Extracorporeal Shockwave Lithotripsy versus Ureteroscopy for Ureteral Calculi after Obstructive Pyelonephritis

Introduction and Objective: An obstructed, infected kidney with ureteral stones can be lethal and requires urgent drainage and complete stone removal. However, the optimal method of stone removal after controlling pyelonephritis has yet to be discussed. The objective of this study is to compare the safety and efficacy of extracorporeal shockwave lithotripsy (ESWL) and ureteroscopy (URS) for ureteral stones after obstructive pyelonephritis.
Materials and Methods: We reviewed the records of patients treated by ESWL or URS for ureteral stones with obstructive pyelonephritis from June 2006 to September 2011. ESWL was performed using the electromagnetic lithotripter (Dornier Delta and Delta Ⅱ), and URS was performed using 8Fr semirigid ureteroscope. We compared the preoperative characteristics of these patients, success rates, retreatment rates, auxiliary procedures, and complications in each group.
Results: A total of 88 patients (ESWL: 40 patients, URS: 48 patients) received treatment of stone removal for ureteral stones after controlling obstructive pyelonephritis. The decompression of obstructed, infected kidney was performed by retrograde ureteral stenting except for 3 and 2 cases with nephrostomy in EWSL and URS group, respectively. The severity of preoperative pyelonephritis, such as the percentage of intensive management was similar (25% vs 14.6%, respectively). The success rate was 67.5% for ESWL and 98% for URS. The retreatment and auxiliary rate was significantly greater in the ESWL groups than in the URS groups (90% vs 0% and 32.5% vs 2%, respectively). The complication rate was similar in each group (7.5% vs 6.3%, respectively).
Conclusions: These results indicate that, although both ESWL and URS for the removal of ureteral stones after obstructive pyelonephritis can be safely performed with a low complication rate, URS is more effective with a lower retreatment rate.