SUDDEN ONSET MALIGN PLEURAL EFFUSION IN CASE WITH RENAL CELL CARCINOMA

RENAL HÜCRELİ KANSERLİ OLGUDA HIZLI GELİŞEN MALİGN PLEVRAL SIVI

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SUMMARY

A 61-year-old woman was admitted with severe dyspnea. A chest X-ray and chest computed tomography (CT) demonstrated bilateral pleural effusion, multiple nodules in both the pleural surface and lunos. In addition to these, an abdominal CT revealed a right renal tumor. A CT-guided needle biopsy of the right kidney lesion suggested renal cell carcinoma (RCC). Radical nephrectomy was performed for the right kidney. The pleural lesions rapidly progressed and lymphangitis carcinomatosis was seen despite right radical nephrectomy and subsequent sunitinib treatment. While the thorax is a frequently affected site of RCC, large effusions are rare and are often only seen after diagnosis. We report a case of renal cell carcinoma due to the initial symptoms being severe dyspnea as a result of large pleural effusion.

ÖZET

61 yaşında bayan hasta şiddetli nefes darlığı yakınması nedeniyle başvurdu. Akciğer grafisi ve toraks bilgisayarlı tomografide (BT) bilateral massif plevral efüzyon, her iki plevral yüzeyde çok sayıda nodüler lezyon ve pulmoner nodüller saptandı. Ayrıca abdominal BT'de sağ renal tümör tespit edildi. BT rehberliğinde sağ renal lezyondan yapılan iğne biyopsisi renal hücreli kanseri (RHK) düşündürmekteydi. Sonrasında sağ böbrek için radikal nefrektomi uygulandı. Radikal nefrektomi ve takiben sunitinib kemoterapisine rağmen plevral lezyonlarda hızlı ilerleme ve lenfanjitis karsinomatosis gelişti. RHK sıklıkla toraksı etkilemesine karşın massif efüzyona neden olarak karşımıza çıkması nadirdir ve genellikle tanı konuktan sonraki dönemde ortaya çıkar. Bu olgu RHK'nın başlangıç bulgusu olarak massif efüzyona bağlı şiddetli nefes darlığı olması nedeniyle burada sunulmuştur

INTRODUCTION

Renal cell carcinoma (RCC) has a propensity to metastasis thorax in the unusual ways. While the thorax is the most frequently affected site, pleural lesions are uncommon, and metastasis is usually associated with parenchymal lung lesions. Malignant pleural effusions (MPE) because of RCC are an unusual event (1). While metastatic lung tumors are generally asymptomatic, the MPE may cause shortness of breath in correlation with the amount of liquid (2). We report a case with parenchymal lung lesions and pleural metastatic disease with large pleural effusion causing severe dyspnea as an initial symptom.

CASE REPORT

A 61-year-old female presented a week long history of severe and increasing dyspnea with sudden onset. She had been a lifelong smoker (20 pack-years) and had total thyroidectomy because of diagnosing papillary thyroidal cancer 10 years ago. She denied any urinary symptoms. Physical examination showed an obese, afebrile woman with signs of a bilateral sided pleural effusion. A chest roentgenogram taken on admission showed bilateral large pleural effusion (Figure 1). A contrast computed tomographic (CT) scan of her chest demonstrated extensive bilateral pleural effusion and atelectasis (Figure 2). Several milimetric parenchymal (maximum size was 4 mm) and pleural nodules (maximum size was 26x13 mm) were also demonstrated in both upper lobes but there were no enlarged intrathoracic lymph nodes. Echocardiography findings were normal. Diagnostic work-up included thoracentesis, pleural biopsy and CT-guided fine needle aspiration from pleura. Pleural fluid was found as exudates and hemorrhagic appearance. Cytological examination of both pleural fluid and pleural aspiration were not poss ible to

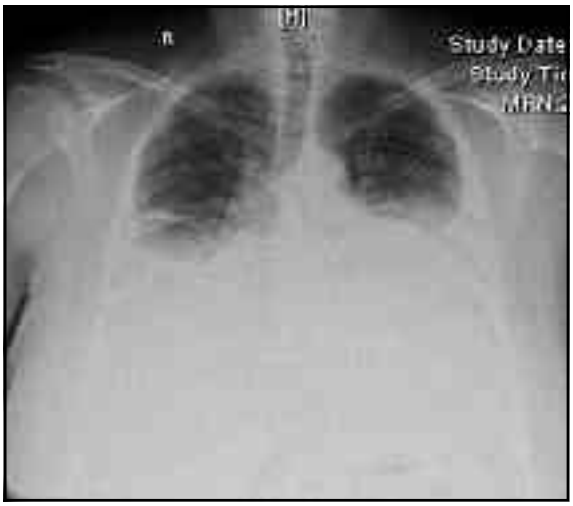

Figure 1 . Chest roentgenogram showing bilateral large pleural effusion.

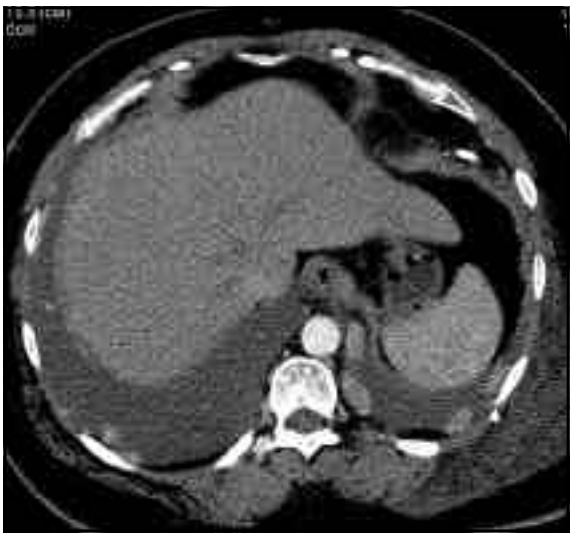

Figure 2 . Computed tomography scan of the thorax demonstrating bilateral effusion and pleural multiple nodules.

achieve a diagnosis. An abdominal CT showed a big tumor in the right kidney. The tumor was 59x56x42 mm in diameter and consistent with RCC. CT-guided fine needle aspiration from the right kidney and pathological diagnosis suggested RCC. Radical nephrectomy was performed on the right kidney. Pathological diagnosis was RCC (clear cell carcinoma, T1bNoM1, stage IV). She subsequently

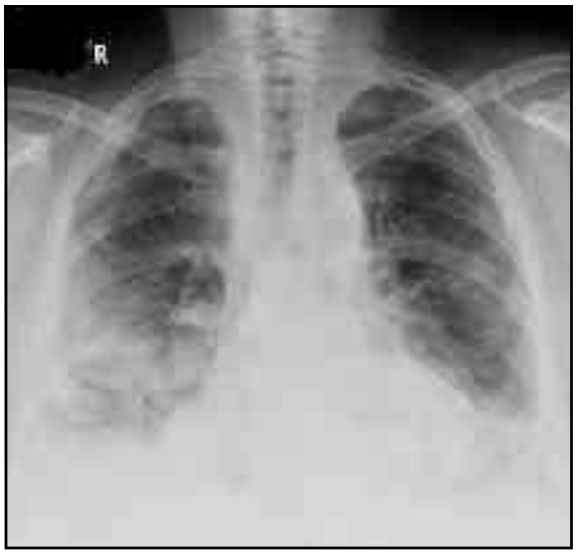

Figure 3. Chest roentgenogram 4 months later, showing bilateral diffuse linear-reticular densities.

underwent sunitinib 35 mg/daily therapy (vascular endothelial growth factor receptor (VEGFR) inhibitor therapy) after the operation as a systemic therapy. Therapeutic thoracentesis (nearly 1000 ml) was carried out and pleural fluid was managed by temporary insertion of an intercostal drain and talc pleurodesis. Persistent bilateral pleural lesions and parenchymal opacities were seen on serial chest radiographs despite treatment and CT evaluation which revealed lymphangitic carcinomatosis and mediastinal lymphadenopathies (Figure 3 and 4a, 4b). The patient's symptoms deteriorated day by day and she died in respiratory failure five months later.

DISCUSSION

About 30% of all cancer types were metastasis to lung (3,4). Patients with metastatic lung tumors are usually asymptomatic. It is reported that the rate of symptomatic patients is 13-34% when the disease is symptomatic (5). Advanced malignancies are frequently complicated by MPE which have a limited life expectancy (3-12 months). The pathogenesis of MPE is by hematogenous or lymphatic implantation of tumor cells or by direct extension of tumor cells from adjacent organs (2). The most common causes are lung cancer, breast cancer and lymphoma (6). Malignant pleural effusion secondary to RCC is rare. In several studies, RCC had been the cause of 4% of malignant pleural fluids (7). RCC frequently metastasizes to the lungs or bones via the arteries. However,

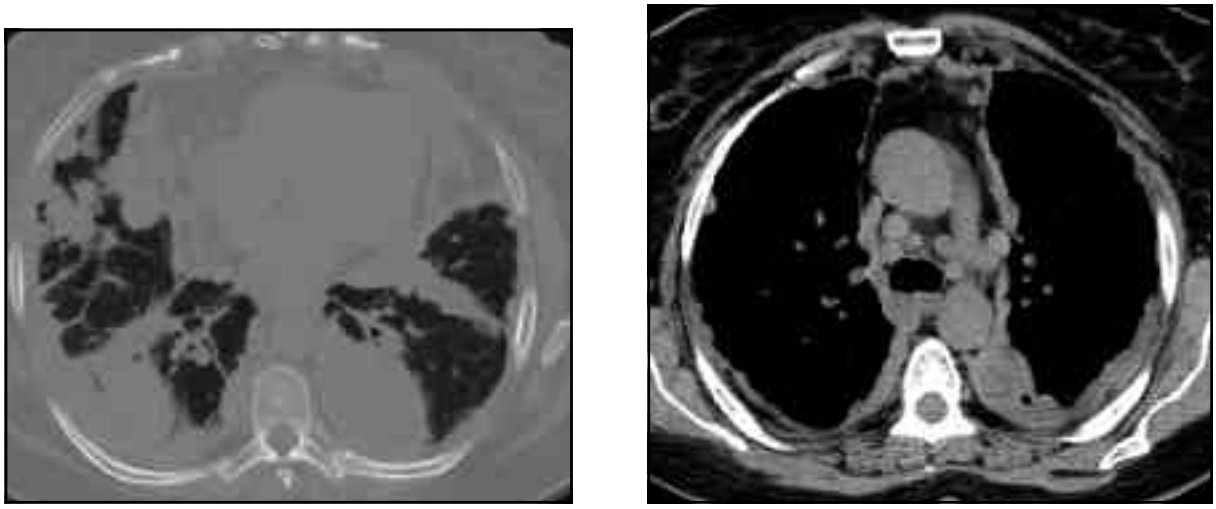

Figure 4. Computed tomography scan of the thorax demonstrating large consolidations at lower zones **(a)** and mediastinal lymphadenopaties with pleural thickening **(b)**.

many pleural metastases without lung metastasis are rare (2). Batson's plexus, a network of vertebral valveless veins with multiple connections, is likely responsible for the contralateral pleural metastases of RCC (8). It is known that RCC causes properly limited and lobulated contoured metastasis in the lung parenchyma (9). In the literature, MPE due to RCC generally seen after the operation, sometimes occurs many years later (10,11). In contrast, our case presented with metastatic renal cell carcinoma manifested as a bilateral large pleural effusion.

RCC is responsible for 3% of adult malignancies which is the most lethal urologic cancer. It generally occurs during the sixth or seventh decades of life. RCCs account for 90–95% of malignant neoplasms arising from the kidney. For early presentations, nephrectomy provides a high cure rate, but patients usually present at advanced stages, leading to poor outcomes. Even for patients without metastatic spread who undergo nephrectomy, metastatic recurrence is frequent (7). Sunitinib malate is a VEGFR inhibitor approved for the treatment of advanced renal cell carcinoma (12).

The diagnosis of a MPE signifies a limited survival for most patients. During their final months, dyspnea is the most common symptom and requires palliation. The median survival following a diagnosis of MPE depends on the organ of origin of the primary tumor, histological type and stage (2). In patients with disseminated pleura neoplastic disease, recurrent pleural effusion is frequently observed. There are several treatment options for those with MPE, including thoracentesis, talc pleurodesis, or placement of a long-term indwelling catheter (13). We applied talc pleurodesis to the patient but effective symphysis was not obtained.

In our case, persistent bilateral pleural effusion was seen on serial chest radiographs despite treatment and CT evaluation revealed lymphangitic carcinomatosis. Lymphangitic carcinomatosis is a very rare form of RCC metastasis to the lung (14). In our case, it was asymptomatic in terms of lesion of the kidney. However, she was diagnosed due to large pleural effusion with severe shortness of breath. This case was reported because RCC was recognized as a result of sudden onset and massive pleural effusion.

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