Stricture Ureter after Ureteroscopic Treatment for Ureteral Calculi: Multicenter Long-Term Prospective Study

Introduction and Objectives: Asymptomatic ureteral obstruction is rare, but it constitutes a potentially late complication after ureteroscopic stone removal. Our purpose is to determine the incidence of postoperative symptomatic and silent obstruction, and to assess the methods and time of follow-up for both uncomplicated and complicated ureteroscopic procedures in a large multicenter study.
Materials and Methods: A total of 1980 patients with complete follow-up underwent rigid or flexible ureteroscopy for ureteral calculi with/without lithotripsy in two large centers (Tanta University and Washington University). Extraction of the whole stone or its fragmentation to less than 2mm was considered a success. The follow-up period ranged from 12 to 68 months with a mean of 42 months. The first post-operative visit was usually at 4-6 weeks followed by 3-6 months postoperatively and yearly thereafter. Postoperative evaluation included assessment of pain by pain analogue scale and intravenous urography (IVU) or spiral CT scan.
Results: The overall success rate was 98.5%. The failure cases (30 cases) were related to the size of the stone (<1cm , 1-2cm and > 2cm) in 3, 11 , and 16 cases respectively. With these stone size parameters, the success rate was 99.6%, 98.8% and 92.7% respectively with statistically insignificant difference (P=0.06) between the first 2 groups and significant difference (P<0.0001) with the last group of stone size > 2cm. In 8 cases, perforation occurred, 4 of them (50%) developed ureteric stricture. Stricture was encountered in 12 cases (0.6%) detected during the radiologic follow-up at 6, 13, 18 months in 8,3 and one case respectively. Stricture ureter was seen in 4.4% of cases with stone size ≥ 2cm compared to 0.17% in patients with smaller stone size (P<0.001). Fourteen patients had recurrent renal pain (0.7%), 5 of them (35.7%) were nonobstructed on frequent radiological evaluation while in 9 cases pain was associated with obstruction compared to silent obstruction encountered in 3 cases (0.15%) on regular follow up. The negative and positive predictive values for pain were as 99.8% and 64.3%, respectively.
Conclusions: Our results indicate that radiologic surveillance for stricture formation and obstruction is mandatory in symptomatic cases after ureteroscopic stone removal. While surveillance up to 18 months is indicated in patients with history of intraoperative ureteral complications (perforation or false passage) and cases with stone size ≥ 2cm.