

## **Secondary intervention due to symptomatic ureteral stones is not necessary in the majority of patients after previous stenting**

### **Introduction and Objective**

Over the past 20 years, ureteroscopy (URS) has become one of the most popular treatment options for patients with ureterolithiasis. While prestenting is usually not necessary if the ureteral stones is <1 cm, some clinical situations (e.g. obstructive pyelonephritis) require stent placement for a short period. While the stent dilates the ureter, thus facilitating spontaneous stone passage, the question arises whether secondary intervention is necessary at all. We thus evaluated whether our institutional approach of removing the ureteral stent the day before secondary intervention in local anesthesia can spare the patient this intervention.

### **Methods:**

Retrospective analysis of 216 patients who had previously been stented due to a symptomatic ureteral stone and who were scheduled for secondary intervention from 01/2013 to 01/2018 at our institution. The stent was removed under local anaesthesia. Patients were told to filter their urine overnight. Spontaneous stone passage or persistence of the stone was documented either by presenting the filtered stone and/or radiologically. To evaluate potential predictors for spontaneous stone passage (stone size, location, composition, stent dwell time, patient age and sex), a multivariable logistic regression was performed.

### **Results:**

Median stone size was 5 mm (IQR:4-6). 26% of stones were located in the proximal, 25% in the mid-, and 49% in the distal ureter. 129/216 (60%) patients had spontaneous stone passage after a median stent dwell time of 4 weeks (IQR:3-5): 72/129 (56%) before and 57/129 (44%) within 24 hours after stent removal. In only

87/216 (40%) pre-stented patients a secondary intervention was necessary. Multivariable logistic regression analysis showed a significant association between spontaneous stone passage and stone size (OR:0.67, 95%CI: 0.55-0.83;  $p<0.001$ ), distal stone location (OR:2.17, 95%CI: 1.01-4.67;  $p=0.049$ ) and stent dwell time (OR:1.20; 95%CI: 1.03-1.40;  $p=0.02$ ).

### **Conclusions:**

The majority (60%) of ureteral stones passed spontaneously after stenting, especially if they were small and located in the distal ureter; 44% of these stones passed within 24 hours after stent removal. Thus, a stent should be removed at least one day before secondary intervention in order to avoid unnecessary surgery.

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