



Withdraw of the Ureteroscope Causes Fragmented Ureter Stones to Disperse

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ABSTRACT

Introduction: Ureteroscopy has improved from the first use of ureteroscope in the 1970's. Although the success rate increased in the last years, (1) new treatment techniques are being developed for impacted and large proximal ureter stones (2). Pneumatic lithotripsy has high efficiency with low complication rates (2). However, in case of steinstrasse and large (> 1 cm) ureter stones, fragmented small stones may obstruct insertion of a ureteroscope after initial lithotripsy. In order to triumph over this issue, multiple ureteroscopic passages and manipulations needed for extraction of these small stones by forceps or basket catheters. The overall incidence of stricture was found upto 14.2% when the fragments were removed with a grasping forceps or a basket (3). We present our technique to disperse small fragmented stones in order to contact non-fragmented rest stone.

Materials and Methods: Ureteral lithotripsy was performed with an 8-9.8F semirigid ureteroscope using a pneumatic lithotripter (Swiss LithoClast, EMS, Nyon, Switzerland). The stone was fragmented into small pieces as small as 2-3 mm. by pneumatic lithotripter. Eventually, these fragmented stones interfered with vision and the lithotripter to get in touch with the rest stone. After fragmenting distal part of the large stone, the ureteroscope was pulled back out of ureter. While pulling back, the operating channel was closed and irrigation fluid was flowing in order not to decrease pressure behind the stones. Simultaneously, a person tilted the operating table to about 30° in reverse Trendelenburg position. When the ureteroscope was out of ureteral orifice, the operating channel was opened and irrigation fluid was stopped. This maneuver aided decreasing pressure in the bladder more rapidly in addition to feeding tube. Stone dust and antegrade fluid flow were easily seen out of the ureteral orifice. Ureteroscope was re-inserted after 30-60 seconds. While reaching the rest of the stone, small stone dust was seen at first. Bigger stones were approximately 3-5 cm distal to the original place of the stone. When the non-fragmented rest stone appeared, there were no blocking fragmented stones. Insertion of the ureteroscope was easy and we could go on with the lithotripsy procedure.

Conclusions: In comparison to standard position, tilting and rapid decrease in pressure by pulling back the ureteroscope made gravity and negative pressure more effective.

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EDITORIAL COMMENT

In the present video, the authors describe a technique to promote small ureteral stone fragment expulsion using a combination of pressure gradient and patient re-positioning (i.e. reverse trendelenburg) at time of ureteroscopic stone pneumatic lithotripsy. Although this video does not highlight a truly novel technologic advancement in ureteral

stone management, the authors detail technical considerations that can not only optimize stone fragment expulsion but similarly improve surgical proficiency. As we embark in a new era of medical and surgical care in which where we are judged not only on surgical outcomes as healthcare providers but as well on our optimized utilization of surgical resources, such original technical novelties are to be commended and encouraged.

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