

# Dusting and pop-dusting for kidney stone disease: Video and outcomes

Amelia Pietropaolo , Matthew Schembri , Bhaskar K. Somani 

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## Keywords:

Laser; pop-dusting; stone free.

## Introduction

Ureterscopy and laser stone fragmentation (URSL) can now be performed using the “dusting and pop-dusting” method.<sup>[1]</sup> The method comprises a two-stage combined treatment using the long-pulse Ho:YAG laser: initially in contact with the stone (“dusting”) with energy setting 0.2–0.5 J and frequency 40–50 Hz, followed by the non-contact mode (“pop-dusting”; 0.5–0.7 J/20–40 Hz). Herein, we intend to examine the outcomes of this method for renal and ureteric stones using a 100-W holmium laser.

## Methods

Over a period of 30 months (February 2016–July 2018), we used this technique for stone disease. Data were collected prospectively on the outcomes of URSL using this technique (Table 1). The video shows a case of a large renal stone treated with a 100-W high-power Ho:YAG system (Lumenis, Inc.) The technique described uses an energy setting of 0.3–0.6 J and frequency of 20–50 Hz for a long pulse with a 272- $\mu$ m fiber.

## Results

A total of 62 patients with a mean age of 48 years (range: 2–88 years) underwent “dusting and pop-dusting” procedure.<sup>[2,3]</sup> The mean single and overall stone size was 9.6 mm (range: 3–23 mm) and 19.2 mm (range: 3–52 mm), respectively. A pre-operative stent and a post-operative stent were present in 30 (44.7%) and 59 (88%) cases, respectively. The initial and fi-

**Table 1. Outcomes of “dusting and pop-dusting” procedure**

Male: female (n)	42:20
Mean age (SD), years (range)	48 (19.1), (2–88)
Mean (SD) single stone size in mm (range)	9.6 (5.5), (3–23 mm)
Mean (SD) cumulative stone size in mm (range)	19.2 (11.8), (range 3–52 mm)
Stone location	
Lower calyx	41
Renal pelvis	21
Upper calyx	13
Middle calyx	9
Pelvi-ureteric junction	4
Ureter	19
Multiple renal stones	36
Multiple stones—kidney + ureter	19
Number of renal units	67
Pre-operative stent, n (%)	30 (44.7%)
Post-operative stent placement, n (%)	59 (88%)
Access sheath (57%)	
9.5/11.5 F	10
12/14 F	26
14/16 F	2
Complications	1 (Clavien IV, Urosepsis, ICU admission)
Stone-free rate, n (%)	
Initial	93%
Final	98%

## ORCID iDs of the authors:

A.P. 0000-0001-7631-3108;  
M.S. 0000-0001-7915-2127;  
B.K.S. 0000-0002-6248-6478.

Department of Urology,  
University Hospital  
Southampton NHS Foundation  
Trust, Tremona Road,  
Southampton, UK

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## Corresponding Author:

Amelia Pietropaolo  
E-mail:  
amelia Pietr@gmail.com

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www.turkishjournalofurology.com

nal stone free rate (SFR) were 93% and 98%, respectively. There was only one complication: a Clavien IV complication related to urosepsis but without any other major or minor intra- or post-operative complications. Dusting and pop-dusting techniques achieve an excellent stone clearance without the need for secondary procedures in most cases.

## Conclusion

Dusting and pop-dusting has shown to achieve excellent SFR and the ability to treat large, bilateral or multiple stones.

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**Informed Consent:** Written informed consent was obtained from patients who participated in this study.

**Peer-review:** Externally peer-reviewed.

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