

Outcomes of Percutaneous Nephrolithotomy Versus Open Stone Surgery for Patients with Staghorn Calculi: Safety and Efficacy

Mohamed K Saif El-nasr¹ MD; Hesham A. EL-Helaly¹ MD; Hesham M. ElSayed¹ MSc; Hamada A. Youssef¹ MD; Khaled Mohyelden¹ MD :

ABSTRACT

BACKGROUND: The wide use of minimally invasive techniques in the management of multiple renal stones and staghorn stones have replaced the open technique in last 30 years. But the Open techniques for the management of complex multiple and staghorn renal stones are still a viable option that should be considered in treating patients' complex staghorn stones with large burden. In this study, we compare outcomes of Percutaneous Nephrolithotomy (PNL) Versus Open Stone Surgery (OSS) for patients with Staghorn calculi at the urology department Fayoum university hospital, in terms of efficacy, safety, operative procedure, intraoperative and postoperative complications. **METHODS:** This is a prospective randomized study performed on 50 patients divided into OSS group and PNL group (25 patients for each group) during the period from December 2018 to January 2020. Perioperative assessment and investigations were done. Intraoperative and postoperative morbidity, operative time, hospital stay, and stone clearance at discharge home and follow-up were compared for both techniques. Follow up was completed for all cases with a mean duration 2 months. **Results:** Stone-clearance was higher in OSS group (92%) versus (84%) in PNL group with no significant difference. Mean operative creatinine rise in OSS group was (0.19 ± 0.1 mg/dl) and in PNL group was (0.14 mg/dl ± 0.07 mg/dl). There is statistically significant creatinine rise with p-value <0.05 in OSS group. Mean operative hemoglobin loss in OSS group was (1.5 ± 0.85 mg/dl) and in PNL group was (1.65 ± 0.90 mg/dl) with no significant difference. Intraoperative complications were (28%) in OSS group and included significant bleeding in (16%) and pleural injury in (12%) and in PNL group was (24%) and included bleeding (12%) and renal pelvis injury (12%) with no significant difference. Regarding post-operative complications OSS group showed (36%) postoperative complications and PNL group showed (24%) post-operative complications. Operative time was significantly shorter for OSS (131 ± 10 min) than for PNL (174 ± 14.9 min) with p value 0.001. Post-operative hospital stay was significantly shorter in PNL Group (3.92 ± 1.3 days) versus OSS group (5.88 ± 1.2 days). Recovery time was significantly shorter (2.33 ± 0.48 weeks) for PNL cases versus (4.48 ± 0.71 weeks) for OSS cases. **Conclusions:** PNL is a valuable treatment option for staghorn stones with a stone free rate approaching that of open surgery. Also it has less morbidity, with shorter hospital stay and earlier returns to work. **Key words:** Staghorn stones; PNL; OSS.