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Supine percutaneous nephrolithotomy (s-PCNL) as an alternative to conventional prone approach

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Objectives: Percutaneous Nephrolithotomy(PCNL) is conventionally performed in the prone position. However supine PCNL(s-PCNL) may be more advantageous in terms of facilitating simultaneous flexible ureterorenoscopy and negating the need for a second percutaneous renal access for complex stones. It may reduce the cardio-respiratory compromise seen in the prone position. We reviewed our experience of performing supine percutaneous nephrolithotomy (s-PCNL) in the management of large or complicated renal calculi.

Methods: Data was prospectively collected on 103 consecutive cases of s-PCNL performed at our institution from September 2014 to December 2015. Stone fragmentation was done using Lithoclast Master and inaccessible stones were manipulated simultaneously using a flexible ureterorenoscopy. Stone clearance was assessed with CT-KUB.

Results: The mean age and BMI were 53.2 years (range 27 – 81) and 29kg/m2(range 20 – 34), respectively. Calculi size ranged from 16-41 mm (mean 23 mm) which included staghorn, calyceal, diverticular, pelvis and upper ureteric calculi. Lower pole calyx was utilized as the most frequent form of access (63%), followed by upper pole(7%) and interpolar(30%) access. Simultaneous flexible ureterorenoscopy was used in 15% of patients. Median operative time and hospital stay were 80 min (range 40 – 240 min) and 3 days(range 3 – 15 days) respectively. Complications noted were pyrexia, renal derangement and pulmonary embolism (0.97% each). Interval CT KUBs confirmed complete stone clearance in 91% of patients.

Conclusions: s-PCNL is safe and effective in treating renal calculi. Patient benefits include a comfortable position, lack of major complications (in our series) and favourable stone clearance rates. We would advocate the supine, extended lithotomy position in centers performing PCNL.