Upper Urinary Tract Calculus Is the Highest Risk for Nephrectomy for Non-Renal Tumor Patients: A Single Center Study Over 10 Years

Introduction and Objective: The existence of upper urinary tract calculus may cause complete loss of renal function which eventually results in nephrectomy. To describe the prevalence and clinical characteristics of upper urinary tract calculus cases among a series of nephrectomized patients during 10 years.
Materials and Methods: The data of 1,059 nephrectomized patients between January 2001 and December 2010 in our center were reviewed. The prevalence and clinical characteristics of upper urinary tract calculi derived non-functioning kidney were analyzed.
Results: Among 1,059 patients, 177(16.7%) ones were non-functioning kidneys, which were second to renal tumor cases (801, 75.6%). Upper urinary tract calculi accounted for the most cause (101, 57.1%) in these non-functioning kidney cases. These patients were mainly screened by ultrasound and confirmed by CT, IVU and nuclear renography. There were 48(47.5%) males and 53(52.5%) females (compared with urolithiasis gender-different incidence, $P<0.05$). The mean age was 52.2±12.7 (15-74 years) including 50.7±12.0 in males and 53.4±13.3 in females ($P>0.05$). There were 44(43.6%) patients with single renal stone in ureteropelvic junction, 36(35.6%) with single ureteral stone and 21(20.8%) with multiple unilateral renal and ureteral stones. The average size of renal stones and ureteral stones were 15.6±8.8mm (4-50mm) and 13.4±4.0mm (4-21mm) in diameter respectively. Prevalence of urolithiasis derived non-functioning kidney had not changed significantly during 10 years even showed a slight increase. Most of the stones were more than 10mm in diameter. The females or patients in low living standard were more likely to develop non-functioning kidney.
Conclusion: Prevalence of urolithiasis derived non-functioning kidney had not changed significantly. Patients with middle age, female gender, low living standard and upper urinary tract calculus (>10mm) were more at risk to develop non-functioning kidney. Regular urinary system health examination is recommended. Routine follow-up of urolithiasis is also recommended for patients with stone history to prevent renal dysfunction.