

Analysis of Perioperative Events in Bilateral vs Unilateral Staged Percutaneous Nephrolithotomy

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Introduction: Kidney stones are a common medical condition that impact approximately 10% of US population. Management of stone disease is based on size and location of stones. Percutaneous nephrolithotomy (PCNL) is typically indicated in patients with large renal stone burden (typically >2 cm) or complex anatomy. In the setting of complex stones, multiple, staged PCNLs are required. We hypothesize that there is no significant difference in the perioperative change in lab values in bilateral PCNLs compared to unilateral PCNLs.

Methods: The data was gathered by retrospectively reviewing the electronic medical record of 50 patients in the IU health system who underwent planned staged PCNLs between January and December 2018. We identified patients who underwent both bilateral and unilateral staged procedures. Data for BMI, sex, ethnicity, hemoglobin, estimated glomerular filtration rate (GFR) (typically formula CKD-EPI or MDRD), urine and stone cultures, stone composition, and bilaterality vs. unilaterality was collected. Two-tailed T-tests were performed to analyze data between bilateral and unilateral cases.

Results: We identified a total of 50 patients, 19 men vs. 31 women; 9 men and 10 women underwent bilateral PCNLs, while 11 men and 20 women had unilateral PCNLs. BMI ranged from 14.2 to 62.3, and age ranged from 15 to 81. Significant differences were found between the changes in hemoglobin levels in patients who underwent bilateral PCNLs when compared to unilateral PCNLs (p value 0.018). No significant differences were noted when comparing changes of estimated GFR, BMI, age or any other variables.

Conclusion: Patients who underwent bilateral staged PCNLs demonstrated a greater drop in perioperative hemoglobin compared to unilateral PCNLs without an increase in blood transfusion. This finding suggests that Bilateral PCNLs requiring multiple stages are safe in complex stone patients.