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COMPLICATED RENAL CYST AS CAUSE OF RENAL COLIC AND ITS ENDOSCOPIC TREATMENT

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Abstract

Renal cysts have a prevalence of 10% in the general population. Although they are usually asymptomatic, around 8% will develop complications such as cystic infection.[1,2] A 75-year-old female presented with flank pain and hematuria. Computed tomography showed a dominant cyst with connection with the excretory system, as well as ipsilateral hydronephrosis secondary to pyelo-ureteral obstruction. A double J catheter was installed, and antibiotic treatment was started. One month later, she was admitted for ureterorenoscopy which revealed communication between the main cyst and the urinary tract, and proceeded to perform endoscopic drainage of the cyst.

Keywords: *hydronephrosis, renal colic, renal cyst, ureteroscopy*

INTRODUCTION

Renal cysts have a prevalence of 10% in the general population, being in most cases diagnosed as a finding after performing an ultrasonography and/or computed tomography (CT).[1] Although they are usually asymptomatic, around 8% will develop some symptoms or complications such cystic infection or pyelocalyceal obstruction.[1,2] The latter is determined by the location of the cyst and its size, being more frequent in large parapelvic cysts, which are closely related to the collecting system.[3]

The cystic infection is a severe complication, which generally requires surgical intervention for its resolution.[4] There are clinical and laboratory elements that support its diagnosis, among which the most relevant correspond to the presence of abdominal pain, fever, and elevated C-reactive protein (CRP). A positive urine culture is not necessary because this is negative in up to 46% of cases.[5]

The main objective of surgical management is to evacuate the cystic content and thus decompress the adjacent renal parenchyma affected by the location or size of the cyst.[1] Among the techniques available are open surgery, percutaneous aspiration, percutaneous ablation, laparoscopic decortication, and marsupialization by retrograde ureteroscopy.[3] However, currently there are no clinical guidelines that establish the indication for each surgical technique, and many of the studies have a limited sample size, without having a complete analysis of all the variables to consider in order to prefer a certain technique.

CASE PRESENTATION

A 75-year-old female patient, with history of arterial hypertension and hepatorenal polycystic disease, was presented to the emergency room for right flank pain associated with vomiting, hematuria, and agitation. She had no fever or history of similar episodes. Physical examination revealed abdominal pain in the right upper quadrant with a palpable mass. She also had percussion fist outlined to the right. Laboratory tests revealed leukocyte count of 10,600 per microliter (Normal value: 4500–11,000 per microliter), CRP 5.44 mg/dl (Normal value < 0.5 mg/dl), and creatinine 1.07 mg/dl, and complete urinalysis showed erythrocytes and negative urine culture results. CT urography (Figure 1) showed a dominant cyst in the lower right pole, with parietal thickening and contrast impregnation in late phases, suggesting a connection with the excretory urinary system, as well as ipsilateral hydronephrosis. The patient evolved with a new episode of colic pain. Laboratory tests showed leukocytes count of 13,000, CRP 15 mg/dl, and creatinine 1.26 mg/dl, and complete urinalysis showed inflammatory patterns and negative urine culture results. Under antibiotic coverage, a retrograde ureteropyelography (UPR) was performed, showing significant hydronephrosis on the right side without contrast extravasations. A double J catheter was inserted.

One month later, she was admitted for diagnostic ureterorenoscopy, where communication of the main cyst and the urinary tract was observed (Figure 2). An endoscopic drainage of the cyst was performed. A new CT urography showed a decrease in the cyst size with a well-positioned double J catheter. There was no hydroureteronephrosis at that point (Figure 3). The catheter was removed after 4 weeks.

A new image performed after a month showed a decrease in the size of the cyst, with symmetrical excretion of contrast in both sides and no filling defects (Figure 4). The patient evolved favorably without symptoms. Creatinine improved up to 0.59 mg/dl.

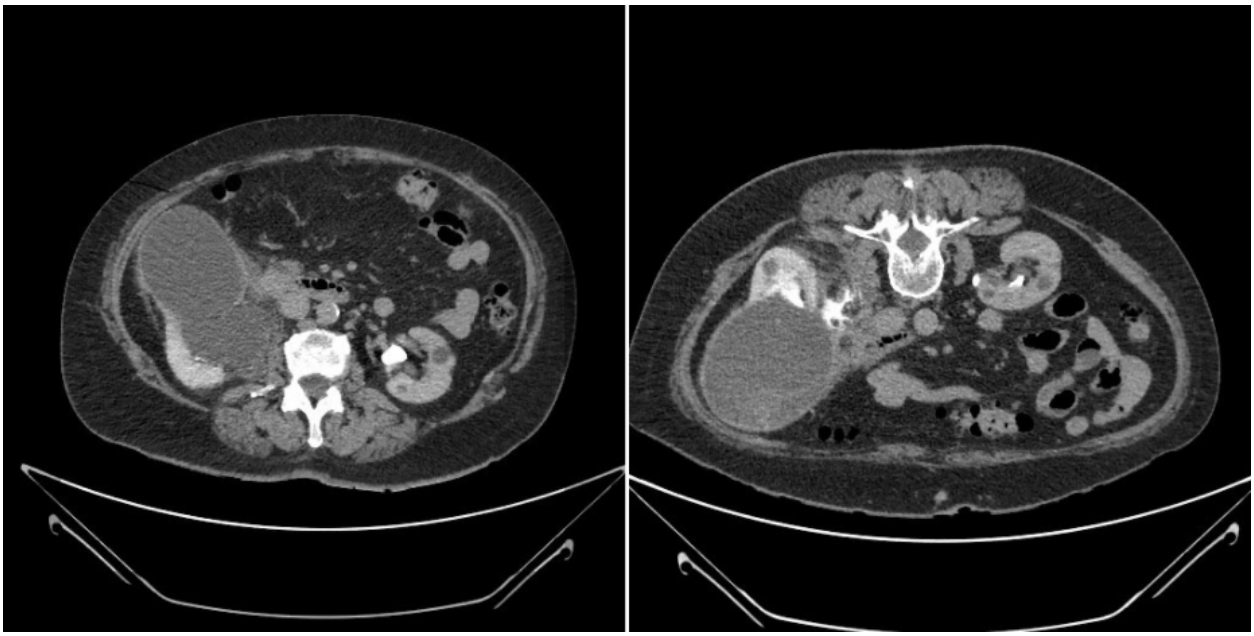

FIGURE 1. Dominant cyst associated to ipsilateral hydronephrosis.

DISCUSSION

Among the most frequent indications for the active treatment of simple renal cysts are urinary tract infection and obstruction. These occur more frequently in parapelvic cysts.[1,3] Special consideration should be given to parapelvic cysts, whose greatest difficulty is associated with the possibility of injuring the renal hilum or adjacent blood vessels, and in which ureteroscopy has proven to be a safe and effective method.[3]

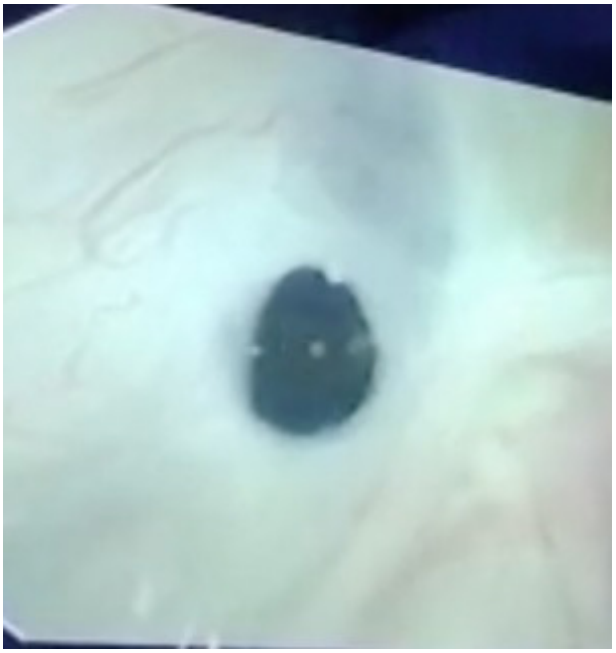

FIGURE 2. Endoluminal view of communication between cyst and collecting system.

Marsupialization is associated with a shorter operating time (24.2–58 min), less intraoperative bleeding (20 +/− 5 ml), shorter hospitalization time (average 3 days), and faster recovery.[1,3] Regarding the success of this technique in reducing symptoms and complications, a systematic review by Eissa et al. showed a decrease in pain between 87 and 100%, resolution of hypertension to be 75–100%, and resolution of hydronephrosis between 33.3 and 75% of cases.[1] Radiological improvement, defined as a reduction of at least 50% of the cystic size and the absence of recurrence at 6 and 12 months, has been reported in at least 60% of patients.[3]

These results are consistent with our experience, with an in-hospital stay of 3 days, which is equal to the average reported in the studies. Our patient also presented a symptomatic relief with

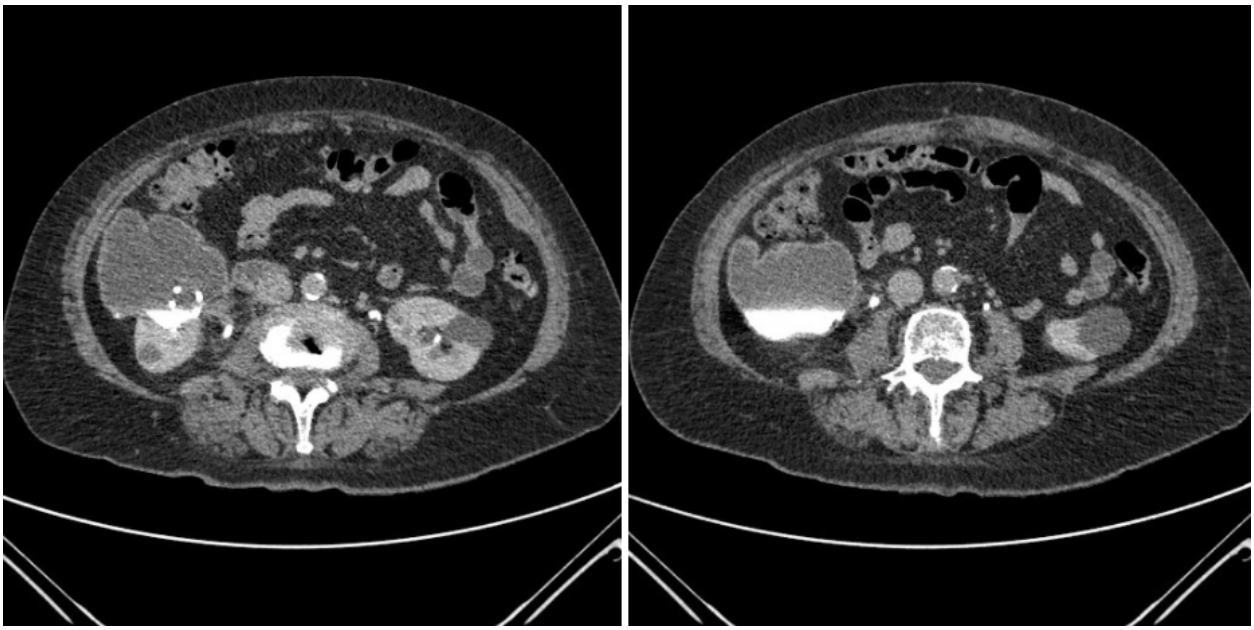

FIGURE 3. Abdominal computer tomography post endoscopic marsupialization.

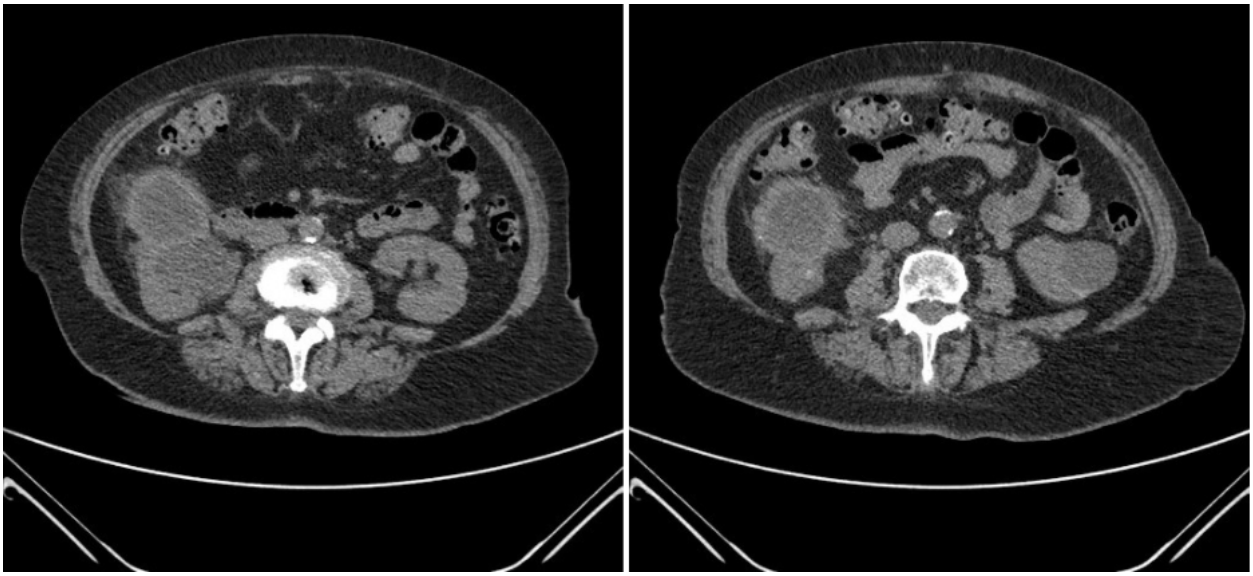

FIGURE 4. Abdominal CT one-month post surgery.

complete disappearance of the lower back pain and total resolution of hydronephrosis, in addition to radiological improvement at 2 months of follow-up.

For marsupialization to be carried out satisfactorily, it is essential to make an adequate selection of patients with a contrast CT that shows the presence of a parapelvic cyst and its relationship with the collecting system. The characterization of the ureteral morphology prior to surgery by means of UPR allows us to identify those cases in which the ureter is more angled, twisted, or tortuous. In these cases, it is recommended to install a double J catheter initially and perform marsupialization 1 month later to facilitate ureteroscopy.[3] In our case, we installed a double J secondary to clinical presentation. Marsupialization was performed deferred with better access to the cystic cavity.

This surgery significantly reduced the risk of injuring the renal hilum, in addition to minimizing the recurrence of the cyst. The installation of a double J catheter at the proximal end inside the cystic cavity favors adequate drainage of the cystic content and prevents wall closure, reducing its recurrence.[3] We left a ureteral catheter for a month. A complete drainage of the content without recurrence of the cyst was observed at 2 months post operation. There is no consensus on how long a catheter should be placed.

In terms of complications, the most frequently associated are the presence of bladder spasms and irritative symptoms of the lower urinary tract,[1,3] with a prevalence of up to 20% and duration of symptoms of less than 1 month. In addition, isolated cases of hematuria have been described, which are mainly associated with injury to the ureteral mucosa and lasting for less than 2 days.[3] Regarding our experience, it is worth mentioning that the patient remained asymptomatic until the second post-operative control, without requiring additional pharmacological treatment, which can be explained because the procedure was carried out without incidents or injuries to the urinary tract.

CONCLUSION

Renal cysts are frequent, and their presentation is usually asymptomatic. However, they can present different complications that require surgical

resolution, such as cystic infections. Although a gold standard has not been established among the available techniques, marsupialization has proven to be an effective and safe method for the management of parapelvic cysts, with high rates of symptomatic improvement and low recurrence. Even though the experiences described have a small sample size, the results are concordant and promising.

DISCLOSURE

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