

Submission ID #: 68425

Scriptwriter Name: Sulakshana Karkala

Project Page Link: <https://review.jove.com/account/file-uploader?src=20869673>

Title: Transmesenteric Laparoscopic Pyeloplasty in Trendelenburg Position for Horseshoe Kidney with Hydronephrosis

Authors and Affiliations:

Zhaohui Chen^{1,2*}, Ming Xiong^{1*}, Ruixiang Dai¹, Huiling Jiang¹, Yongqiang Wang¹, Song Wu¹, Teng Hou^{1,3}

¹Department of Urology, South China Hospital, Medical School, Shenzhen University

²Department of Urology, Shenzhen People's Hospital

³Shenzhen Huazhong University of Science and Technology Research Institute

***These authors contributed equally**

Corresponding Authors:

Teng Hou (1aiyan@szu.edu.cn)
Song Wu (wusong@szu.edu.cn)

Email Addresses for All Authors:

Zhaohui Chen (zhaohuichen@hust.edu.cn)
Ming Xiong (urology.doctor.xiong@gmail.com)
Ruixiang Dai (xiaodai139@126.com)
Huiling Jiang (jiang18033415035@163.com)
Yongqiang Wang (wangyongqiang@szu.edu.cn)
Song Wu (wusong@szu.edu.cn)
Teng Hou (1aiyan@szu.edu.cn)

Author Questionnaire

1. Software: Does the part of your protocol being filmed include step-by-step descriptions of software usage? **No**

2. Filming location: Will the filming need to take place in multiple locations? **No**

Current Protocol Length

Number of Steps: 13

Number of Shots: 27

Introduction

Videographer: *Obtain headshots for all authors.*

NOTE to VO producer: Please generate the VO for this section 1 introduction

NOTE: This script is in old format, hence there will be 6 questions and 1st question will not be displayed. Display all other questions, authors chose this order a informed by the writer

REQUIRED: ~~Briefly describe this case, the treatment reported here, and the outcome of this treatment.~~

- 1.1. This case describes transmesenteric laparoscopic pyeloplasty in Trendelenburg position for a patient with a horseshoe kidney and hydronephrosis. The symptoms were successfully relieved and there were no complications.

1.1.1. *B.roll:2.6.2*

How does this case contribute to the current knowledge in your field?

- 1.2. This case shows that transmesenteric intraperitoneal laparoscopic surgery in Trendelenburg position is a feasible and safe alternative for treating UPJO in horseshoe kidney patients.

1.2.1. *B.roll:2.8.1* **TXT: UPJO: Ureteropelvic Junction Obstruction**

Did this case involve any unique or rare clinical presentations?

- 1.3. The patient had UPJO caused by a crossing gonadal vein, which is relatively rare in horseshoe kidney cases.

1.3.1. *B.roll:2.9.1*

Were there any specific challenges or unusual circumstances during this case's management?

- 1.4. The mesenteric approach required careful dissection to avoid intestinal injury, especially in this patient.

1.4.1. *B.roll: 2.11.1*

~~Were there any complications or challenges during the treatment that required adjustments?~~

- ~~1.5. Eight weeks after surgery, the stent was removed and ultrasound confirmed improvement in hydronephrosis.~~

1.5.1. ~~B.roll:2.13.1~~ **NOTE: This answer can be skipped as it not apt**

Were there any considerations involved in the management of the case?

1.6. Understanding of the patient's mesenteric anatomy was key to the safe execution of this technique.

1.6.1. *B.roll:2.13.2*

Videographer: Obtain headshots for all authors.

Ethics Title Card

This research has been approved by the Ethics Committee of South China Hospital, Affiliated to Shenzhen University

Protocol

2. Laparoscopic Pyeloplasty Using the Transmesenteric Approach

Demonstrator: Teng Hou

NOTE: 2.1 to 2.5 are not filmed

~~2.1. The patient was positioned in a 30-degree Trendelenburg position with their head down [1]. The primary surgeon and assistant stood on the patient's right side, while the scrub nurse stood on the left side [2].~~

~~2.1.1. WIDE: Talent adjusting the surgical table and positioning the patient with head tilted downward.~~

~~2.1.2. Talent standing arrangements showing surgeon and assistant on the right and nurse on the left.~~

~~2.2. A 2-centimeter infraumbilical incision was made using a scalpel [1]. Then a 10-millimeter blunt trocar was introduced under direct visualization to enter the abdominal cavity using the Hasson technique [2].~~

~~2.2.1. Talent making a small incision below the umbilicus using a scalpel.~~

~~2.2.2. Talent inserting a blunt trocar while looking at the monitor.~~

~~2.3. Pneumoperitoneum was achieved by carbon dioxide insufflation until the intraabdominal pressure reached between 12 and 14 millimeters of mercury [1]. A 30-degree laparoscope was inserted into the 10-millimeter infraumbilical port [2].~~

~~2.3.1. Talent adjusting insufflation settings on the laparoscopic insufflator.~~

~~2.3.2. Talent inserting the laparoscope into the infraumbilical trocar.~~

~~2.4. Under direct visualization, two other trocars were placed at the iliac crest level, at 6 centimeters to the right and left of the camera port [1]. Another 12-millimeter trocar was placed adjacent to the umbilicus [2].~~

~~2.4.1. Talent placing 2 trocars at the left and right of the camera port.~~

~~2.4.2. Talent placing an additional trocar near the umbilicus under laparoscopic~~

guidance.

~~2.5. In patients with a short pubis to umbilicus distance, the umbilicus port was placed first to allow direct vision for placing the infraumbilical port, minimizing the risk of bladder injury [1].~~

~~2.5.1. Talent inserting the umbilical trocar first under direct vision, showing a shorter anatomical distance.~~

NOTE: The surgery timestamps were provided by the authors. The same have been put in red font and slight adjustments were made based on the footage.

2.6. A full abdominal inspection was performed laparoscopically to observe retroperitoneal organs and mesenteric fat thickness to assess the feasibility of transmesenteric surgery [1]. A 3-to-4-centimeter longitudinal incision was made through the mesentery of the descending colon using an ultrasonic scalpel to create an opening while avoiding blood vessels and the intestine [2].

2.6.1. SCOPE: Panoramic laparoscopic view of the abdominal cavity showing organs and mesenteric fat. **File name: 68425.mp4 Timestamps: 00:00 – 00:10.**

2.6.2. SCOPE: Laparoscopic view showing mesenteric incision being made over the pelvis with the ultrasonic scalpel. **File name: 68425.mp4 Timestamps: 11:00 – 01:11.**

2.7. The mesenteric fascia was dissected to expose the renal pelvis and left ureter [1]. The ascending portion of the duodenum along the dissection plane was visualized [2].

2.7.1. SCOPE: Laparoscopic view of the renal pelvis and ureter exposure. **File name: 68425.mp4 Timestamps: 01:44–01:48 and 02:20-02:24**

2.7.2. SCOPE: Ascending duodenum seen through the laparoscope during dissection. **File name: 68425.mp4 Timestamps: 02:37– 02:45**

2.8. After mobilizing the ureteropelvic region, a crossing branch of the genital gland vein was identified as the cause of UPJ obstruction [1-TXT]. Upon confirming it as a vein, it was ligated [2]. In cases of ectopic artery compression, the artery was transposed and a dismembered pyeloplasty was performed [3].

2.8.1. SCOPE: Laparoscopic view showing identification of crossing vein. **TXT: Ureteropelvic Junction. File name: 68425.mp4 Timestamps: 02:48– 03:05**

2.8.2. SCOPE: Talent using clip applier to ligate the vein. **File name: 68425.mp4 Timestamps: 03:26– 03:32 and 05:16– 05:22.**

2.8.3. SCOPE: Arterial transposition and dismembered pyeloplasty is being performed.

File name: 68425.mp4 Timestamps: 06:02– 06:17.

- 2.9. A non-dismembered pyeloplasty was then performed by making a 3- to 4-centimeter-long incision, from the lateral aspect of the proximal ureter to the renal pelvis using laparoscopic scissors [1]. The posterior walls of the ureter and pelvis were sutured using a 4-0 (*four-Oh*) absorbable running suture [2].
- 2.9.1. SCOPE: Laparoscopic scissors cutting from ureter to renal pelvis. File name: 68425.mp4 Timestamps: 06:59– 07:05\11:40–11:50.
- 2.9.2. SCOPE: Posterior wall anastomosis using running suture. File name: 68425.mp4 Timestamps: 19:41– 19:45\ 50:35– 50:42.
- 2.10. A guide wire was passed through the proximal ureter into the bladder [1]. Then a 4.7 French Double-J stent was passed over the guide wire into the bladder [2]. The proximal end of the stent was placed within the renal pelvis [3].
- 2.10.1. SCOPE: Insertion of guide wire through ureter. File name: 68425.mp4 Timestamps: 53:32– 53:42.
- 2.10.2. SCOPE: Placement of Double-J stent over the wire. File name: 68425.mp4 Timestamps: 53:45– 54:42.
- 2.10.3. SCOPE: Final positioning of stent's proximal end in renal pelvis. File name: 68425.mp4 Timestamps: 59:08– 59:28.
- 2.11. The anterior anastomosis was completed by suturing the proximal pelvis and ureter with 4-0 polyglactin sutures on a half-circle needle [1]. The ureteropelvic anastomosis was performed using 4-0 polyglactin sutures on a half-circle, round-bodied needle [2].
- 2.11.1. SCOPE: The anterior wall anastomosis is being done using absorbable sutures. File name: 68425.mp4 Timestamps: 01:09:24–01:09:34\01:11:20–01:11:28.
- 2.11.2. SCOPE: The ureteropelvic anastomosis was done with 4-0 polyglactin sutures. File name: 68425.mp4 Timestamps: 01:00:50.–01:01:21.
- 2.12. The mesenteric incision was closed with running 4-0 polyglactin sutures [1]. The surgical field was inspected for bleeding, urine leaks, or gastrointestinal injuries [2].
- 2.12.1. SCOPE: Mesenteric closure using running sutures. File name: 68425.mp4 Timestamps: 01:36:55–01:37:14\ 01:41:10–01:41:37.
- 2.12.2. SCOPE: Laparoscopic inspection of the abdominal cavity for complications. File name: 68425.mp4 Timestamps: 01:40:57–01:41:37.
- 2.13. A drainage tube was placed adjacent to the mesenteric window ensuring no contact

with the anastomosis [1]. The peritoneum and fascia were closed using continuous 3-0 absorbable sutures and the skin was closed with interrupted 4-0 absorbable sutures [2].

2.13.1. Talent placing drainage tube carefully near mesenteric window. File name: 68425.mp4 Timestamps: 01:46:10–01:46:30

2.13.2. Talent suturing peritoneum, fascia, and skin in sequence. File name: 68425.mp4 Timestamps: 01:46:10–01:46:30

Results

3. Results

AUTHORS: Please note that the results need to have corresponding figures or tables or graphs. Since the figures provided are all of the protocol, this section has not been scripted.

NOTE: No results

1. Laparoscopically
Pronunciation link: <https://www.merriam-webster.com/dictionary/laparoscopically>
IPA: /ləˌper.ə'skɑː.pɪ.kli/
Phonetic Spelling: luh·peh·ruh·skah·puh·klee
2. Retroperitoneal
Pronunciation link: <https://www.merriam-webster.com/dictionary/retroperitoneal>
IPA: /ˌre.trəˌper.ə.tə'niː.əl/
Phonetic Spelling: reh·troh·peh·ruh·tuh·nee·uhl
3. Mesenteric
Pronunciation link: <https://www.merriam-webster.com/dictionary/mesenteric>
IPA: /ˌmez.ən'ter.ɪk/
Phonetic Spelling: meh·zuhn·tehr·ik
4. Transmesenteric
Pronunciation link: <https://www.merriam-webster.com/dictionary/transmesenteric>
IPA: /ˌtrænzˌmez.ən'ter.ɪk/
Phonetic Spelling: tranz·meh·zuhn·tehr·ik
5. Ultrasonic
Pronunciation link: <https://www.merriam-webster.com/dictionary/ultrasonic>
IPA: /ˌʌl.trə'sɑː.nɪk/
Phonetic Spelling: uhl·truh·sah·nik
6. Duodenum
Pronunciation link: <https://www.merriam-webster.com/dictionary/duodenum>
IPA: /ˌduː.ə'diː.nəm/, /ˌduː.oo'diː.nəm/
Phonetic Spelling: doo·uh·dee·nuhm, doo·oh·dee·nuhm
7. Ureter
Pronunciation link: <https://www.merriam-webster.com/dictionary/ureter>
IPA: /jʊ'riː.tər/, /'jʊr.iː.tər/
Phonetic Spelling: yoo·ree·ter, yoor·ee·ter
8. Ureteropelvic
Pronunciation link: <https://www.merriam-webster.com/dictionary/ureteropelvic>

IPA: /jʊˌrɪː.tə.roʊˈpel.vɪk/

Phonetic Spelling: yoo·ree·tuh·roh·pel·vik

9. Pyeloplasty

Pronunciation link: <https://www.merriam-webster.com/dictionary/pyeloplasty>

IPA: /ˈpaɪ.ə.loʊ.plæs.ti/

Phonetic Spelling: pie·uh·loh·plas·tee

10. Anastomosis

Pronunciation link: <https://www.merriam-webster.com/dictionary/anastomosis>

IPA: /əˌnæs.təˈmoʊ.sɪs/

Phonetic Spelling: uh·nas·tuh·moh·suhs

11. Polyglactin

Pronunciation link: <https://www.merriam-webster.com/medical/polyglactin>

IPA: /ˌpɑː.liˈglæk.tɪn/

Phonetic Spelling: pah·lee·glak·tin

12. Peritoneum

Pronunciation link: <https://www.merriam-webster.com/dictionary/peritoneum>

IPA: /ˌper.ə.təˈniː.əm/

Phonetic Spelling: peh·ruh·tuh·nee·uhm

13. Gastrointestinal

Pronunciation link: <https://www.merriam-webster.com/dictionary/gastrointestinal>

IPA: /ˌgæs.troʊ.ɪnˈtes.tən.əl/, /ˌgæs.troʊ.ɪnˈtes.tai.nəl/

Phonetic Spelling: gas·troh·in·tes·tuh·nuhl, gas·troh·in·tes·ty·nuhl

14. Laparoscope

Pronunciation link: <https://www.merriam-webster.com/dictionary/laparoscope>

IPA: /ˈlæp.ə.rəˈskoʊp/

Phonetic Spelling: lap·uh·ruh·skohp

15. Proximal

Pronunciation link: <https://www.merriam-webster.com/dictionary/proximal>

IPA: /ˈprɑːk.sə.məl/

Phonetic Spelling: prok·suh·muhl

16. Ectopic

Pronunciation link: <https://www.merriam-webster.com/dictionary/ectopic>

IPA: /ekˈtɑː.pɪk/

Phonetic Spelling: ek·tah·pik

17. Ligated

Pronunciation link: <https://www.merriam-webster.com/dictionary/ligate>

IPA: /ˈlaɪ.geɪt/

Phonetic Spelling: lie·gayt