The end of “Cutting for Stone”? Using the lithoclast trilogy for cystolitholapaxy on a 4 cm bladder stone per urethra

Brian C. Sninsky, Jason F. Flamiatos*, Stephen Y. Nakada

Department of Urology, University of Wisconsin, 600 Highland Avenue, Madison, WI, 53792, USA

ARTICLE INFO

Keywords:
Cystolitholapaxy
Lithoclast trilogy
Holmium laser

ABSTRACT

We present a case of cystolitholapaxy using the LithoClast Trilogy lithotripter device per urethra via a rigid 26F nephroscope in a 36-year-old female with chondrodysplasia, paraplegia, contractures, and history of bladder augment managed with clean intermittent catheterization. The stone was 4 cm in diameter with an average of 1300 Hounsfield Units, and composed of 45% calcium phosphate, 40% struvite, and 15% ammonium urate. Advantages include faster fragmentation time versus holmium laser, improved safety with suction extraction and improved vision, ability to treat larger stones endoscopically, and control of all variables by one surgeon with only a single foot pedal.

Introduction

Open cystolithotomy remains standard for extremely large or multiple bladder stones. However, in highly complex patients with specific anatomical or physiological challenges such as severe contractures or poor wound healing, a reasonable alternative should be explored to reduce morbidity. Cystolitholapaxy with the holmium laser would consume a considerable amount of operating time and lengthen anesthesia duration for these complex patients. We present a to our knowledge the first case of using the EMS LithoClast Trilogy lithotripter device that combines an electromagnetic impactor with ultrasonic energy and suction in one single probe per urethra for cystolitholapaxy in a complex patient.

Case presentation

A 36-year-old female with a history of chondrodysplasia, paraplegia, severe contractures, and history of bladder augment managed with clean intermittent catheterization presented with recurrent bladder infections. She was found on computed tomography (CT) to have a 4 cm ovoid bladder stone with average Hounsfield units of 1300 (see Image 1 for pre-operative images CT images). Given the patient’s challenging anatomy and concern for poor wound healing if an open approach was considered, we decided to proceed endoscopically. Ultimately, we used the LithoClast Trilogy lithotripter device for cystolitholapaxy in contrast to the holmium laser. Operative time to being stone free was 43 minutes, compared to what would have been a significantly longer operative time using the holmium laser (see Video 1 and Image 2 for intra-operative footage). The patient tolerated the procedure well and returned home on post-operative day one in stable condition. Stone analysis showed a composition of 45% calcium phosphate, 40% struvite, and 15% ammonium urate.

Discussion

This is the first case report to our knowledge of using the LithoClast Trilogy lithotripter per urethra via nephroscope for large bladder stones in complex patients that otherwise would require cystotomy. The utilization of this for female patients given anatomical considerations is reasonable, however access for male patients may require a smaller endoscope. This procedure ultimately prevented our patient from a more morbid procedure that she may have had much difficulty recovering from.

Conclusion

The LithoClast Trilogy lithotripter per urethra via 26Fr nephroscope is a reasonable alternative to cystotomy for treatment of large bladder stones in complex patients where “Cutting for Stone” via open approach may pose the patient to excess morbidity.

* Corresponding author. 600 Highland Ave, Madison, WI, 53792, USA.
E-mail address: jflamiatos@uwhealth.org (J.F. Flamiatos).

https://doi.org/10.1016/j.eucr.2019.100964
Received 1 July 2019; Accepted 10 July 2019
Available online 10 July 2019

2214-4420/ © 2019 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/BY-NC-ND/4.0/).
Conflict of interest statement

Dr. Nakada is a consultant for Boston Scientific Corporation.

Funding source

None.

References


Consent

Written permission for use of this content has been provided.