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A rare case of very large extrarenal pelvis: A diagnostic dilemma

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Abstract

Extrarenal pelvis is considered to be an anatomical variant. It is seen as a cystic mass just outside the renal sinus. It can be confused with parapelvic cyst, hydronephrosis or other renal masses. Over the years, computed tomographic (CT) urography has evolved as the primary imaging modality for evaluating the urinary tract in various clinical settings and to diagnose pathologies like congenital abnormalities, filling defects, dilatation, narrowing etc.

Keywords: Renal sinus cysts, extrarenal pelvis, para pelvic cyst, hydronephrosis, renal ultrasound, puja obstruction, ct urography

Introduction

The presence of the renal pelvis outside the confines of the renal hilum is considered as an Extrarenal pelvis ^[1]. Unlike hydronephrosis, it is not associated with dilated calyces, parenchymal thinning, hydroureter or enlarged kidney. Normally, the renal pelvis is surrounded by kidney substance and fat, and hardly has any significant volume. In some cases, the collecting system and ducts of the kidney are long, and the renal pelvis lies partly outside the kidney. It is found in approximately 10% of the population ^[2].

Case Description: 35 year male presented with the chief complaints of abdominal pain, predominantly in left lumbar region, tenderness, recurrent urinary tract infection and increased frequency of micturition. On clinical examination, an abdominal lump was palpated in the left loin with severe tenderness. Vitals were stable. CBC was normal. Urine routine and microscopy revealed 4-5 pus cells/hpf. Renal and liver function tests were unremarkable. Abdominal ultrasound was done using GE Voluson P8 machine which revealed left mild renomegaly with a large well defined anechoic cystic lesion closely abutting the left renal pelvis with hydronephrosis. The lesion did not reveal communication with the calyceal system. Hence, diagnosis of left renal para-pelvic cyst was made on abdominal ultrasound. Urologist advised CT urography for further evaluation of nature of the lesion, its extent, involvement and delineation of calyceal system as well as the ureter. CT urography was performed on GE 4 slice machine and it revealed a large thin walled well marginated non-enhancing hypodense cystic lesion related to the anterior aspect of left kidney in the region of left renal pelvis with moderate dilatation of the left pelvicalyceal system. Renal pelvis was not distinctly visualized. The lesion grossly measured 10.6 cms (anteroposterior) x 10.4 cms (transverse) x 11.3 cms (craniocaudal) in dimensions. Cortical thickness of the left kidney was normal. Post contrast and delayed images showed mild amount of radiopaque contrast within the cystic lesion that raised suspicion over the ultrasound findings. Additional images were taken with patient in the prone position which revealed more amount of radio opaque contrast within the cystic lesion in its dependent portion. Significant narrowing of left pelviureteric junction was seen with no contrast flow into the left ureter (obstruction). Left ureter was seen originating from the inferior most portion of the cystic lesion and was normal in calibre. Right kidney and ureter were normal with normal contrast excretion. Urinary bladder and prostate were normal. The diagnosis of left pelviureteric junction obstruction was not easy on ultrasonography due to the narrow connection between the calyceal system and the renal pelvis and hence, para pelvic cyst compressing the ureter with resultant hydronephrosis was the original diagnosis prior to CT urography.

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Fig 1: CT urography (Patient supine)



Fig 2: Patient in prone position

Case Discussion: On the basis of CT urography, the diagnosis of 'Large extrarenal pelvis of the left kidney with pelviureteric junction obstruction with ipsilateral secondary moderate hydronephrosis' was made. The patient was operated and revealed normal scan findings on follow ups. A normal extrarenal pelvis will demonstrate normal renal cortical thickness, bilateral symmetrical contrast excretion and normal appearing calyces [3]. However, in our case the cause of left sided moderate hydronephrosis was left pelviureteric junction obstruction. Extrarenal pelvis is considered to be an anatomical variant. It is found in approximately 10% of the population. Parapelvic cysts are simple renal cysts that plunge into the renal sinus from the adjacent renal parenchyma. They are usually single or few and resemble simple renal cortical cyst. They may cause compression of the pelvicalyceal system resulting in hydronephrosis. They may also mimic hydronephrosis, termed pseudohydronephrosis. Parapelvic cysts do not communicate with the collecting system and, therefore, do not fill with contrast material during excretory urography or contrast-enhanced CT. Parapelvic cysts are usually asymptomatic and require no therapy, but may lead to hypertension, hematuria, or hydronephrosis or may become secondarily infected. Peripelvic cysts are frequently bilateral and appear as fluid-density cysts closely abutting the pelvis and infundibula. They rarely cause functional renal derangement by compression. On follow up, they remain unchanged in size. They may be confused with hydronephrosis on non-contrast CT and ultrasonography, but on contrast enhanced scans the differentiation is usually confirmed.

CT urography has essentially replaced intravenous urography as the first-line imaging modality and has been shown to have increased overall accuracy and sensitivity. Additional indications for CT urography include evaluation of urinary tract obstruction, depiction of complex congenital or postsurgical urinary tract anatomy.

Practical points

After evaluation with ultrasound and/or CT/MRI, if confusion still persists, renal scintigraphy can lead to further evaluation and diagnosis.

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