

Management of Staghorn Renal Calculus with Percutaneous Nephrolithotomy: A Case Report from a Tertiary Care Center

Sidhdharth Jivanbhai Desai¹, Shivang Shaileshkumar Dalwadi², Neelrajsinh Jadav³

¹Medical Officer, Junior Resident Doctor, Department of Surgery, Civil Hospital, Himatnagar, Gujarat, India

²Medical Officer, MBBS, Gujarat, India

³Tutor, Department of Medical Radiology & Imaging, NAMO College of Allied Health Sciences, Silvassa (Dadra & Nagar Haveli and Daman & Diu), India

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Corresponding author: Dr. Sidhdharth Jivanbhai Desai

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Abstract

Objective: To present a case of staghorn renal calculus diagnosed through clinical and radiological evaluation and managed successfully with percutaneous nephrolithotomy (PCNL) at a specialized urology centre.

Methods: A 58-year-old male presented with chronic right-sided flank pain, burning micturition, recurrent urinary tract infections, decreased appetite, and occasional fever. Clinical examination, laboratory investigations, and CT urography were performed for diagnostic evaluation.

Results: CT urography revealed a 2.5 × 1.9 cm right renal staghorn calculus with multiple smaller calculi and upper pole calyceal dilatation. The patient was referred to the urology team, where PCNL was performed successfully with complete stone clearance. The postoperative period was uneventful except for transient fever, and the patient was discharged in stable condition.

Conclusion: This case highlights the importance of early diagnosis, appropriate imaging, and timely referral in the management of staghorn renal calculi. Coordinated care with specialized teams can lead to favorable clinical outcomes.

Keywords: Staghorn Calculus, Nephrolithiasis, Percutaneous Nephrolithotomy, Renal Calculi, CT Urography, Urinary Tract Infection.

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Introduction

Staghorn calculi are large branching renal stones occupying a significant portion of the pelvicalyceal system [1]. These calculi are commonly associated with recurrent urinary tract infections and may lead to progressive renal damage if not managed appropriately. Early diagnosis and timely referral to specialized care play an important role in preventing complications and preserving renal function.

Percutaneous nephrolithotomy (PCNL) is considered the treatment of choice for large renal calculi due to its high stone clearance rate and minimally invasive nature [2,5]. We present a case of staghorn renal calculus identified during clinical evaluation and subsequently managed successfully at a tertiary care center.

Case Presentation

A 58-year-old male presented with complaints of right-sided abdominal pain and flank pain for more

than three months. The pain was intermittent in nature and associated with burning micturition, difficulty in micturition, abdominal fullness, decreased appetite, and occasional fever. The patient was a known case of hypertension with a history of recurrent urinary tract infections. There was no history of previous surgical intervention.

On examination, the patient was vitally stable. Abdominal examination revealed a soft and non-tender abdomen. Laboratory investigations revealed hemoglobin of 14.1 g/dL, total leukocyte count of 10,100 /cmm, and platelet count of 358,000 /cmm. Differential leukocyte count showed lymphocytosis (60%) and eosinophilia (8%).

CT urography demonstrated a 2.5 × 1.9 cm staghorn calculus (1146 HU) in the right renal pelvicalyceal system with multiple smaller calculi in the calyces, the largest measuring 7 mm.

Dilatation of the upper pole calyx with mild thickening of the renal pelvis and proximal ureter was also noted. Bilateral renal cortical scarring was present.

Based on clinical and radiological findings, the patient was referred to the urology experts for further management. The patient subsequently underwent percutaneous nephrolithotomy (PCNL) under the care of the urology team, and complete stone clearance was achieved without intraoperative complications.

Postoperatively, the patient developed mild fever for one day but remained hemodynamically stable. The patient was discharged in stable condition on postoperative day two.

Discussion

Staghorn calculi represent a severe form of renal stone disease and are frequently associated with chronic urinary tract infections [1,3]. Delayed management may lead to progressive renal impairment and increased morbidity.

Clinical recognition of symptoms such as chronic flank pain, burning micturition, recurrent urinary tract infections, and fever is important for early diagnosis. CT urography remains one of the most useful imaging modalities for assessment of renal calculi and associated anatomical changes [7]. Large renal calculi generally require specialized urological management. Percutaneous nephrolithotomy (PCNL) has become the preferred treatment modality because of its minimally invasive approach and high success rate [4,8]. In the present case, timely referral and multidisciplinary management resulted in successful stone clearance with minimal postoperative complications.

Postoperative fever is a recognized complication following PCNL and is generally managed conservatively in hemodynamically stable patients [5,6].

This case highlights the importance of appropriate clinical evaluation, imaging, and referral in achieving favorable outcomes in patients with complex renal calculi.

Conclusion

Staghorn renal calculi require prompt diagnosis and timely management to prevent complications and preserve renal function. This case emphasizes the importance of early clinical recognition, appropriate imaging, and referral to specialized care for successful management.

Consent: Written informed consent was obtained from the patient for publication of this case report

Author Contributions: The author was involved in patient evaluation, data collection, literature review, and preparation of the manuscript.

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