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Case Report

Parapelvic Cyst Causing Hydronephrosis Managed by Sclerotherapy: A Case Report

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Abstract

Introduction: Parapelvic cysts (PPCs) are a rare type of renal cysts that are typically asymptomatic. However, in some cases, these cysts may grow large enough to obstruct the collecting system and result in symptoms. We present a 42-year-old man found to have hydronephrosis on CT with no obvious obstructive cause, later discovered to be a rare occurrence of parapelvic cyst compressing the kidney.

This patient was treated through interventional radiology with aspiration and sclerotherapy followed by clinical improvement and on subsequent imaging studies.

Conclusion: Parapelvic cysts are an important differential diagnosis to consider in similar cases of hydronephrosis where there are no obstructive causes. Percutaneous aspiration and sclerotherapy is an effective management option in selected cases that can result in both clinical and radiological recovery.

Keywords: Parapelvic Cyst; Hydronephrosis; Sclerotherapy.

Introduction

Renal cysts are very common lesions encountered in urological practice. Autopsy studies show that 50% of those older than 50 years have at least one renal cyst [1]. These tend to form due to a variety of causes, some of which are congenital, such as Autosomal Dominant Polycystic Kidney Disease, or acquired, like in dialysis patients.

Simple renal cysts are the most common subtype of renal cystic disease and they are rather benign in most cases. The Parapelvic Cysts (PPC), however, are a sub form of simple renal cysts that are connected to the renal pelvis. These cysts also tend to be asymptomatic, with the exception of a few rare cases where the cyst grows very large to the point of pelvicalyceal compression resulting in hydronephrosis.

We are presenting an unusual case that highlights the importance of considering PPC when hydronephrosis is discovered without an obvious obstructive cause.

Case Report

A 42-year-old man with a history of pulmonary sarcoidosis following with us for squamous cell carcinoma of the scrotum was incidentally found to have moderate left Hydronephrosis. There was no apparent obstructive cause and there was no dilation of the left ureter on his routine CT scan. An adjacent PPC is present measuring 4 by 4 cm, Figure 1. His previous CT scan done around 4 months prior showed no hydronephrosis and the PPC was much smaller.

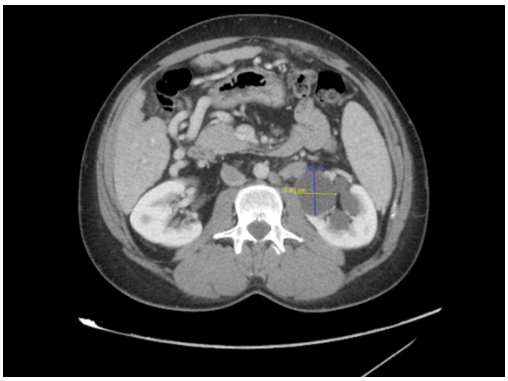

Figure 1: CT scan of the abdomen and pelvis with IV contrast, axial cut, showing interval development of left moderate hydronephrosis, grade 2-3, with no apparent obstructive causes seen. The CT shows that the left ureter is not dilated in addition to interval increase in the size of a previously noted right PPC.

A Double J stent was then inserted based on the findings with interval improvement of the left hydronephrosis. The patient was later investigated by CT urography and no obstructive uropathy was found, Figure 2.

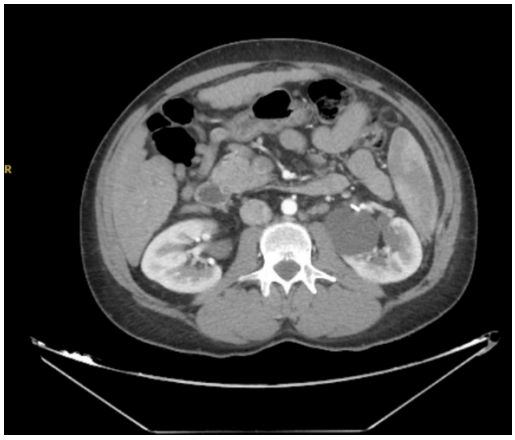

Figure 2: CT scan of the abdomen following the insertion of left-sided double-J stent with interval improvement of the hydronephrosis. Again, no obvious obstructive lesion noted.

Four months later, he presented with a 2-day-history of painful urination, hematuria, as well as left flank pain not associated with trauma or fever. The stent was then removed and the patient underwent IR aspiration and sclerotherapy of the left parapelvic cyst. Subsequent nuclear imaging revealed satisfactory left kidney function with remarkable improvement compared to a previous study done before sclerotherapy, Figures 3 and 4. Furthermore, the patient's symptoms completely resolved and he was symptom-free in subsequent clinic visits.

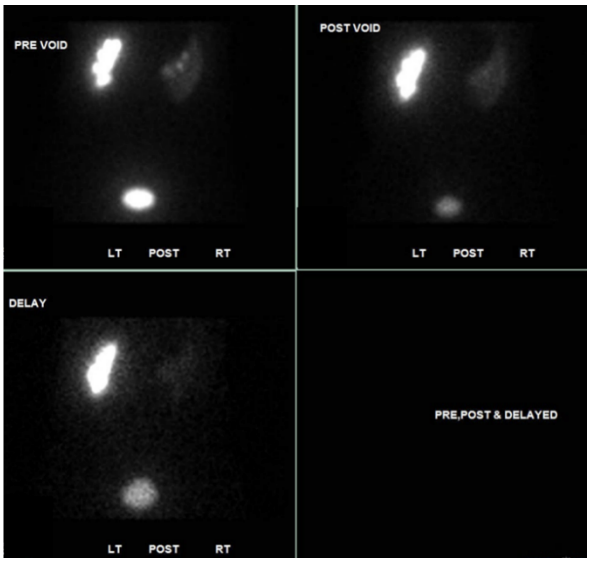

Figure 3: NM Renal MAG3 scan prior to sclerotherapy showing almost preserved function of the left kidney with prominent collecting system, suggesting obstructive nephropathy.

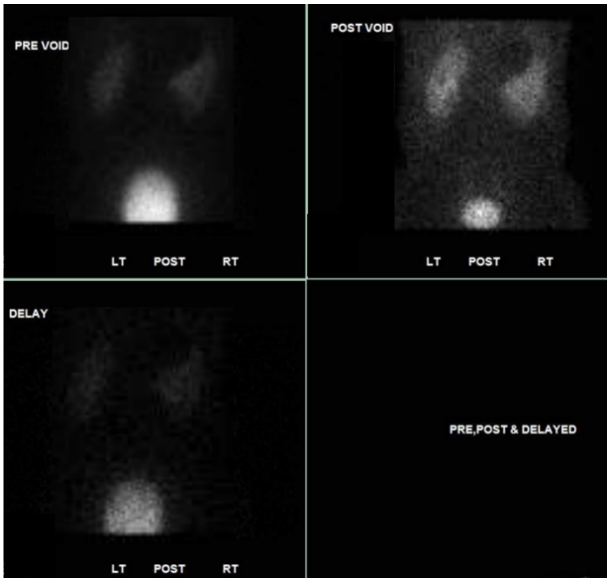

Figure 4: NM Renal MAG3 scan five months following sclerotherapy, showing normal left kidney function with no scintigraphic evidence of obstruction.

Discussion

Parapelvic cysts compose a small percentage of all renal cysts, making up 1-2%. What differentiates them from a simple renal cyst is in the location, being near the renal pelvis, whereas simple renal cysts are present in the renal cortex. Although PPCs are

typically asymptomatic in the vast majority of cases, their location makes them more likely to produce obstructive symptoms. Among the reported symptoms caused by parapelvic cysts are lumbar discomfort, hematuria, hypertension and hydronephrosis [1].

The location of the parapelvic cyst in the renal pelvis is also significant when it comes to management, as the typical management of these cysts' risks damage to the nearby structures, as well as retroperitoneal leakage. The size of the cyst is also a limiting factor when it comes to treatment in these cases.

The literature highlights many methods of management including surgical deroofing, sclerotherapy, and percutaneous aspiration. A case report by Santiana et al. reported a similar case of hydronephrosis due to PPC, where sclerotherapy of the cyst was deferred due to its risk of parenchymal injury, as the cyst in this case was thick-walled and poorly visualized. Their patient was followed 4 months later and remained asymptomatic [2].

A case series by Marret et al. consisted of four cases of symptomatic PPC in pediatric patients managed by surgical deroofing resulting in cure of all 4 cases with no instances of urine leakage, cyst recurrence, or significant loss of renal function. This case series supports surgical deroofing as an appropriate method for the management of this condition, although it is more invasive [3].

In some cases, parapelvic cysts can be mistaken for hydronephrosis due to the fact that both will appear hypoechoic on ultrasonography. A case report by Choi et al. reported bilateral parapelvic cysts misdiagnosed as hydronephrosis. On ultrasound, hypoechoic areas were noted in the center of both kidneys, which led to the suspicion of bilateral hydronephrosis, but there was no obvious obstruction. A subsequent CT scan confirmed bilateral PPCs with hydronephrosis. This again highlights the importance of considering PPC when dealing with suspected hydronephrosis with no obvious obstructive cause, as they may present as hydronephrosis as well as hydronephrosis mimic [4].

In our case, we decided to be less invasive and perform percutaneous drainage and sclerotherapy rather than surgery which would be much more invasive given his comorbidities. This approach appears to be safe and effective but more data is required before a definitive recommendation is made.

Conclusion

Despite their rarity, parapelvic renal cysts must be considered whenever non-obstructive hydronephrosis is encountered, whether unilateral or bilateral. The diagnosis is best made by CT urography coupled with scintigraphy. Ultrasonography may sometimes be misleading. Although surgical deroofing is the most commonly used method of therapy, it is highly invasive and is not free of complications. This case highlights the safety and efficacy of percutaneous drainage and sclerotherapy of such cysts. more data is needed before a definitive conclusion is made in support of such intervention.

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