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Spleen and muscle metastasis in renal-cell carcinoma

Renal hücreli karsinomda dalak ve kas metastazı

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Dear Editor,

A 64-year-old male patient was admitted with a mass complaint in the right breast. He had a history of right nephrectomy seven years previously due to a renal-cell carcinoma (RCC). Routine biochemistry, complete blood count, and urinalysis results were within normal ranges. There was neither a chronic disease history of cardiovascular or respiratory system, nor pathological findings. At the physical examination, mass in the right breast was characterized as hard and fixed. Abdominal ultrasonography showed no pathology except a simple cyst in the left kidney. Breast ultrasonography revealed a solid and hypoechoic mass, measuring 35x10 mm, in the muscle tissue. Due to history of malignity, the patient underwent abdominal and thoracic computed tomography (CT). Abdominal CT showed three hypervascular masses in the spleen (Figure 1). In addition, a mass with 25x23 mm size, located in pectoral muscles was observed in thoracic CT (Figure 2). Histopathological examination was performed with a preliminary diagnosis of metastasis and primary muscle tumor. The pathology result was reported as metastasis of RCC.

Renal-cell carcinoma constitutes approximately 85% of all kidney malignancies [(1)]. It is more common in males and elderly individuals and is rarely diagnosed in early stages. The main reasons for this are the lack of specific symptoms, non-palpable masses (unless it reaches large size) and lack of specific screening test [(1)]. Lesions in early stages are often detected incidentally during radiological imaging. Smoking is a definite risk factor, and the risk often decreases after quitting smoking. Obese individuals have also two-fold increased risk for RCC. In additi-

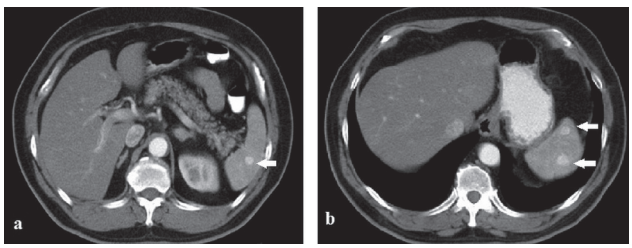

Figure 1. Abdominal computed tomography images showing enhanced mass lesions within the spleen (arrows, a and b).

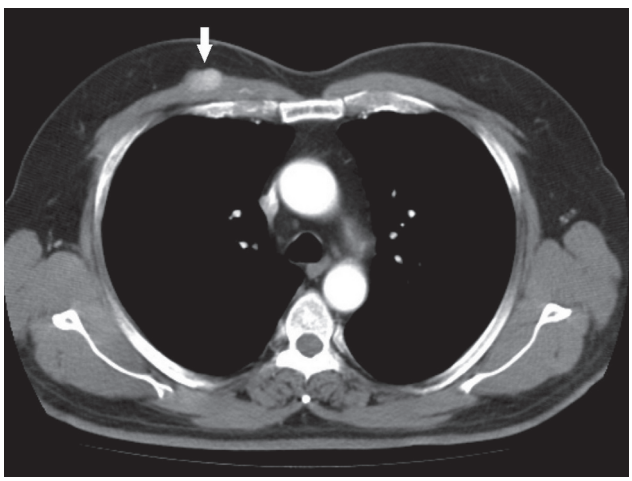

Figure 2. Thorax computed tomography showing intramuscular enhanced mass (arrow).

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on, exposure to asbestos, chronic dialysis treatment, high protein diet and sedentary lifestyle are other risk factors [2].

During the initial diagnosis, 20 to 30% of patients have a metastatic disease; likewise, 20 to 40% of patients develop metastases following nephrectomy [2]. The RCC subgroups have different metastatic tendencies. The clear-cell type usually metastasizes to the lungs, the papillary type to the lymph nodes, and the chromophobe subtype to the liver. A small number of case reports have been reported muscle metastasis in the literature.

Despite high vascularity in skeletal muscles, muscle metastasis is seen rarely. Several reasons have been asserted to contribute this; lactic acid products and peptidic factors have been suggested to prevent the growth of tumor cells and inhibit metastasis. Other factors are an increase in blood flow and high pressure [3]. Cases have been described of muscle metastasis months or years after radical nephrectomy. Intramuscular metastases may be seen in various sites, but particularly the trunk, thigh, and paravertebral muscles [4]. Diagnosis of intramuscular metastases is difficult and frequently delayed. The main reason for the delay in diagnosis is that lesions are small and painless. When located in the extremity and superficial muscles, they can be palpated by the patient, but deep masses are determined incidentally during radiological examination.

Magnetic resonance imaging (MRI), CT and angiography are useful in diagnosis. Pretorius et al. [5] reported that the most common appearance in muscles metastasis was a rim-enhancing and central hypodensity. On the other hand, Hur et al. [6] reported that the density of mass was similar to muscle and there were no central hypo-density in the post-contrast examination. The authors attributed this to hypervascularisation. In our case, muscle metastasis was hypervascular at CT with contrast enhancement. The signal intensity of metastatic lesions at MRI can vary. As in several pathologies, they are frequently hyperintense compared to surrounding muscles on T2-weighted images. Intramuscular metastases deriving from tumors in different organs are hypointense or isointense on T1-weighted images. Interestingly, however, the lesion has been reported to be more hyperintense compared to surrounding muscle tissue on T1-weighted images in some cases deriving from RCC [7]. In our case the lesion identified incidentally at CT examination was diagnosed with direct biopsy without MRI.

Metastatic lesions in spleen are rare. The rhythmic contractions in the splenic sinusoids and the sharp angle of the splenic artery are suggested to protect spleen from metastasis [8]. Splenic metastases are more frequently caused by lung, breast, and malignant melanoma metastases. Metastatic RCC is seen extremely rare; only a small number of case reports have been described in the literature [8]. Splenic metastases are often asymptomatic, and symptomatic patients have abdominal pain and a palpable mass complaint. Identification is important in terms of treatment planning due to the possibility of splenic rupture and death. Lymphoma and infectious causes must be primarily considered in the presence of splenic mass in patients with no history of malignancy. However, the possibility of an undiagnosed primary malignancy and metastatic lesion must also be considered in the presence of an isolated splenic mass. McGregor et al. [9] described an excellent example of this. They reported determining RCC with fine needle biopsy of a splenic mass in a case with no clinical diagnosis. Splenic metastases are frequently determined immediately after the primary disease, but may also appear in the late period, as in our case. Compérat et al. [10] described splenic metastasis 5 years after radical prostatectomy in patients with prostatic carcinoma. We think that early micrometastases are transformed into metastatic masses in the late period in the formation of these late lesions. Splenic metastases are frequently determined during diagnosis of the primary tumor or incidentally during radiological follow-up. In radiologic imaging; CT and MRI findings are often characterized as hypervascular, solid, enhanced mass lesion [7].

In conclusion, RCC is a tumor type which tends to

metastasize, and should be considered carefully for possible risks for metastatic disease, even after many years of nephrectomy.

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