

P009

Dusting versus basketing when performing flexible ureteroscopy lithotripsy for the management of ≤ 2 renal stone: An evidence from a single-center randomized controlled trial

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Introduction & Objectives: To evaluate the efficiency and safety of dusting versus basketing when performing flexible ureteroscopy lithotripsy for the management of renal stone less than 2 cm.

Materials & Methods: This is a single-center, prospective, randomized controlled trial. Patients stone size less than 2 cm, normal renal function and older than 18 years old were enrolled in the study. The eligible patients were randomly divided into two groups: dusting and basketing group. Perioperative data were recorded and compared between the two groups.

Results: A total of 150 patients were enrolled from October 2017 to February 2019, and 146 patients were included for statistical analysis: 72 in Basketing group (One case was converted to PCNL due to ureteral stricture and 2 cases were lost to follow-up) and 74 in Dusting group (1 cases was lost to follow-up). There were no significant differences in age, sex, BMI, stone characteristic between the two groups. Operation time was no significant difference between the two groups (21.61 ± 13.1 min vs 23.62 ± 13.52 min, $P=0.363$). The proportion of hydronephrosis in the Dusting group was higher than that in the Basketing group (82.43% VS 68%, $P=0.04$). There was no significant difference in the complications rate between the Basketing group and the Dusting group (18.06% VS 18.92%, $P=0.893$). Complications occurred in 13 cases in the Basketing group. One case was hospitalized in ICU due to urinary sepsis and was discharged from hospital. The rest were grade I complications such as fever, pain and so on. 14 cases in the Dusting group had complications. All of these were grade I complications. Calcium oxalate calculi were predominant in both groups (79.63% vs 72.92%, $P=0.425$). The stone free rate of Basketing group was lower than that of Dusting group (61.11% VS 79.73, $P=0.014$). Among patients with stones less than 1.5 cm, 38 patients in the Basketing group and 28 patients in the Dusting group, there was no significant difference in stone free rate between the two groups (78.95% vs 85.71%, $P=0.481$). However, in patients with 1.5-2.0cm stone, the stone free rate of Dusting group was significantly higher than that of Basketing group (76.09% vs 41.18, $P=0.002$).

Conclusions: For the patients with kidney or upper ureteral stone less than 1.5 cm, Basketing and Dusting are safe and effective. For the patients with 1.5-2 cm kidney or upper ureteral stone, dusting is still a safe and effective holmium laser lithotripsy way. If Basketing was chosen, the stone should be set out as far as possible to improve the stone free rate.