

SUPINE PERCUTANEOUS NEPHROLITHOTOMY IN HORSESHOE KIDNEY: A CLINICAL EVALUATION

Hypothesis:

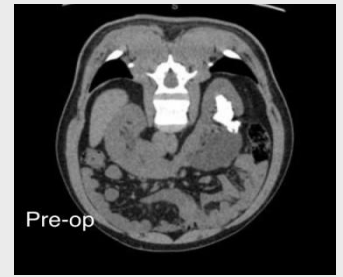
Horseshoe kidney (HSK) is a congenital anomaly where the kidneys are fused at their lower poles, forming a U-shape. This anatomical variation complicates the management of kidney stones. The primary aim of this study was to evaluate the safety and effectiveness of Supine percutaneous nephrolithotomy (PCNL) for the removal of kidney stones in patients with a horseshoe kidney. The hypothesis was that Supine PCNL provides a safe and effective alternative to the Prone PCNL, particularly in patients with anatomical challenges posed by HSK.

Materials, and Methods:

A retrospective analysis was conducted on patients with horseshoe kidneys who underwent Supine PCNL for the management of nephrolithiasis. Data from 14 patients treated between 2018 and 2024 at our referral center were reviewed. Preoperative imaging, stone size, and location were documented. The procedure was performed using a single puncture, with all patients placed in a supine position. The primary endpoints were stone clearance rates, complication rates, and operative time. Secondary endpoints included hospitalization duration and need for auxiliary procedures.

Results:

Among the 14 patients (11 males, 3 females), with the average stone size was 3.2 cm, 11 patients (78.57%) achieved complete stone clearance with a single session and 3 patients (21.42%) require a secondary procedure for incomplete stone clearance. The mean operative time was 95 minutes, ranging from 75 to 120 minutes. The overall complication rate was 7.14 %, with one patient experiencing hematuria and requiring a blood transfusion. The average hospital stay was 58 hrs. No significant complications such as renal injury or infection were observed



Interpretation of Results:

The results demonstrate that Supine PCNL is a feasible and safe procedure for patients with horseshoe kidneys. Despite the anatomical complexity of the HSK, the stone clearance rates were comparable to those seen in patients with normal renal anatomy. The low complication rate and shorter hospital stay indicate that Supine PCNL may be a preferable option over the traditional prone position in these patients.

Conclusion:

Supine PCNL is an effective and safe technique for the management of kidney stones in patients with horseshoe kidneys. This approach may offer an alternative to the prone position, particularly in challenging cases where access and visualization are the keys to successful stone removal. Further studies with larger sample sizes and long-term follow-up are needed to confirm these findings

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www.ics-eus.org/2025/abstract/

Abstract number #26524