Summary and Conclusion

This study was designed to compare the safety and efficacy of conventional PCNL and mini PCNL as regard to their technical aspects, success rate and complications.

To achieve this purpose 60 patients were included in this study (from outpatient clinic Benha university hospital) between May 2010 to April 2012; all patients with renal stones less than 2 cm. were included in this study while patients with uncorrectable coagulopathy, Congenital anomalies in the kidney such as Horse-shoe kidney, ectopic pelvic kidney, where excluded.

Patients were divided randomly into 2 groups:

Group 1: included 30 patients underwent conventional percutaneous nephrolithotomy.

Group 2: included 30 patients underwent minimally invasive percutaneous nephrolithotomy.

The mean age in group A was 31.9 ±5.32 (range 20-65) and in group B was 31.2 ±6.41 (range 6-60) . BMI in Kg/sq.m (mean ± SD) was 27±2.32 (range 25- 33kg/m2) in group A and 25.4±3.22 (range 20-35.5kg/m2) in group B. The study included 18 males (60%) and 12 females (40%) in group A , 17 males (56.7%) and 13 females (43.3%) in group B. 5 patients (16.7%) had previous renal stone surgery in group A and 3 patients (10%) had previous renal stone surgery in group B.

Stone characteristics of the studied cases. As for stone side, 16 cases (53.3%) cases were on the right Side and 14 cases (46.7%) on the left in group (A) but in group (B) 13 cases (43.3%) cases were on the right Side and 17 cases (56.7%) on the left. For stones radio- opacity

there were 26 (86.7%) radio-opaque stones and 4 (13.3%) radio-lucent stones in group (A), but in group (B) there were 25 (83.3%) radio-opaque stones and 5 (16.7%) radio-lucent stones. For stones site there were 18 (60%) pelvic stones, 12 cases (40%) had calyceal stones (1 upper, 3 middle and 8 lower calyx) in group (A), but in group (B) there were 16 (53.3%) pelvic stones, 14 cases (46.7%) had calyceal stones (1 upper, 4 middle and 9 lower calyx).

The intra-operative data of the studies cases; fluoroscopic time which was longer in group (A) than in group (B),in group (A) (mean ± SD) was 3.3±0.67 (range 1.5-8 min.) but in group (B) (mean ± SD) was 2.2±0.41 (range 1-5min.). Operative time was longer in group (B), (mean ± SD) was 108±15.63,(range 90-130 min.),than in group (A) (mean ± SD) was 89.2±12.36,(range 70-110 min). Intra-operative morbidity of the group (A) were 2 cases (6.7 %). The 2 cases had a significant bleeding required blood transfusion, one unit for each case, while intra-operative morbidity of group (B) occurred in one case (3.3%) as pelvic perforation and extravasation which happened during dilatation.

postoperative data in both groups , the heamatocrite drop was higher in group (A), (mean ± SD) was 6.4±1.55 (range 5-7.5) than in group (B), (mean ± SD) was 4±1.09 (range 3.5-5). Postoperative analgesia in the 1st day postoperative more in group (A) than (B), we used declophenac sodium injection, in group (A) (mean ± SD) was 132.5±16.39 (range 75-150 mg.) but in group (B) (mean ± SD) was 89.8±8.52 (range 60-125 mg.),

Postoperative complications (total 12 cases in group A); need for blood transfusion 2 cases, fever in 5 cases , urinary leakage in 2 cases , UTI in 3 cases. but in group (B) total was 6 cases; fever in 3 cases , urinary leakage in 1 case , UTI in 2 cases.

For these we found that mini PCNL is the same effective as conventional PCNL, as there was no deference in the stone clearance and the postoperative complications and it was less invasive than conventional PCNL , less blood loss , less analgesia taken postoperative, less fluoroscopic time so less expose to radiation for the patients and the surgeon. But the most important drawback of mini PCNL is lengthy operative time , due to, the need for fragmentation into very small stones which may lead to diminished intraoperative field visibility so it is not suitable for large renal stones and some surgeons not prefer it in adult patients .