

# Bladder leiomyoma in male patient presenting with renal oncocytoma: Are the two conditions related?

Turky Almouhissen<sup>1</sup>, Hattan Badr<sup>1</sup>, Noor Alessa<sup>2</sup>, Anmar Nassir<sup>1,2</sup>

<sup>1</sup>Department of Urology, King Abdullah Medical City, <sup>2</sup>Faculty of Medicine, Umm Al-Qura University, Makkah, Saudi Arabia

**Abstract** A 64-year-old male patient with a large pelvic mass and a right renal mass was referred to our facility. The patient underwent a right radical nephrectomy and pelvic mass excision. A histopathological examination led to a diagnosis of renal oncocytoma and urinary bladder leiomyoma.

**Key Words:** Benign tumor, bladder mass, leiomyoma, renal mass, renal oncocytoma

**Address for correspondence:**

Dr. Turky Almouhissen, Department of Urology, King Abdullah Medical City, Makkah, Saudi Arabia. E-mail: dr\_turkym@hotmail.com

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## INTRODUCTION

Bladder leiomyomas are uncommon benign mesenchymal tumors that account for less than 0.43% of bladder tumors. Their incidence is highest in young and adult females. Patients may complain of nonspecific urinary symptoms or pelvic pain.<sup>[1]</sup>

Reported tumor size varies. However, the majority of patients have tumors smaller than 10 cm in diameter.<sup>[2]</sup>

Renal oncocytomas are benign tumors of the kidney. They represent approximately 3–7% of all primary renal solid tumors and occur most frequently in males (1.6:1).<sup>[3]</sup>

It is difficult to differentiate between renal oncocytomas and malignant renal cell carcinomas (RCCs) using clinical or radiographic evidence. Therefore, the former should be managed surgically, like RCCs, by radical or partial nephrectomy.<sup>[4]</sup>

We present the case of a male patient with renal oncocytoma and bladder leiomyoma.

## CASE REPORT

A 64-year-old male patient with hypertension, diabetes mellitus, and hypothyroidism following a thyroidectomy performed 40 years ago was referred to our hospital with a large pelvic mass and a right renal mass for further evaluation and management. The patient complained only of dysuria. A systemic review yielded unremarkable results.

On examination, mild lower abdominal distension was observed. Deep palpation indicated a palpable mass of roughly 10 cm × 10 cm. The mass was mobile, soft and nontender, with unremarkable features on general examination. All laboratory values were within normal ranges.

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A chest X-ray clearly showed bilateral lung parenchyma. A computed tomography (CT) chest scan with intravenous (IV) contrast showed two tiny lung nodules, of which the largest measured 2 mm × 2 mm. No mediastinal, hilar, or axillary lymph nodes were found.

A CT scan of the abdomen and pelvis with IV contrast revealed a hypervascular right renal mass in the anterior lower pole, measuring 9 cm × 8.5 cm × 10 cm, with a speculated central scar and calcification suggestive of oncocytoma. However, the mass also showed features consistent with RCC and a small adjacent subcentimetric lymph node [Figures 1 and 2]. In addition, the scan showed a large, soft tissue enhancing mass, inseparable from surrounding structures, measuring 16.5 cm × 10 cm × 13 cm, and pushing the urinary bladder to the right side [Figure 3].

An ultrasound-guided biopsy was taken from the right renal mass, which confirmed the diagnosis of oncocytoma. The biopsy showed nests and groups of uniformly round, polygonal cells separated by fibrous stroma. The immunohistochemical stains of the sample were positive for CD117, epithelial membrane antigen and cytokeratin 7.

In addition, a core biopsy was taken from the pelvic mass. The tumor cells were positive for vimentin, smooth muscle actin, and desmin. The findings were largely in keeping with the diagnosis of leiomyoma.

The patient underwent a right radical nephrectomy and pelvic mass excision.

A postoperative histopathological report on the right renal mass confirmed the diagnosis of oncocytoma, with a tumor size of 8.0 cm × 7.5 cm. The ureter, hilar blood vessels and left kidney were unremarkable, but the pelvic mass report confirmed the diagnosis of leiomyoma, with a tumor size of 15.5 cm × 14.0 cm.

## DISCUSSION

Leiomyomas of the bladder are benign mesenchymal neoplasms that represent fewer than 0.43% of bladder tumors.<sup>[1]</sup> Approximately, 250 cases of bladder leiomyoma have been reported worldwide.<sup>[1]</sup>

The incidence is three times higher in females than in males.<sup>[1]</sup>

Patients with leiomyomas may be asymptomatic, but usually present with obstructive symptoms (49%), irritative symptoms (38%), or hematuria (11%).<sup>[1]</sup>

These symptoms are due to the anatomical site and size of the tumor. More specifically, tumors near the bladder neck or



Figure 1: Abdominal CT coronal view



Figure 2: Abdominal CT axial view



Figure 3: Pelvic CT axial view

ureteral openings more commonly cause obstructive symptoms, whereas large tumors tend to cause irritative symptoms.<sup>[2]</sup>

The patient reported here complained only of dysuria.

Three types of bladder leiomyoma exist extravascular (30%), intramural (7%), and endovesical (63%).<sup>[2]</sup> Endovesical tumors are most likely to cause symptoms because they protrude into the lumen of the bladder.<sup>[2]</sup>

The etiology of leiomyomas is unknown to date, but many hypotheses have been proposed. Some scholars suggest that estrogen has a role in the growth of leiomyomas due to the presence of identifiable estrogen receptors in leiomyomatous tissues.<sup>[2]</sup>

Renal oncocytomas are uncommon benign tumors of the kidneys, which account for approximately 3–7% of all primary renal solid tumors. They are rarely multiple or bilateral. Unilateral tumors make up 95% of cases of renal oncocytoma, and multiple tumors make up 5%.<sup>[3]</sup> Renal oncocytomas arise from the intercalated cells of the kidney's distal collecting tubules.<sup>[3]</sup>

It is difficult to differentiate between renal oncocytomas and malignant RCCs based on clinical or radiographic criteria. Hypodense enhancement, a spoke-wheel vascular formation pattern, a central scar area and the absence of a rounded edge as indicated in CT-scan and arteriography findings may suggest the presence of renal oncocytoma, but RCCs may also exhibit these features.<sup>[3]</sup>

Microscopically, the presence of oncocytes, which are eosinophilic epithelial cells, and trabecular or tubular

mitochondria-rich cytoplasm may be suggestive of renal oncocytoma.<sup>[3]</sup>

Among the common cytogenetic findings for renal oncocytoma are deletions in chromosome 1, the loss of chromosome Y and translocations at 11q13.<sup>[3]</sup>

Chromophobe RCCs, especially the eosinophilic variant of chromophobe RCC, can be confused with renal oncocytomas due to a shared dominant eosinophilic component.<sup>[5]</sup>

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### Conflicts of interest

There are no conflicts of interest.

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