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Introduction & Objectives: In urologic practice mostly patients have kidney stones present to us complaining of flank pain. The kidney stone disease may get complicated when not treated on time. Kidney stones may have different sizes, types and location in the pelvicalyceal system. PCNL is a type of procedure to be performed for management of these stones. This study aimed to understand by comparison between the effectiveness and advantages of conventional-PCNL and mini-PCNL through adopting middle calyx of the pelvicalyceal system in terms of stone clearance.

Materials & Methods: This clinical randomized trial was conducted in the Institute of Kidney diseases (IKD) Peshawar from 1st March 2018 to 28 February 2019. For the intended study, 90 patients were randomly selected having renal stones. The selected sample of patients was distributed through two groups identified as Group A and B. The intervention extended to the Group A patient was mini-PCNL using 18-Fr access sheath while patients in Group B underwent standard-PCNL by using 30-Fr access sheath. The stones were fragmented by using pneumatic lithoclast. The minimally invasive techniques such as mini-PCNL have changed the management of renal stones. Since in conventional PCNL approach to the pelvicalyceal system is usually made through upper and lower pole but access to the rest of calyces is limited. However, in the mini-PCNL, the researchers made an approach to the pelvicalyceal system through middle calyx in which there is liberty to access all the calyces in the majority of cases.

Results: Among the two groups, results showed a statistically insignificant difference in the context of mean operative time and hospital stay ($P > 0.05$). However, findings further indicated that statistically the difference in terms of stone clearance was significant ($P < 0.05$). Further, stone-free rate (SFR) is established as 81% in mini-PCNL while 70% in conventional PCNL suggesting mini-PCNL is a feasible technique in renal stones (≥ 20 mm).

Conclusions: In the management of symptomatic renal stone (≥ 20 mm) minimally invasive technique such as mini-PCNL by using 18-Fr access sheath is effective with a greater stone-free rate compared with conventional PCNL.