Summary and Conclusion

This study was designed to evaluate PCNL in supine position under ultrasound guided puncture as regard its technical aspects, success rate and complications.

To achieve this purpose 47 patients were included in this study (from outpatient clinic Benha university hospital) between February 2009 to Marsh 2010; all patients with renal and or upper ureteral stones 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.

PCNL in supine position was done under US guided puncture.

The mean age was 46.12±10.75 (range 24-65). BMI (mean ± SD) was 23.6±5.92 (range 20- 43kg/m^2), 4 patients (8%) were morbid obese). The study included 30 males (63.80%) and 17 females (36.2%).

Stone characteristics of the studied cases; as for stone site, 20 cases (42.5%) had pelvic stones, 18 cases (38.3%) had calyceal stones (2 upper calyceal, 5 middle calyceal, and 11 lower calyceal), 5 cases had multiple caliceal stones and 3 cases had Staghorn stones. As for stone side 25 cases (53.2%) were right sided and 22 cases (46.8%) were left sided. As for mean stone size 2.9±1.029 (range 1.5- 4.5cm). Fourty two of the cases had radiopaque (89.4%), and 5 cases had radiolucent stones (10.6%).

The intra-operative data of the studies cases; general anesthesia was used in 39 cases (83.1%), spinal anesthesia was used in 6 cases (12.7%), local anesthesia with IV sedation was used in 2 cases (4.2%). Ultrasound guidance was used in 42 cases (89%), while combined US and fluoroscopy for puncture of 5 cases (11%) .Upper calyceal puncture was used in 2 cases (4.2%), middle calyceal puncture was used in 6 cases

(12.7%), and lower calyceal puncture was used in 32 cases (68.1%), while multiple punctures were used in 7cases (15%). Direction of calyx puncture was posterior in 38 cases (80.9%) and anterior in 9 cases (19.1%). Alken track dilatation was used in 6 cases (12.7%) while Amplatz dilatators were used in 41 cases (87.3%). Lithoclast stone disintegration was used in 31 cases (66%), and In-toto stone disintegration was used in 16 cases (34%). Nephrostomy drainage was used in 47 cases (100%) postoperative. Mean operative time was 70 minutes (range: 60-120 minutes).

The intraoperative complications (total of 9 cases, 19.1%); Dilatation difficulties were found in 5 cases (10.6%), Bleeding requiring transfusion in 2 cases (4.2%), Perforation in 2 cases (4.2%), Visceral injury did not occur in any of the studied cases.

Postoperatively; postoperative data of the studied cases; stone free rate was 93.6% (44 cases), residual stones more than 4 mm in 3 cases (6.4%). DJ insertion was used in 3 cases (6.4%) and ESWL was used in 2 cases (4.2%). A second look was needed in 2 cases (4.2%).and mean hospital stay was 3.4 days (range: 2-6 days).

Postoperative complications (total 7 cases, 10.6%); fever in 4 cases (8.5%), urinary leakage in 3 cases (2.1%).

There were an insignificant difference between pre and postoperative hemoglobin and haematocrite.

PCNL in supine position under ultrasound guided puncture is feasible, safe, and successful with minimal complications. Real time US is a useful and reliable tool for supine PCNL; adding safety to the procedure, minimizing radiation exposure and bleeding.