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Case Report

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Renal Pelvis Leiomyoma: A Novel Percutaneous Approach and Literature Revision

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Abstract

Renal pelvis leiomyomas are very rare benign neoplasms that derive from smooth muscle cells. These tumors occur in vessels and in the urothelial mucosa of urinary tract [1]. This report describes a 50-year-old woman with a contrast enhanced lesion in the right renal pelvis, measuring 20 × 23 × 25 mm, which was found incidentally during an abdominal-pelvic CT scan. Histopathologic analysis of a cold biopsy revealed a chronic inflammatory process without dysplasia. The mass was resected percutaneously; it was diagnosed as a leiomyoma. Only 13 cases of ureteral leiomyoma have been reported to date; to our knowledge, this is the first such tumor resected using a percutaneous approach [2].

Keywords

Kidney-sparing surgery, Ureteral leiomyoma, Percutaneous approach

Introduction

Ureteral leiomyomas are very rare benign neoplasms that usually present with symptoms of ureteral obstruction [3]. Since first described in 1955 [4], only 13 cases of leiomyoma of the ureter have been reported to date. Advances in ureteroscopy have enabled more conservative treatments of these tumors, allowing preservation of the kidney [3]. This report describes a patient with a renal pelvis leiomyoma who underwent kidney-sparing surgery using a percutaneous approach.

Case Report

A 50-year-old woman was referred to the Urology Department for an incidentally discovered mass in the renal pelvis during an abdominal-pelvic CT scan for diverticulitis. The patient originally presented with a non-specific auto inflammatory syndrome, which had been treated with immunosuppressants. She did not experience low back pain or episodes of hematuria. An abdominal-pelvic CT scan revealed a contrast-enhanced lesion in right renal pelvis, measuring 20 × 23 × 25 mm and compatible with a pelvic tumor (Figure 1). A selective urinary cytology from right kidney showed inflammatory cells mixed with reactive urothelial cells with atypia. A semi-rigid diagnostic ureteroscopy showed a rounded yellowish solid lesion, 20 mm in diameter, with well-defined borders and a wide base of implantation (Figure 2). Histopathologic examination of a cold biopsy sample showed evidence of a chronic inflammatory process with Von Brunn's nests cells without urothelial dysplasia. The mass was resected percutaneously and diagnosed histologically as a renal pelvis leiomyoma. At last follow-up, nine months after surgery, there was no evidence of tumor recurrence (Figure 1).

Discussion

Renal pelvis leiomyomas are very rare benign neoplasms that derive from smooth muscle cells.

These tumors occur in vessels and in the urothelial mucosa of urinary tract. They are usually found incidentally during imaging for other indications, although they may also present with pain in the flank and, less frequently, macroscopic hematuria. Thirteen such tumors have been reported to date, six cases were female and eight cases were male. No difference in renal side was observed, since seven cases were on the left side and other seven cases on the right side.

The highest age incidence is at fourth decade, varying from 4 to 60-years-old, like our case. In the previous cases published, six of the thirteen cases were in the upper ureter, like our case, and five of these cases were treated with nephroureterectomy. Four cases were at middle ureter, three partial ureterectomies and one nephroureterectomy. Finally, four cases were located at lower ureter, all treated with distal ure-

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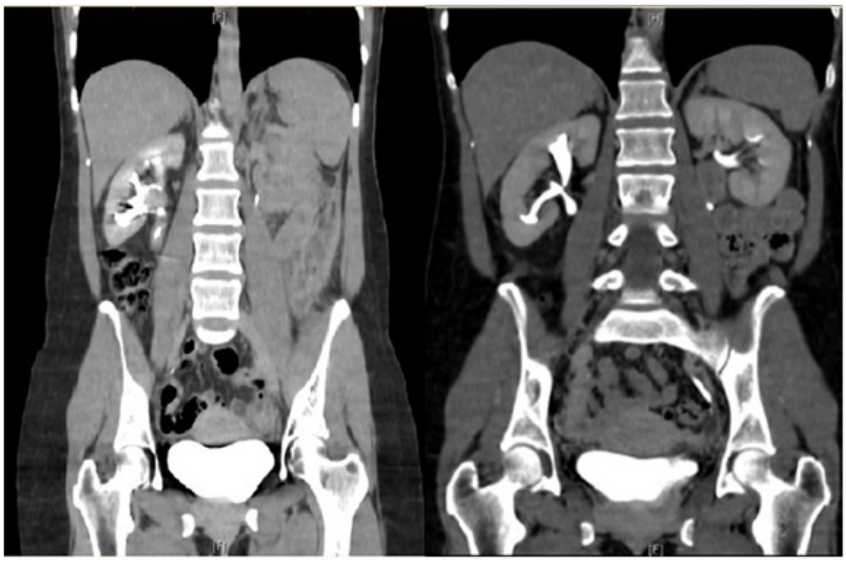

Figure 1: On the left side, CT scan with contrast-enhanced lesion in right renal pelvis; measuring 20 × 23 × 25 mm. On the right side, control CT scan six months after surgery.

Table 1: Ureteral leiomyomas reported since 1955. Modified from Zehri A, et al. [2]

Case	Reference	Age	Sex	Side	Size (mm)	Location	Treatment
1	Leighton [4]	45	F	R	Quite Small	Upper	Nephroureterectomy
2	Kao, et al. [6]	34	F	L	50	Upper	Nephroureterectomy
3	Mondschein, et al. [7]	4	M	L	20 × 15 × 10	Upper	Nephroureterectomy
4	Sekar, et al. [8]	35	F	R	Mircronodule	Lower	Ureterectomy
5	Zaitoon [9]	48	M	L	20 × 20 × 15	Lower	Partial ureterectomy
6	Cussenot, et al. [10]	48	M	R	2	Lower	Endoscopic biopsy
7	Igarashi, et al. [11]	60	M	L	10 × 5 × 5	Middle	Nephroureterectomy
8	Yashi, et al. [5]	40	F	R	7	Upper	Partial ureterectomy
9	Ikota, et al. [12]	40	M	L	15 × 13 × 12.2	Upper	Nephroureterectomy
10	Naruse, et al. [13]	38	M	R	35 × 13	Lower	Partial ureterectomy
11	Shailesh, et al. [14]	43	M	R	45 × 15 × 5	Middle	Nephroureterectomy
12	Nouralizadeh, et al. [15]	24	M	L	120 × 110 × 75	Middle	Partial ureterectomy
13	Zehri AA, et al. [2]	32	F	L	15 × 112 × 70	Middle	Nephroureterectomy
14	**Present Case**	**51**	**F**	**R**	**20 × 23 × 25**	**Upper**	**Percutaneous resection**

M: Male, F: Female, L: Left, R: Right.

terectomy [2]. Imaging does not allow differentiating from malignancy. Recent developments in ureteroscopy enable a proper diagnosis in benign tumors [5]. Exact mechanisms of development of ureteral leiomyoma are unclear, chronic inflammation or trauma are some of the hypothesis [2]. The patient originally presented with a non-specific auto inflammatory syndrome, which had been treated with immunosuppressants, we don´t know if this condition play some role in the pathogenesis of this case.

Surgical treatment consists normally of nephroureterectomy or distal ureterectomy (Table 1). We decided to perform a kidney-sparing surgery after long explanation of risks and benefits with the patient, and influenced by the fact that we had a biopsy showing no malignant cells. We think that it is a difficult case for ureteroscopy management due to its large size and its wide base tumor. For this reason we decided to perform a percutaneous approach [6-15].

Conclusion

Renal pelvis leiomyomas is very rare disease often managed with radical surgical treatment. Due to its benign condition, kidney-sparing surgery could be offered. Here in, we present the first case reported in the literature treated by percutaneous approach with good results.

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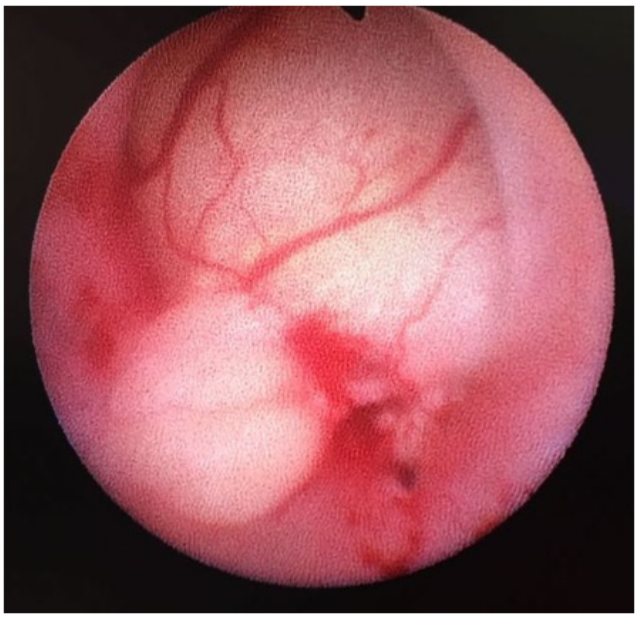

Figure 2: Macroscopic renal pelvis leiomyoma.

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