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Case Report:

Uretero-Pelvic Junction Obstruction with Calcification of Renal Pelvis Wall

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ABSTRACT

A 45-year-old male presented with dull pain in right lumber region. On ultra-sonography, he had severely hydro-nephrotic right kidney with thinned out parenchyma and markedly dilated renal pelvis. On Computed Tomography, there was severe right hydronephrosis and linear calcification on the medial wall of renal pelvis confirmed further on DTPA Renal scan. It was a non-functioning kidney with a normal functioning contra-lateral kidney. The right nephrectomy was performed and a 7 x 7 cm rounded disc like calcification was seen in the medial pelvic wall. Upon histopathology, it was a dystrophic calcification of renal pelvis wall which is a rare finding.

Keywords: Uretero- pelvic junction obstruction, Dystrophic calcification, Nephrocalcinosis,

INTRODUCTION

Urolithiasis is a condition in which calculi develop in urinary tract. This is influenced by factors like climate, dietary habits, profession, fluid intake, genetic predisposition, urinary tract infections and malformations of the urinary tract[1]. Dystrophic renal calcification in the kidneys is a common finding and usually occurs as a result of parenchymal damage secondary to infarction, neoplasms and infections. Major causes include transplant rejection, renal cortical necrosis, tuberculosis, renal trauma and chronic glomerulonephritis[2, 3].

On the other hand, calcification of this nature due to ureteo-pelvic junction obstruction is an uncommon finding[4]. Calcifications in other parts of urinary tract like renal pelvis, ureter and urinary bladder are very rare phenomena. We report a 45 years old man presenting with dull pain in the right lumber area due to congenital uretero-pelvic junction obstruction and resultant dystrophic calcification in the wall of renal pelvis.

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CASE REPORT

A 45 year old man presented with intermittent dull pain in right lumber area for two years and intermittent fever for two months. There were no associated urinary symptoms. He was a diagnosed diabetic and hypertensive for two years, treated with insulin and calcium channel blockers. He had no history of trauma or surgical interventions. There was nothing significant in his past history. His general physical examination was unremarkable. The abdominal examination, he had bimanually palpable large mass with restricted mobility in right lumber region. His urine examination, routine blood counts, serum calcium, serum phosphate and renal function tests were within normal limits.

On Computed Tomography, he had grossly hydronephrotic right kidney with ballooned out renal pelvis and abrupt narrowing of uretero-pelvic junction. Moreover, a linear calcification was also seen in medial wall of renal pelvis on the right side (Fig-1). Left kidney was normal. DTPA renal scan confirmed absence of any function on right side. He had normally functioning left kidney with GFR 102 ml/sec. (Fig-2). As the patient was symptomatic and contralateral kidney was functioning normally, it was decided to carry out nephrectomy. A detailed informed consent for nephrectomy was obtained.

An open nephrectomy was carried out through a flank approach. Procedure was carried out under GA. During anesthesia standard I & standard II for strict beat to beat monitoring of blood pressure was done, arterial line was passed. For post-operative pain management,an ultrasound guided erector spinae block at level of T9 was done[5]. There was no

need of post-operative narcotics for pain management on VAS (visual analogue score). Pain score was 2.

Kidney was found to be a bag of urine with thinned out parenchyma and dilated pelvis. A 7 x 7 cm bony hard rounded disc like structure was felt in the medial wall of renal pelvis. On incision of the pelvis, a rounded, yellowish area of calcification was seen (Fig-3). Specimens of kidney and calcified area were sent for histopathology. Multiple sections of kidney and renal pelvis were examined. There was atrophy of the glomeruli, thyroidization of the renal tubules, chronic inflammatory cellular infiltrates in the interstitial tissues and hyalinization of blood vessels. These changes were consistent with those of chronic glomerulonephritis. The calcified area of the renal pelvis wall featured dystrophic calcification and fibrosis (Fig-4).

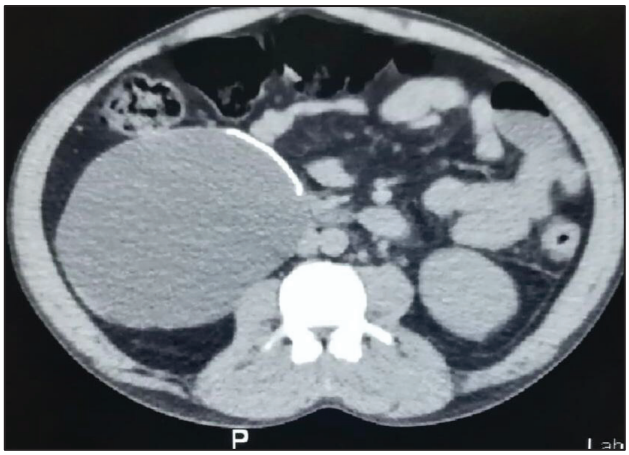

Fig-1: Plain CT scan abdomen showing grossly hydronephrotic right kidney with thinned out parenchyma. A linear calcified area seen in medial wall of renal pelvis.

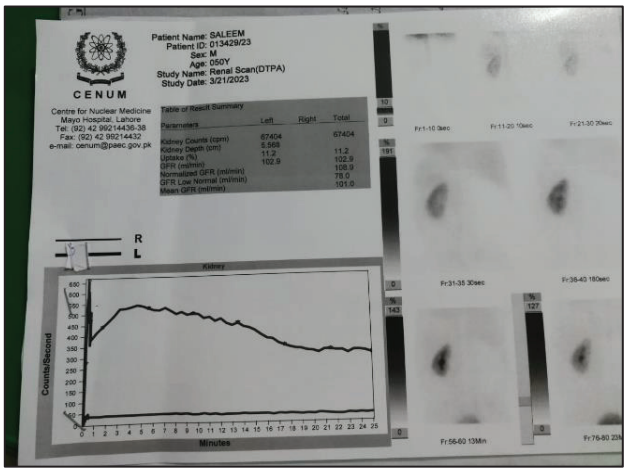

Fig-2: DTPA Renal Scan Shows Non-Functioning Right Kidney. Left Kidney Is Normal with GFR Of 102 Ml/Min.

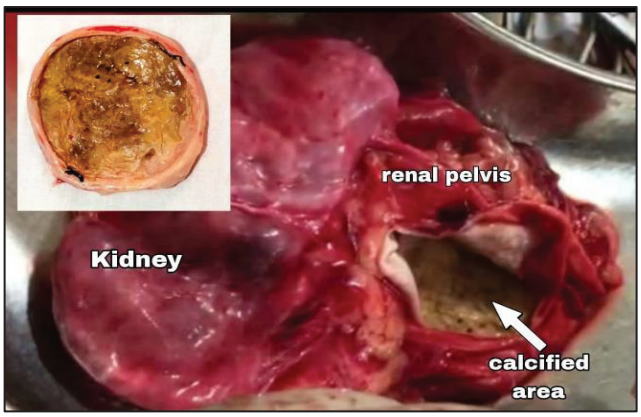

Fig-3: Photograph of the kidney after nephrectomy showing yellowish calcification of the renal pelvis. Inset shows disc like structure excised from specimen.

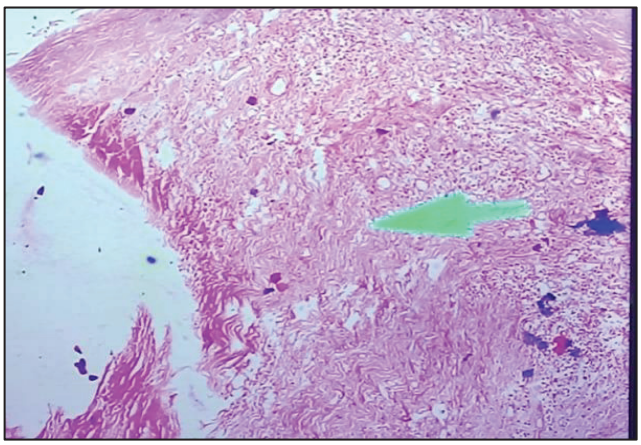

Fig-4: Section Of Renal Pelvis Fibrotic Calcified Area Showing Calcifications and Fibrosis.

DISCUSSION

Two types of abnormal calcification may occur in the urinary system. One is metabolic or metastatic calcification e.g. nephrocalcinosis and other is called dystrophic renal calcification. Dystrophic calcification occurs as a result of changes in the tissues like in malignancies, infections, trauma or inflammations. Dystrophic renal calcifications in the kidneys are commonly seen in the form of calcium phosphate stones[6]. Whereas such type of calcifications are rare in renal pelvis, ureter or bladder[7]. Malignancies of the urinary tract sometimes do present with calcifications at the surface of the tumors[8, 9]. Pathological calcification as a result of renal infections involves parenchyma and collecting system both (calyces and renal pelvis). The collecting system is involved independently, or it may be in combination with renal parenchyma. 25-45% of such cases show calcifications on plain X-rays[10]. Dystrophic calcification of the kidney as a result of uretero-pelvic junction obstruction is very rare and very few

cases have been reported so far[11]. The other case was reported by Gold et al in 1990 but there was sub-mucosal calcification of renal pelvis with superimposed spindle cell carcinoma[12].

The present case is different from the other few reported cases. There was a well circumscribed disc like area of calcification in the medial wall of pelvis 7x7 cm in size. It is most likely that persistent pressure in the renal pelvis due to Uretero-pelvic junction obstruction led to trauma and tissue damage resulting in calcification in the area.

CONCLUSION

Congenital uretero-pelvic junction obstruction may result in secondary stone formation but dystrophic calcification in the wall of renal pelvis is a very rare phenomenon.

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AM: Conceived, Wrote and Edited the Paper
MT: Edited And Collected the Published Data
AQ: Revised The Paper.

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