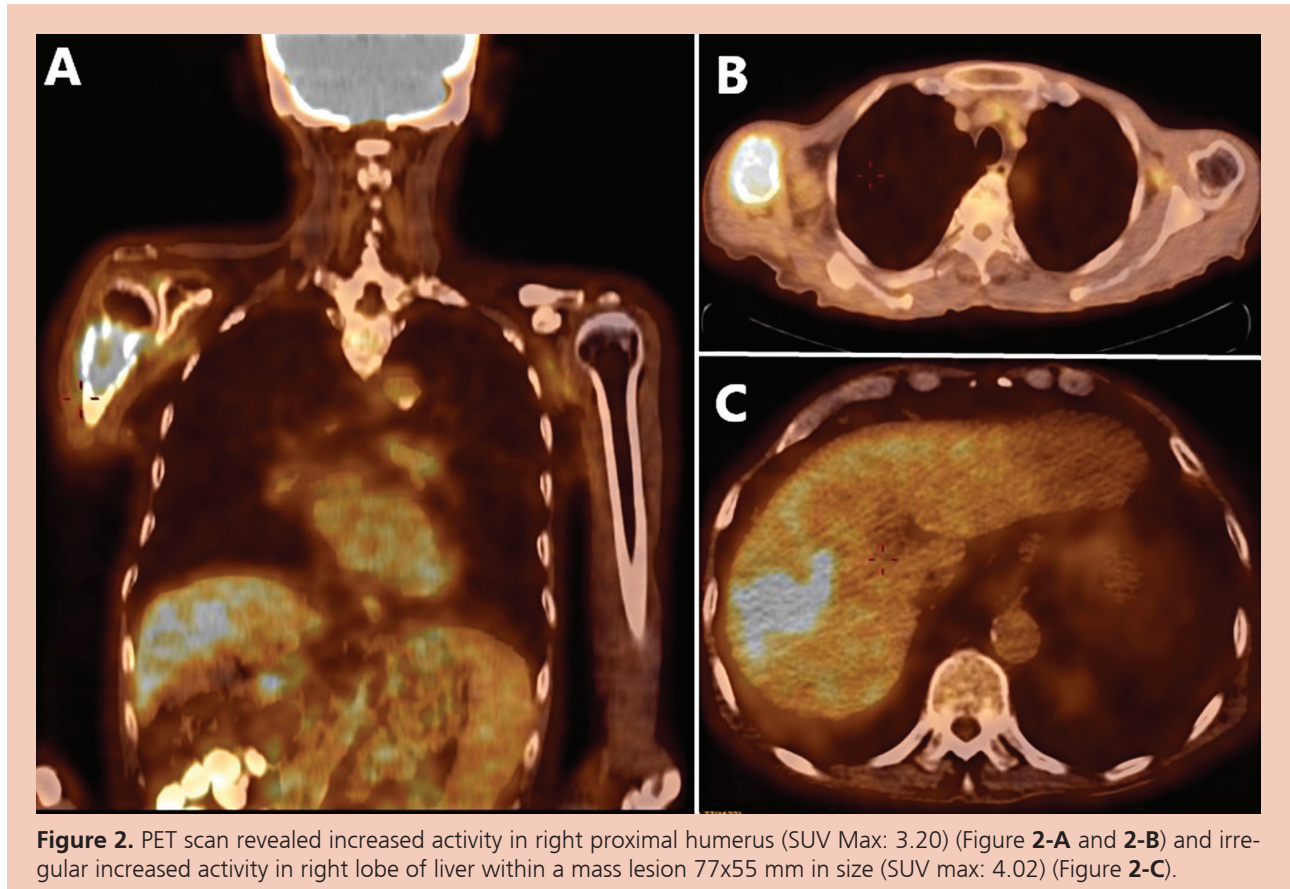


Figure 2. PET scan revealed increased activity in right proximal humerus (SUV Max: 3.20) (Figure 2-A and 2-B) and irregular increased activity in right lobe of liver within a mass lesion 77x55 mm in size (SUV max: 4.02) (Figure 2-C).

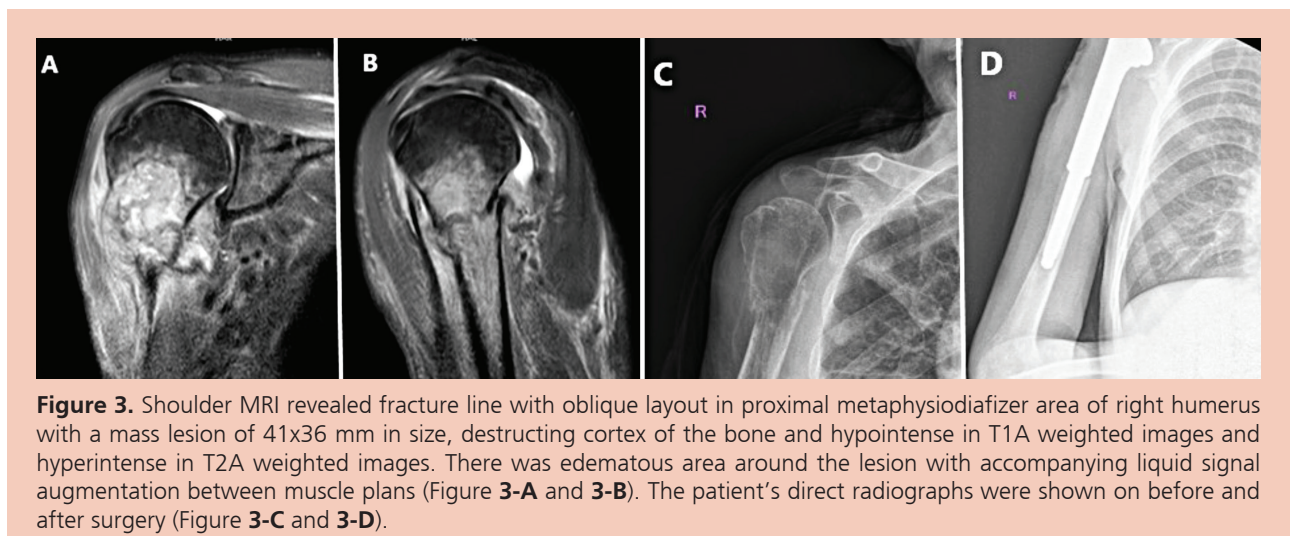


Figure 3. Shoulder MRI revealed fracture line with oblique layout in proximal metaphysiodiafizer area of right humerus with a mass lesion of 41x36 mm in size, destructing cortex of the bone and hypointense in T1A weighted images and hyperintense in T2A weighted images. There was edematous area around the lesion with accompanying liquid signal augmentation between muscle plans (Figure 3-A and 3-B). The patient's direct radiographs were shown on before and after surgery (Figure 3-C and 3-D).

showed positive staining with heppar-1 and glipikan-3 (Figure 4). Final diagnosis was HCC.

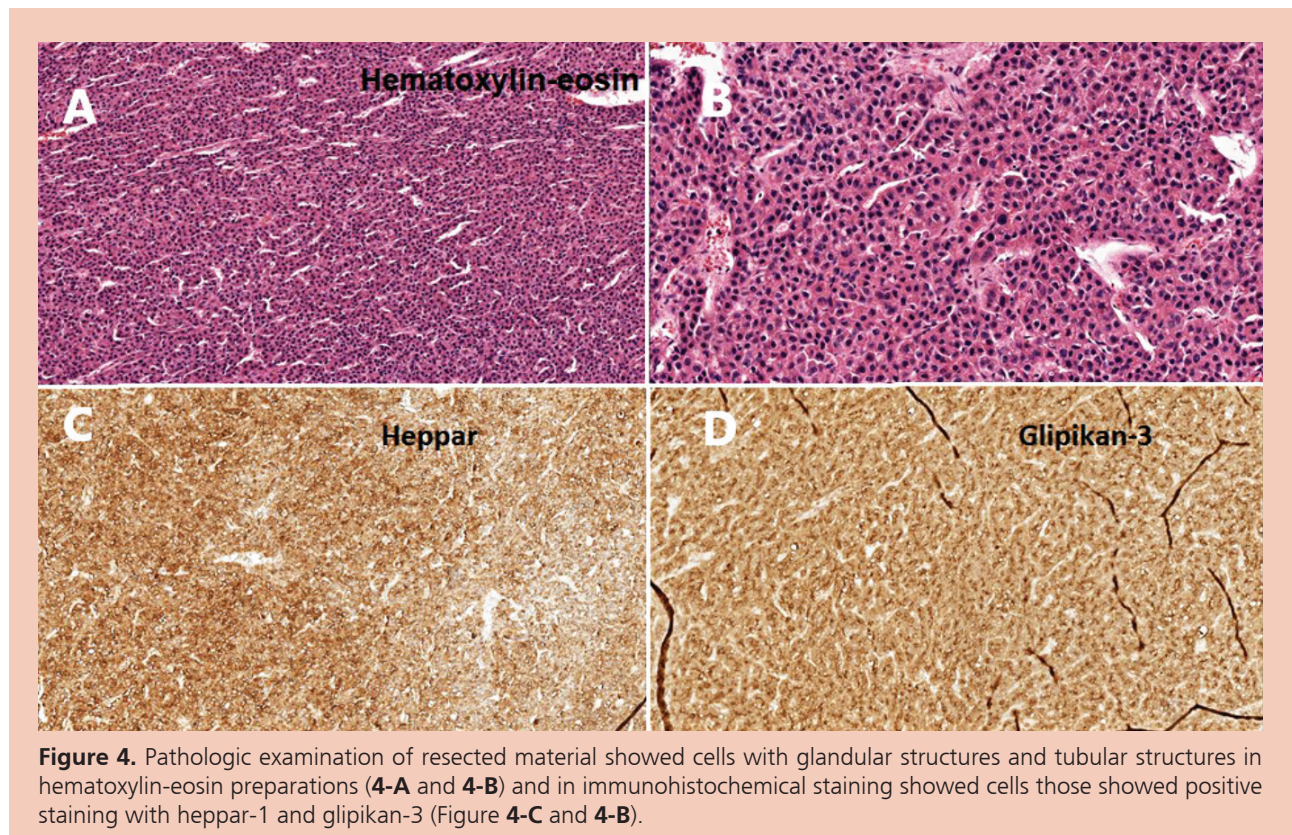
He was admitted to gastroenterology department of our hospital six months after the operation with swelling in abdomen and other body parts. He was diagnosed as decompensated liver cirrhosis and spironolactone, furosemide, and lactulose were given. He died after 8.5 months after the operation.

DISCUSSION

Liver cancers are the fifth most frequent malignancy and the second most common cause of mortality in cancer. HCC accounts 90% of primary liver cancers and is usually observed in patients with cirrhosis and is an important health problem (8,9). Due to development of national vaccination programs against hepatitis B virus, and effective treatment of hepatitis C virus, prevalence of HBV and HCV

related cirrhosis has been decreased. But nonalcoholic steatohepatitis and alcoholic steatohepatitis related cirrhosis have been increased (9). Thus, HCC is still an important health problem (8,9).

Prognosis in the presence of extrahepatic metastasis is worse and extrahepatic metastasis affects patients' quality of life seriously (3,4). Early diagnosis and proper treatment of HCC is very important (4,8). Age ≥ 52 years, male sex, undifferentiated tumor, metastasis to lymph nodes, no surgery or radiotherapy history, big tumor size and multiple metastasis are associated with poor prognosis (8). Prognosis of HCC has been improved due to early diagnosis with newer imaging modalities, surveillance programs and with advance of therapeutic options such as radiofrequency ablation, chemoembolization, surgical resection, and use of kinase inhibitors (2,4). Nevertheless, HCC is still one of most deadly cancer (2,9,10).



As lifetime increases with new treatment options and improvements in prognosis, extrahepatic metastasis is faced more (1,4). HCC metastases lung and lymph nodes at most (11). Bone metastasis is increased with a prevalence of 9.7% -37% (2,4,8,11).

In early stage of disease, bone metastasis is rare (4.9%) (2). Bone metastasis may cause pain, paralysis due to spinal cord compression, pathologic fractures, limited motion, and hypercalcemia, and disrupts patients' quality of life (4). Bone metastases are usually observed in ribs and pelvic bones. Humerus metastasis is very rare (4,7,12,13). Bone metastasis may also be diagnosed prior to main lesion (13). Chen et al. reported that 111 (57%) of patients had bone metastasis in 195 HCC patients with extrahepatic metastasis. The most common site of bone metastasis were vertebra, sacrum, femur and pelvic bones in 53, 16, 7 and 7 patients, respectively. Only one patient had humerus metastasis (7). Piccialo et al, reported only one patient with HCC in their study including 85 patients with pathologic fracture of humerus (14).

Early diagnosis of bone metastasis in HCC may prevent bone fractures and spinal paralysis due to bone metastasis (4). Proper treatment of patients with metastasis improve prognosis (15). Hirai et al reported that 76 (9.7%) patients had bone metastasis in a study including 785 patients with

HCC. Thirty-three patients had surveillance for extrahepatic metastasis and 43 patients didn't have surveillance prior to diagnosis of HCC bone metastasis. Ten patients had pathologic fractures or paralysis (seven patients had spinal cord compression due to spinal metastasis and three patients had pathologic fracture related to humerus metastasis). Nine was in non-surveillance group and only one patient in surveillance group (4).

Diagnosis of bone metastasis and proper treatment improve prognosis and quality of life of patients. Multidisciplinary approach is important in the management of these patients with collaboration of gastroenterology, orthopedics, radiology, radiation oncology, and physical therapy specialists (4,8).

Mean survival is 8.61-11.7 months in HCC patients with bone metastasis (4,16). Proper screening and multidisciplinary approach improve survival. Our patient died 8.5 months after the diagnosis of humerus metastasis.

In conclusion, metastasis of HCC to humerus and pathologic fracture due to this lesion is very rare. Multidisciplinary approach is important in the management of these patients. Tumor resection and endoprosthesis are appropriate treatment modalities in selected patients.

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