The Predictive Factors for Complications of Semi-Rigid Ureteroscopy Using Holmium YAG Laser Lithotripsy

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ABSTRACT

Although laser lithotripsy has improved the efficacy of ureteroscopic management of ureteric stones, significant complications still occur. Several factors were found to be associated with the occurrence of such complications. To predict the factors that might be associated with complications during ureteroscopy using laser stone fragmentation. A retrospective study (Jan 2022–Sep 2025) and a prospective study(Jan 2022–Sep 2025) were performed on 1073 patients with stones in the ureters recruited from multiple hospitals in Mosul City (Iraq). Clinical assessment of the patient's condition was conducted, focusing on postoperative complications. Among the study sample, the overall complications were 4.8%. The most frequent complications were mucosal tear in 33.3% and postoperative fever in 23.5%. Most of the patients with complications were males, and the stone was located on the left side, with no statistically significant differences. Significant differences were found concerning the presence of ureteric abnormality (stricture, stenosis or ureteric kink), the stone diameter, ureteric stone location, the number, and the diameter of the ureteroscope used. The complications were low with no gender discrepancy, but several factors, such as the presence of ureteric abnormalities, diameter of the stone more than 10 mm, presence of multiple stones, stones in the proximal part of the ureter, together with using the larger size ureteroscopes, were associated with higher frequencies of complications.

Keywords: Complications, Holmium YAG laser, Lithotripsy, Semi-rigid ureteroscopy.

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