Case Report / *Olgu Sunumu*

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A Rare Case of Renal Leiomyoma Treated with Laparoscopic Partial Nephrectomy

Laparoskopik Parsiyel Nefrektomi ile Tedavi Edilen Nadir Bir Renal Leiomyoma Olgusu

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Abstract

Renal leiomyomas mas are rare and benign tumors. It is not possible to differentiate between renal leiomyomas and other malignant renal tumors with imaging methods; the diagnosis is established only with histopathological examination. Herein, we present a case of renal leiomyoma which was treated with laparoscopic partial nephrectomy with the prediagnosis of renal cell carcinoma.

Keywords: Renal leiomyoma, laparoscopy, partial nephrecyomy

Öz

Renal leiomyomalar nadir görülen benign tümörlerdendir. Renal leiomyomaları diğer malign tümörlerden görüntüleme yöntemleri ile ayırt etmek mümkün değildir ve sadece histopatolojik değerlendirme ile tanı konmaktadır. Bu olguda, renal hücreli karsinom ön tanısı ile laparoskopik parsiyel nefrektomi yapılan renal leyomyom olgusunu sunacağız.

Anahtar Sözcükler: Böbrek leiomyoma, laparoskopi, parsiyel nefrektomi

Introduction

Renal leiomyomas are rare benign tumors originating from smooth muscle cells. They usually originate from smooth muscle cells of the renal capsule and, less commonly, from the renal pelvis and blood vessels (1). Although renal leiomyomas are seen in 4% to 5.5% of autopsy specimens, its clinical incidence is very low (2-4). They are usually asymptomatic and detected incidentally. The most common clinical symptom is a palpable mass with or without flank pain, also hematuria can be seen at presentation (5). Radiological imaging, especially magnetic resonance angiography helps differentiate renal leiomyomas from other malignant lesions, but definitive diagnosis is established only by histopathological examination. Herein, we report a case of leiomyoma in a 56-year-old woman who presented with flank pain and diagnosed with renal cell carcinoma on imaging.

Case Report

A 56-year-old woman without a history of previous abdominal surgery presented with left flank pain for two months. Urine and blood test results were within normal limits. On abdominal examination, there was no palpable mass, costovertebral angle tenderness or signs of peritoneal irritation. An exophytic mass in the left kidney was detected by abdominal ultrasound. Magnetic resonance imaging revealed an exophytic, contrast enhancing, 5x4.5 cm renal mass, which had solid components and was located in the posterior upper pole of the left kidney. This mass was reported as renal cell carcinoma. There was no vascular involvement and retroperitoneal or pelvic lymphadenopathies (Figure 1). Laparoscopic partial nephrectomy was performed through a transperitoneal approach using two 11 mm and two 5 mm trocars. The tumor was arising from the renal capsule and resected with zero ischemia. The parenchymal

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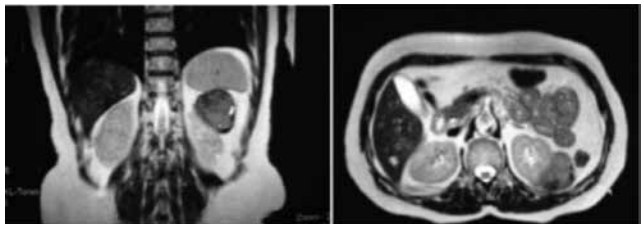

Figure 1. Magnetic resonance imaging of the left kidney mass

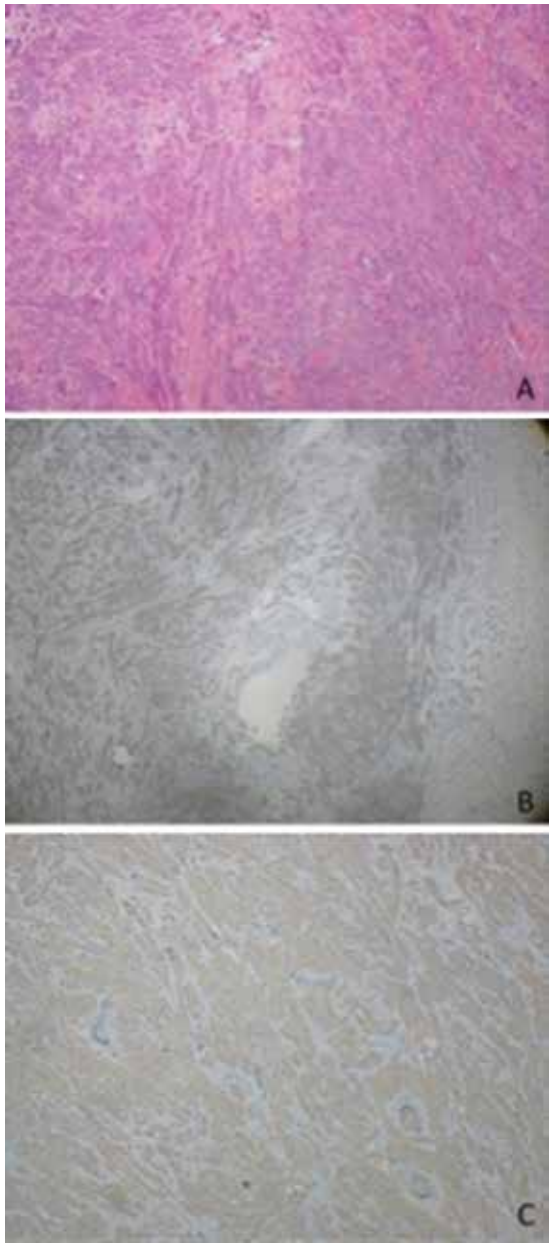

Figure 2. Microscopic features of leiomyoma, A) Histological aspect of leiomyoma hematoxylin and eosin stain (x100) B) Immunohistochemical staining for desmin in smooth muscle cells (x40). C) Tumor cells staining strongly positive for smooth muscle actin (x100)

repair was accomplished with V-loc suture (Covidien, MansŞeld, Massachusetts, USA) and postoperative course was uneventful. Total operation time was 150 minutes and intraoperative bleeding was about 100 ml.

On macroscopic examination of the specimen, the tumor was solid, well circumscribed and thinly encapsulated, which appeared to arise from the renal capsule, and the size of the tumor was 8x5.5x5.5 cm. On microscopic examination, the tumor indicated fascicles of long spindle cells. There was no hemorrhage, cellular atypia, necrosis or significant mitotic activity. The immunohistochemical study was positive for actin and desmin, negative for CD117 and CD34 and the Ki-67 labelling index was very low (Figure 2). The final pathology was renal leiomyoma. There were no metastases or local recurrence in her follow-up.

Discussion

Leiomyomas are benign mesenchymal neoplasms originating from smooth muscle cells. They were first described by Virchow in 1854 (6). Although leiomyomas frequently originate from the uterus, they can involve any organ of the genitourinary tract, especially kidneys, and originate from smooth muscle cells of the renal capsule, pelvis, calices and blood vessels (7,8).

Renal leiomyomas are seen in 4% to 5.5% of autopsy specimens, but their clinical incidence is very low due to its asymptomatic presentation (2-4). The most common clinical symptom is a palpable mass with or without flank pain, also hematuria can be seen at presentation (5). Symptomatic patients are more commonly seen between second and fifth decades. The average size of tumors is 12.3 cm and the biggest tumor has been detected was measuring 57.5 cm in diameter. On the other hand, incidental lesions without any symptoms are usually seen in older age group and the average size of those lesions are lower than 5 mm (9,10). In our case, the patient had left flank pain and the tumor size was 5 cm in longest diameter.

Although renal leiomyomas are defined as benign renal tumors, it is impossible to distinguish leiomyoma from leiomyosarcoma, clinically. If the patient presents with gross hematuria and rapid weight loss, we should first consider leiomyosarcoma instead of leiomyoma. On imaging, leiomyomas do not have any specific characteristics that could differentiate them from other renal masses. There are three main differentials: exophytic renal cell carcinoma, oncocytoma and angiomyolipoma (AML). In renal cell carcinoma, distortion of the renal parenchyma, areas of hemorrhage and necrosis with evidence of vascular invasion are usually seen. Oncocytoma is described as being homogeneous and hypervascular, with a central stellate scar on computed tomography. In AML cases, of fatty the presence tissue within the tumor is described (11). Like renal cell carcinoma, these masses are enhancing, soft tissue density lesions. However, these lesions' density (45 HU) is lower than that of hypernephromas (65-80 HU) due to their

smooth muscle component. In differential diagnosis, core needle biopsy can be considered at preoperative process, but the biopsy results usually cannot reveal the accurate diagnosis due to inadequate biopsy material (11). In our case, magnetic resonance imaging revealed an exophytic, contrast-enhancing, 5x4.5 cm solid renal mass. It was located in the upper pole of the left kidney and extended posteriorly. This mass was reported as renal cell carcinoma. There was no vascular involvement and retroperitoneal or pelvic lymphadenopathies.

On macroscopic examination, renal leiomyomas are solid, red or white in color, well-circumscribed and encapsulated tumors with a whorled cut surface. It has elastic consistency due to its muscle and collagen components. Hemorrhage and calcification areas can be seen on the specimen. On microscopic examination, the tumor displays fascicles of long spindle cells, cigar-shaped nuclei and eosinophilic cytoplasm. Histologically, there is no significant nuclear pleomorphism, cellular atypia, tumor necrosis or mitotic activity. In immunohistochemical analysis, leiomyomas are positive for actin, myosin, desmin, vimentin, laminin and type IV collagen and negative for low molecular weight cytokeratins such as BDK and AE1 (11).

The histological differential diagnosis of leiomyoma consists of other benign and malignant renal masses (12,13). Differentiation of leiomyosarcomas from leiomyomas is difficult with imaging. Differentiation is possible only with histopathological examination that the presence of nuclear pleomorphism, mitoses and necrosis are typical for leiomyosarcoma. AMLs of the kidney are composed of a variable mixture of mature fat, thick-walled blood vessels and smooth muscle, but in many cases only a smooth muscle component is the most represented on histology. AMLs have a co-expression of melanocytic marker (HMB-45 and Melan-A) and smooth muscle markers. Lack of co-expression of melanocytic markers and lack of fat tissues is important for differentiating leiomyoma from AML (14).

Laparoscopic partial nephrectomy has become the treatment of choice in exophytic small renal masses in patients with a normal contralateral kidney. Laparoscopic partial nephrectomy offers the advantages of less operative time, decreased operative blood loss, better cosmetic results and a shorter hospital stay. Oncological results of radical nephrectomy are similar to that of partial nephrectomy for single and small tumors (<4 cm) of the kidney (15). In this presentation, we performed laparoscopic partial nephrectomy for an exophytic and 5 cm sized renal mass.

Renal leiomyomas are rare benign tumors originating from smooth muscle cells. On imaging, leiomyomas do not present any specific characteristics that could differentiate them from other renal masses. For this reason, many patients undergo nephrectomy. Their definitive diagnosis is possible only by histopathological examination. Laparoscopic partial nephrectomy should be considered for smaller or exophytic masses.

Ethics

Informed Consent: Informed consent was obtained from all patients.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: Murat Binbay, Fatih Akbulut, Ahmet Yalçın Berberoğlu. Design: Fatih Akbulut. Data Collection or Processing: Murat Şahan, Burak Arslan, Faruk Özgör. Analysis or Interpretation: Murat Binbay, Fatih Akbulut, Abdülmuttalip Şimşek. Literature Search: Metin Savun, Burak Üçpınar. Writing: Fatih Akbulut, Murat Şahan.

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