

Differential Diagnosis between Parapyelic Cyst and Pyeloureteral Junction: A Clinical Case Study

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DOI: [10.36347/sjmc.2023.v11i09.035](https://doi.org/10.36347/sjmc.2023.v11i09.035)

| Received: 12.07.2023 | Accepted: 20.08.2023 | Published: 30.09.2023

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Abstract

Case Report

Objectives: Intra-sinus renal cysts or parapyelic cysts represent a rare form of renal cysts. They are often associated with lower back pain. Symptomatic cases can be treated with percutaneous puncture and sclerotherapy, but due to the proximity to the renal hilum, the treatment of these cysts has undergone significant changes. Thus, percutaneous treatment has become contraindicated due to the potential for complications. While laparoscopic treatment appears to be the most suitable and effective technique, open surgery still has its indications, especially for large cysts and cases where there is diagnostic uncertainty along with an associated junction abnormality, as is the case in our study.

Patients and Methods: We report a case of a right parapyelic cyst revealed by acute right pyelonephritis, with a diagnostic scan suggesting pyeloureteral junction syndrome secondary to a subpyelic crossing with an 8 cm parapyelic cyst, with contrast material passing into the cyst. Due to diagnostic uncertainty and operative difficulties under laparoscopy, a right lumbotomy was performed, allowing for the resection of an 8 cm parapyelic cyst and confirming the absence of an associated junction abnormality, without intraoperative complications. **Results:** 450 cc of citrine yellow fluid was recovered, with a permeable junction and absence of the lower polar vessel. Postoperative evolution was favorable both medically and surgically, with removal of the urinary catheter and JJ stent on postoperative day 5.

Conclusion: Surgical treatment of parapyelic cysts through lumbotomy remains of interest as an effective approach, especially in cases of diagnostic uncertainty, with low morbidity and a short convalescence period.

Keywords: Parapyelic cyst, pyeloureteral junction, Lumbotomy, acute pyelonephritis.

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INTRODUCTION

Simple renal cysts are common in adults, with an incidence of 33% by the age of 60 [11]. The majority of these cysts are asymptomatic. However, they can occasionally lead to obstruction of the urinary tract [10]. Parapyelic cysts, on the other hand, are rare and constitute a distinct entity that does not fit into the Bosniak classification. These cysts develop within the renal sinus and can be easily differentiated from the parenchyma. They often resemble pathologies at the pyeloureteral junction both clinically and radiologically. In the past decade, minimally invasive diagnostic and therapeutic techniques have largely replaced open surgery, with laparoscopy taking the lead [14]. However, lumbotomy still holds its place, especially in cases of large or complicated cysts, or when diagnostic uncertainty arises.

CASE REPORT

We present the case of a 72-year-old patient with a history of hypertension, dyslipidemia, diabetes, and recurrent kidney colic. The initial CT scan revealed marked dilation of the right pyelocaliceal cavities measuring 8 cm, accompanied by a narrow ureter, and suspicion of an inferior polar vessel crossing the compatible right pelvis, suggestive of a secondary junction syndrome.

The day before the surgical intervention, a new uro-CT scan with delayed imaging was performed due to uncertainty between a right parapyelic cyst and a right pyeloureteral junction, which could potentially influence the choice of surgical technique (lumbotomy or laparoscopy). The new scan confirmed a right parapyelic cyst of 8 cm compressing the right excretory pathway without communication (**Figure 1, 2**).

The patient underwent a right lumbotomy to verify the absence of an inferior polar vessel and to confirm the presence of a large compressive parapyelic cyst measuring approximately 10 cm with a protruding dome. The procedure involved resecting the protruding dome, which was sent for pathological examination.

During the surgery, 450 cc of lemon-yellow fluid was collected, and the junction was preserved (**Figure 3**). Pathological examination of the cyst confirmed its benign nature, and urinary cytology from the cyst was negative. A postoperative follow-up CT

scan conducted one month after the surgery showed a decrease in the volume of the right parapyelic cyst by approximately 50%, with no evidence of intra or retroperitoneal collection and no observed hydronephrosis, along with the absence of compression on the right excretory pathway (**Figure 4**).

The postoperative course was favorable both medically and surgically, allowing for the removal of the urinary catheter and the double-J stent on postoperative day 5.

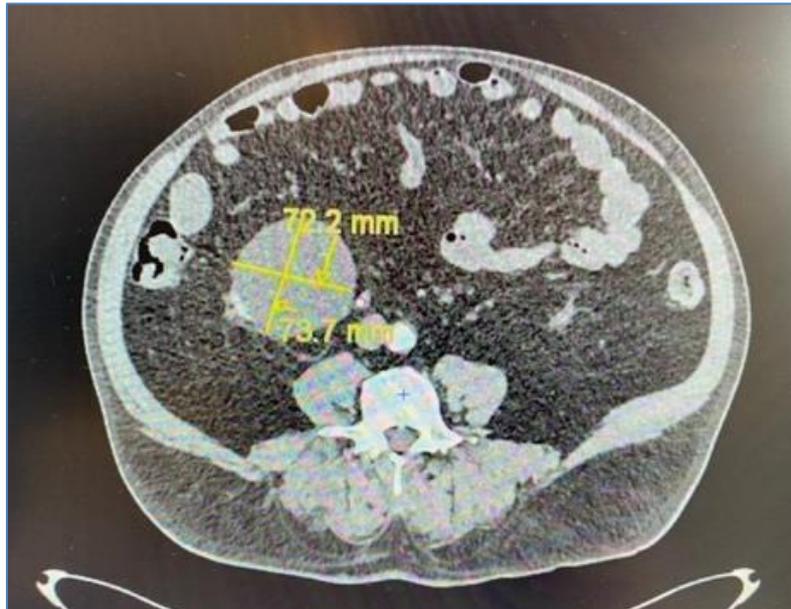


Figure 1: Axial CT scan image illustrating an 8 cm parapyelic cyst.

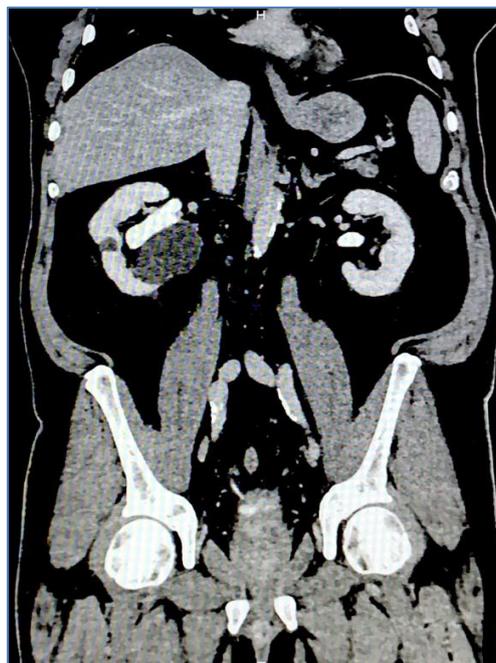


Figure 2: Coronal CT scan image illustrating a non-communicating 8 cm right parapyelic cyst with the collecting system.



Figure 3: Intraoperative image showing the dome of the right parapyelic cyst.

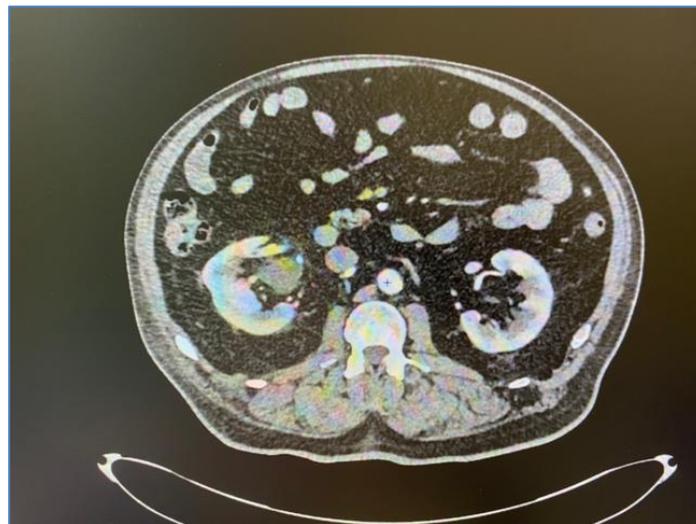


Figure 4: Postoperative image demonstrating a significant reduction of over 50% in the size of the parapyelic cyst.

DISCUSSION

This case report presents a rare variant of a simple renal cyst. These cysts, located near the renal hilum and upper urinary tract, often exhibit symptoms such as pain, obstruction, infections, and kidney stones, similar to ureteropelvic junction anomalies [2- 8]. The primary treatment goal is to alleviate upper urinary tract obstruction in symptomatic renal cysts [11]. Various therapeutic methods are employed, including percutaneous puncture with or without sclerosing agent injection, percutaneous marsupialization, and open or laparoscopic cystectomy [2- 4], [8- 11].

However, due to their central location near the urinary tract, puncture with sclerosing agent instillation is contraindicated due to the risks of severe anomalies

and vascular injuries [1- 12]. Percutaneous cyst resection and intrarenal marsupialization are minimally invasive treatments, but carry the risk of parenchymal or urinary tract injuries with potential retroperitoneal bleeding [4- 11]. Recently, successful laparoscopic treatment of symptomatic renal cysts has been reported [4- 11]. However, laparoscopic cystectomy for parapyelic cysts is more challenging due to their proximity to the renal hilum, which explains the scarcity of publications on this subject [4- 11].

In addition to open cystectomy, there are two approaches for laparoscopic cystectomy: transperitoneal and retroperitoneal [7- 13]. The retroperitoneal approach is preferred due to lower complication rates (7%), including prolonged ileus (1%), hemorrhage

(3%), and fistula, as well as its advantages of direct access to the renal hilum, satisfactory functional and aesthetic outcomes, and early recovery [3, 4], [5- 14].

CONCLUSION

This case highlights the role of lumbotomy in cases of diagnostic uncertainty between a junction anomaly and a parapyelic cyst, emphasizing the importance of timely and accurate CT imaging to distinguish between the two pathologies.

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