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CASE REPORT: RIGHT RENAL DYSFUNCTION WITH URETERIC CALCULI MANAGED BY NEPHRECTOMY

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ABSTRACT

Background: Ureteric calculi are a common cause of chronic obstructive uropathy.[1] If not diagnosed and treated in time, they can lead to irreversible renal damage, loss of nephron mass[2], and systemic complications.[3] When renal function is severely compromised, surgical nephrectomy may become the definitive option. **Case Presentation:** We report a case of a 59-year-old female who presented with a 15-day history of bilateral loin to groin pain, burning micturition, and increased urinary frequency. Imaging revealed a small, atrophic right kidney with two mid-ureteric calculi and mild fullness of the pelvicalyceal system. Renal functional scan demonstrated only 5.26% contribution from the right kidney (GFR: 2.35 mL/min). The left kidney showed compensatory hypertrophy with preserved function. The patient underwent a right nephrectomy with partial ureterectomy under general anaesthesia. The procedure was uneventful. Histopathology confirmed chronic pyelonephritis with severe interstitial fibrosis and tubular atrophy. **Conclusion:** This case highlights the importance of early detection and timely intervention in chronic obstructive uropathy. Nephrectomy is the definitive and safe treatment for non-functioning kidneys with irreversible damage, aimed at symptom relief and complication prevention.

KEYWORDS: Obstructive uropathy, Ureteric calculi, Nephrectomy.

INTRODUCTION

Obstructive uropathy due to ureteric calculi remains a prevalent cause of preventable chronic kidney disease worldwide. The progression from partial obstruction to complete and irreversible renal failure can be insidious, especially when symptoms are vague or neglected.

Anatomical obstruction over time leads to pressure-induced parenchymal loss, interstitial fibrosis, and compensatory hypertrophy of the contralateral kidney.

Patients may present with recurrent urinary tract symptoms, flank pain, or signs of chronic infection. Diagnostic modalities such as ultrasonography, CT-KUB, and renal functional scans are essential to assess both anatomical and functional status of the kidneys. Management decisions depend on functional viability and structural integrity of the affected kidney.

Nephrectomy becomes necessary when the kidney is non-functional[4] and poses risks of persistent infection, pain, or hypertension. This case describes a patient with longstanding right-sided ureteric obstruction managed successfully through surgical nephrectomy and partial ureterectomy, reinforcing key clinical principles.

CASE PRESENTATION

Patient Profile

A 59-year-old female patient, presented with: Radiating pain from bilateral loin to groin since 15 days Burning micturition since 15 days

Increased urinary frequency since 15 days No history of nausea or vomiting

Past History

S/H/O -LSCS and abdominal hysterectomy - 15 years ago M/H/O- chikungunya 6 years ago

K/C/O -No any major illness

Menopause: At age of 44 years. Obstetric Score: G6 P6 L6 A0 D0

Personal & Family History Occupation: Housewife

Diet: Mixed (vegetarian + non-vegetarian) Habits: No addictions

Allergies: No known drug allergies

Family history: No major illness in parents or siblings

Clinical Examination

General Condition: Fair, afebrile Pulse: 92/min

BP: 140/90 mmHg

SpO_2: 97% on room air

CNS: Conscious and oriented CVS: S1 S2 normal

RS: AEBE clear

Abdomen: Soft, bowel sounds present, motion passed Pallor / Icterus / Lymphadenopathy: Not seen

Local Examination

Inspection: Vertical surgical scar (~8 × 0.5 cm) below umbilicus Palpation: Tenderness in the right lumbar region

Investigations

Blood Investigations

Hb: 12.6 g/dL

WBC: 5700 /mm³

Platelets: 2.20 lakh/mm³

RBC: 4.72 million/mm³

RBS: 72 mg/dL

Blood Urea: 22.5 mg/dL Serum Creatinine: 1.04 mg/dL HIV / HBsAg / HCV: Negative

Other

PT: 17 seconds

INR: 1.24

ECG & Chest X-ray: Within normal limits

Imaging Reports

USG Abdomen & Pelvis

Right kidney: 75 × 32 mm, raised echogenicity 6–7 mm calculus in upper pole calyx

Mild PCS fullness

Left kidney: 12.5 × 5.7 cm

9 mm calculus (upper pole), 4.3 mm calculus (mid pole) Mild PCS fullness

No free fluid, solid organs normal

CT-KUB

Right kidney: Small and atrophic (5.8 × 2.5 cm)

Two calculi (9 × 6 mm and 10 × 6 mm) in right mid-ureter No hydronephrosis

Left kidney: Mild compensatory hypertrophy

F15 Diuretic Renogram

Right kidney

Severe parenchymal dysfunction Relative function: 5.26%

GFR: 2.35 mL/min

Left kidney

Normal function GFR: 42.34 mL/min

Total GFR: 44.70 mL/min

Final Diagnosis

Right renal dysfunction with right mid-ureteric calculi and compensatory hypertrophy of the left kidney

MANAGEMENT

Operative Management

Procedure Performed:

Right Nephrectomy with Partial Ureterectomy

Type of Anaesthesia

General Anaesthesia (GA)

Surgical Steps

Position: Patient positioned in left lateral with kidney bridge elevated Aseptic painting and draping done

Curved loin incision at 12th rib Layer-wise dissection

Skin →Subcutaneous tissue →Latissimus dorsi muscle →External oblique muscle Segment of 11th rib excised

Preperitoneal plane mobilized medially Right kidney identified

Vascular Control

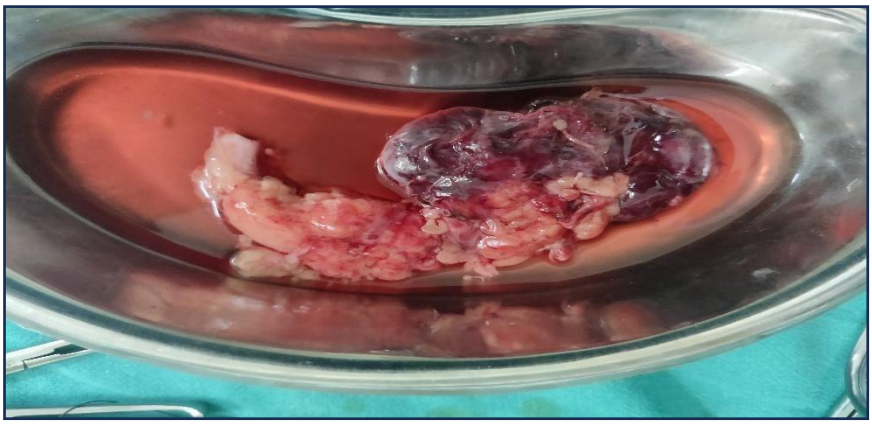
Right renal vein ligated using linen and divided Right renal artery ligated twice and divided Ureter & Specimen Handling:

Right ureter ligated at lower level and divided Right kidney removed with Gerota's fascia Thorough wash given, haemostasis achieved Abdominal Drainage Kit ADK FG 28 placed Closure done in layers

Specimen sent for Histopathology

Skin is closed with monocryl 2-0 in subcuticular manner

Dressing done, patient shifted to recovery room in good condition.



Postoperative Outcome – POD3

General Condition: Fair, afebrile Pain: Mild at right flank

Pulse: 70/min | BP: 140/90 mmHg | SpO_2: 97% CNS: Conscious and oriented

CVS: S1 S2 normal RS: AEBE clear

Abdomen: Soft, bowel sounds present Motion: Passed

Urine: Clear

Drain Output (ADK): 6–8 cc (ADK Drain removed on POD 03)

Urine Output (24h): 1400 cc

Postoperative Management

Position: Supine

NBM: Maintained till advised

IV Fluids: RL, DNS, D5 (1 pint iv slowly)

Medications

Inj. Ceftriaxone 1 gm iv 12 hourly Inj. Pantaprazole 40 mg IV 24 hourly Inj. Paracetamol 1 gm IV SOS

Histopathology Report:

Specimen: Right kidney with partial ureter

Impression

Chronic pyelonephritis Chronic interstitial nephritis Severe interstitial fibrosis Tubular atrophy.

DISCUSSION

Chronic ureteric obstruction, if unrecognized or neglected, can cause progressive structural damage to renal tissue and irreversible loss of function. This patient presented with classical urinary symptoms and imaging revealed a small, echogenic right kidney with calculi in the mid-ureter. The diuretic renogram confirmed that the right kidney had minimal functional capacity (5.26%), thereby classifying it as non-salvageable.

The presence of two obstructive ureteric stones, absence of hydronephrosis, and significant parenchymal atrophy indicated chronic pathology. In such scenarios, conservative or endoscopic management offers no functional benefit and may even increase the risk of infection or complications. Nephrectomy remains the most appropriate choice for definitive treatment in non-functioning kidneys.

The surgical procedure was uneventful and recovery was stable. Histopathology confirmed longstanding inflammation and fibrosis in the right kidney, validating the radiological and clinical findings.

This case reiterates the need for prompt evaluation of urinary symptoms. Imaging and renal function studies must be used judiciously to decide on organ-preserving interventions versus surgical removal. Preoperative assessment of the contralateral kidney is critical to ensure overall renal sufficiency.

CONCLUSION

Neglected ureteric calculi can result in irreversible renal injury, requiring surgical intervention. In this case, imaging and renal functional studies confirmed a non-functional right kidney. Nephrectomy was performed as a definitive treatment with an uneventful

postoperative course.

This case underscores the importance of early clinical suspicion, appropriate imaging, and timely surgical planning in managing obstructive uropathy. When renal function is lost and anatomical damage is irreversible, nephrectomy not only prevents future complications but also improves patient comfort and quality of life.

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