Laparoscopic management of extensive ureteral fibroepithelial polyps

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Fibroepthelial polyps are uniformly benign tumors of the collecting system which may cause obstruction of an affected renal unit. We present a unique case of a 34-year-old male with a solitary functioning kidney who presented with flank pain and renal insufficiency. Radiographic and ureteroscopic evaluation revealed ureteral obstruction due to extensive polyps. After ureteral stenting and normalization of renal function, successful polyp excisions were performed laparoscopically through a ureterotomy. The pathology revealed benign fibroepithelial polyps. The patient remained asymptomatic until 3 years later when ureteroscopy performed for a calculus revealed a widely patent lumen free of polyps. To our knowledge, this is the first published report of a long term follow up after laparoscopic resection of extensive ureteral fibroepithelial polyps.

Key Words: laparoscopic surgery, neoplasms, fibroepithelial, ureteral obstruction

Introduction

Fibroepithelial polyps of the renal collecting system are rare, benign mesodermal tumors. Most are long projections that may consist of one or more fronds emanating from a common base. Histologically, they are composed of a loose fibrovascular stroma covered by normal urothelium.[1] They are generally found in younger patients who present with hematuria and flank pain, and there are reports of ureteral polyps causing ureteropelvic junction (UPJ) obstruction in children.[2] Excretory urography or a retrograde pyelogram often demonstrates a filling defect of the ureter or renal pelvis with negative urine cytology. Open resection traditionally has been the most common treatment modality, but ureteroscopic and percutaneous techniques also have been described.[3] Recently, a case of a single polyp resected laparoscopically was reported.[4]

Case

A 34-year-old male was evaluated for a history of right flank pain and an elevated creatinine of 2.3 mg/dl. A CT scan without contrast showed a dilated right ureter with a nonspecific luminal abnormality, Figure 1, arrow). Subsequent retrograde pyelography demonstrated right

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hydroureteronephrosis and multiple filling defects, Figure 2a, and ureteroscopy revealed multiple polyps obliterating the lumen of the right midureter from a point just distal to the ureteropelvic junction to the level of the pelvic brim, Figure 2b and 2c. Due to the density of the polyps, their stalks could not be identified, and ureteroscopic resection was not possible. Urine cytology was negative for malignancy and biopsy revealed benign disease consistent with fibroepithelial polyps. The left kidney was atrophic and found to be nonfunctional by nuclear renal scan. The obstructed renal unit was managed initially with a ureteral stent and the creatinine stabilized at 1.4 mg/dl. Laparoscopic ureterotomy and polyp excision was planned.

The patient was positioned with the right flank elevated to approximately 30 degrees, and four ports were placed: a 12 mm port at the umbilicus for the laparoscope, two working ports in the midline above and below, and a fourth port for retraction in the left lower quadrant. The dissection was begun by reflecting the colon medially to expose Gerota's fascia and the retroperitoneum. The ureter was identified and was enlarged due to the extensive polyps in its lumen.

The ureter was exposed on its anterior surface only between the iliac brim and the renal pelvis to avoid disturbing its blood supply. A longitudinal incision was made with the laparoscopic scissors in the midureter, which was extended towards the pelvis revealing numerous polyps. Some of the tumors were small and others had multiple long projections

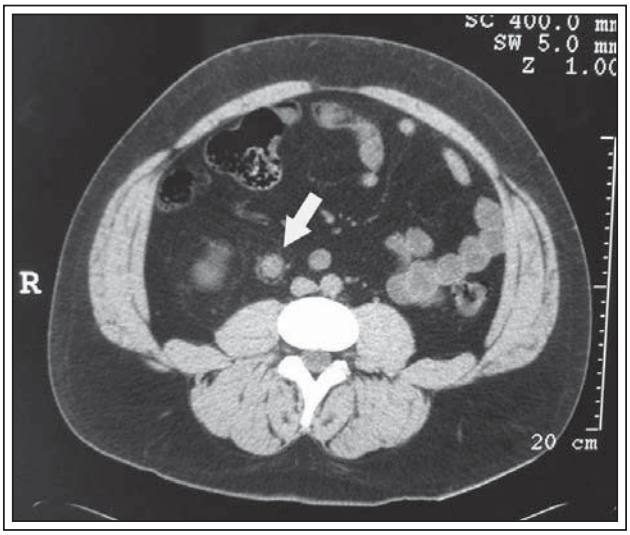

Figure 1. A CT of the abdomen and pelvis without IV contrast shows a dilated right ureter with luminal defects (arrow).

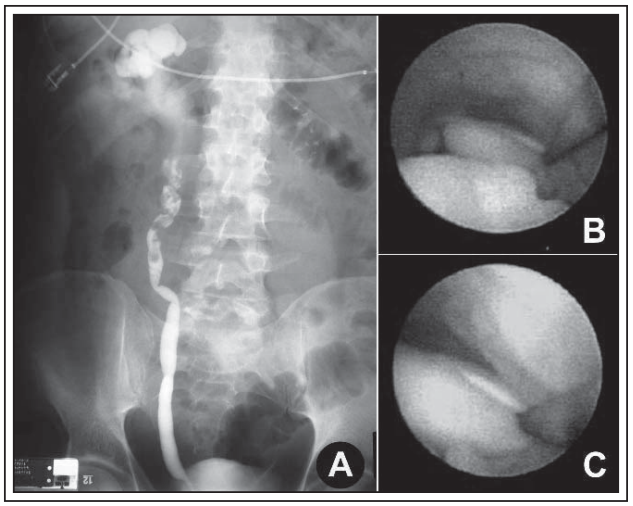

Figure 2. a) Right retrograde pyelography demonstates multiple filling defects in the ureter distal to the UPJ and proximal to the pelvic brim. b, c) Ureteroscopy revealed extensive benign tumor burden of the midright ureter. The polyp bases could not be readily identified and were not amenable to ureteroscopic excision.

that extended into the lumen in a caudal direction. These were pulled from the lumen and held on stretch while excising them from the mucosal surface using laparoscopic scissors, Figure 3. Minimal use of bipolar electrocautery on a low setting was used as needed for bleeding from the larger stalks after excision.

Continuing the ureterotomy further toward the bladder revealed more polyps which were sequentially excised in a similar fashion. After extending this incision to a point at which no further polyps were grossly visible, a ureteroscope was placed through a 5 mm port and advanced through the ureterotomy and into the distal ureter. Two additional small polyps were found and removed after extending the incision. The ureteroscope was also used to visualize the renal pelvis and no other polyps were identified. The ureter was then closed over a ureteral stent with 4-0 braided absorbable sutures in an interrupted fashion. A closed suction drain and Foley catheter were left in place.

The patient experienced a transient elevation in creatinine to 2.3 mg/dl postoperatively, presumably due to myoglobinemia, which resolved with hydration. The postoperative course was uneventful otherwise, and he was discharged on the fourth postoperative day after removal of the catheter and drain sequentially. The stent was removed 6 weeks after surgery, and a retrograde pyelogram revealed a patent lumen free of polyps, Figure 4a. The pathologic analysis confirmed the diagnosis of benign ureteral fibroepithelial polyps.

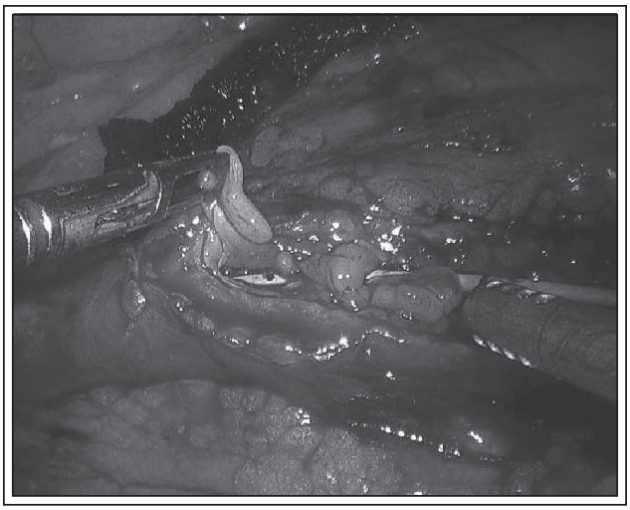

Figure 3. The right ureter has been exposed laparoscopically and incised along its anterior surface to reveal multiple ureteral polyps which were placed on stretch and excised with cold scissors.

The patient remained asymptomatic until he presented 3 years later with a calculus in the right renal pelvis. During ureteroscopy, the ureter and renal pelvis were noted to be widely patent with a normal appearance and no evidence of recurrent or residual polyps, Figure 4b and 4c.

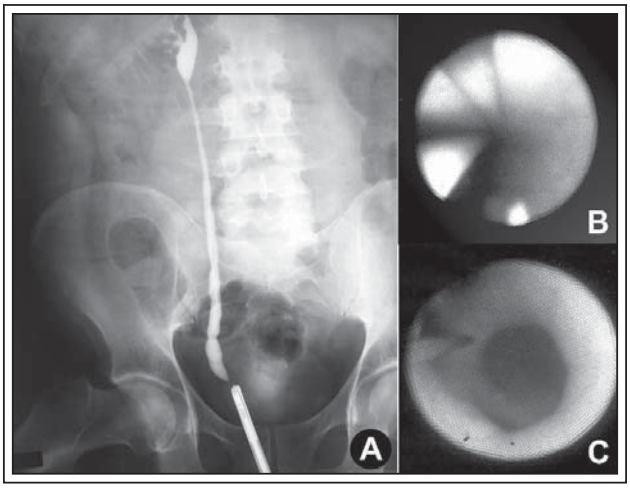

Figure 4. a) Six week follow up retrograde pyelogram shows resolution of the hydronephrosis with no filling defects or luminal irregularities. b,c) Ureteroscopy performed for a calculus three years postoperatively revealed a well-healed ureter and normal renal pelvis with no evidence of polyp or stricture, or obstruction.

Discussion

Fibroepithelial polyps represent a uniformly benign process that requires excision in cases of symptomatic obstruction or renal compromise. Ureteroscopic, percutaneous and open techniques have been described, and a case of a single, large polyp resected laparoscopically has been reported. To our knowledge, this is the first reported case of laparoscopic resection of extensive ureteral polyps, and the first reported long term follow up after laparoscopic polypectomy. The patient in this case had a solitary functioning renal unit and presented in renal compromise due to obstruction from tumors. Ureteral stenting was necessary to stabilize renal function before definitive surgical treatment could be considered.

Ureteral polyps have long fibroepithelial stalks which make them easy to visualize and amenable to manipulation and resection. In cases of small polyps and a low tumor burden, ureteroscopic resection may be feasible. Extensive tumor burden often requires percutaneous or open management. The polyps in the present case were confined to the midureter, allowing reasonable laparoscopic access. An anterior ureterotomy avoids disruption of the blood supply to the ureter, and the use of cold resection with minimal coagulation prevents undue damage to the mucosal surface.

Fibroepithelial polyps of the renal collecting system are rarely encountered clinically and published reports do not provide good long term data on efficacy of treatment. However, surgical resection is believed to be definitive, and our experience supports this assumption. Endoscopic visualization of the ureteral mucosa in our patient 3 years postoperatively confirmed the long term durability of surgical intervention and suggests that successful treatment may be carried out laparoscopically by experienced surgeons in appropriately selected patients. □

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