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Title: Laparoscopic Pyeloplasty via Transmesenteric Approach for Pediatric Ureteropelvic Junction Obstruction

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Author Questionnaire

1. We have marked your project as author-provided footage, meaning you film the video yourself and provide JoVE with the footage to edit. JoVE will not send the videographer. Please confirm that this is correct.

✓ Correct

2. **Interview statements:** Which interview statement filming option is the most appropriate for your group? **Please select one.**



Interview Statements are read by JoVE's voiceover talent.

Current Protocol Length

Number of Steps: 15

Number of Shots: 33

Interviews

Authors: Please note that **the questions will not appear on screen**. Please answer in **stand-alone full sentence with sufficient context**.

Authors: Please verify if the suggested B-rolls are appropriate.

NOTE to VO producer: Please generate the interview VO

INTRODUCTION:

~~REQUIRED:~~ Briefly describe the clinical case presented in this video and the treatment approach used.

- 1.1. An 8-year-old boy with left ureteropelvic junction obstruction underwent transmesenteric laparoscopic pyeloplasty.

1.1.1. B-roll: 2.3.3

~~Explain why this treatment approach was selected for this particular case.~~

- 1.2. The transmesenteric approach provided direct access with minimal bowel manipulation and faster recovery.

1.2.1. B-roll: 2.2.1

CONCLUSION:

~~Describe any important challenges or complications encountered during treatment and how they were managed~~

- 1.3. Identifying the avascular window in the thin mesentery required careful vessel preservation to avoid bleeding.

1.3.1. B-roll: 2.3.2

~~Summarize the key clinical lessons or takeaways from this case for other clinicians~~

- 1.4. The transmesenteric approach reduced bowel manipulation, shortened operative time, and lowered the complication rates.

1.4.1. B-roll: 4.4.1

~~Describe any further investigation or follow-up that would be relevant based on this case.~~

- 1.5. The D-J stent was removed 6 weeks postoperatively, followed by urinary tract ultrasonography at 3, 6, and 9 months after stent removal.

1.5.1. LAB MEDIA: Annotated Figure 4

Ethics Title Card

This research has been approved by the Medical Ethics Committees at Peking University First Hospital and Ningxia Women and Children's Hospital

Protocol

Video Editor: Please add the title card before section 2

NOTE: Discussed with the writer, and the writer asked to replace the text on a plain background with a text overlay to refer to the text protocol

Title Card

Presurgical Preparation

- Endotracheal intubation under general anesthesia.
- Patient positioning in the right lateral decubitus position (healthy side down)
- Affected (left) side elevation to $\sim 45^\circ$ for optimal renal hilum exposure
- Placement of a 5-mm trocar inserted at the umbilicus as a camera port
- Placement of a 3-mm trocar below the left costal margin as the primary operating port
- Placement of a 3-mm trocar above the left iliac crest as the auxiliary operating port
- Establishing pneumoperitoneum and maintenance at a constant pressure of 8 mmHg

2. Stenotic Segment Exposure for Transmesenteric Laparoscopic Pyeloplasty

2.1. To begin, following the exploratory laparoscopy, the colon was gently retracted medially using atraumatic grasping forceps to expose the colonic mesentery [1-TXT]. A bulging mass indicative of the hydronephrotic left renal pelvis was visualized through the mesentery [2]. (Authors: We have now included the trocar placement and other pre-surgical steps in the title card for a better context and understanding of the viewer. Please suggest if this is acceptable.)

2.1.1. LAB MEDIA: 2025-08-19_142830_VID001 00:00–00:07 TXT: See text protocol for presurgical preparation

2.1.2. LAB MEDIA: 2025-08-19_142830_VID001 00:15–00:23

2.2. A 2-centimeter avascular window was created in the mesentery [1] with careful identification and preservation of the underlying mesenteric vessels [2]. The retroperitoneal space was accessed through the mesenteric window [3].

2.2.1. LAB MEDIA: 2025-08-19_142830_VID001 00:40–00:42; 02:07–02:12

2.2.2. LAB MEDIA: 2025-08-19_142830_VID001 02:34–02:40

2.2.3. LAB MEDIA: 2025-08-19_142830_VID001 04:27–04:34

2.3. The perirenal fascia or Gerota's fascia was incised to identify the renal pelvis and proximal ureter [1]. Subsequently, the dilated renal pelvis and proximal ureter were mobilized and fully exposed [2].

2.3.1. LAB MEDIA: 2025-08-19_142830_VID001 07:58–08:05

2.3.2. LAB MEDIA: 2025-08-19_142830_VID001 08:18–08:25

3. Resection and Anastomosis of the Renal Pelvis and Proximal Ureter

- 3.1. A 3-0 (*three-oh*) absorbable suture was placed at the body surface projection of the left renal pelvis [1], and the superior pole of the renal pelvis was suspended to an appropriate height via traction [2].
 - 3.1.1. LAB MEDIA: 2025-08-19_142830_VID002 04:41–04:43; 05:07–05:11; 05:17–05:21
 - 3.1.2. LAB MEDIA: 2025-08-19_142830_VID002 05:32–05:34; 05:46–05:48; 05:59–06:03
- 3.2. The ureter was transversely incised immediately distal to the stenotic segment [1], and the redundant renal pelvis was trimmed while maintaining a partial connection to preserve spatial orientation [2].
 - 3.2.1. LAB MEDIA: 2025-08-19_142830_VID003 02:21–02:24; 02:41–02:43; 02:58–03:00; 03:59–04:03; 05:58–06:02; 06:29–06:33
 - 3.2.2. LAB MEDIA: 2025-08-19_142830_VID003 09:15–09:17; 09:25–09:28; 09:31–09:33
- 3.3. An approximately 1.5-centimeter longitudinal ureterotomy was performed along the dorsal aspect of the ureter [1]. A non-clamping anastomotic technique was employed, and everting sutures were placed with 5-0 (*five-oh*) absorbable sutures [2].
 - 3.3.1. LAB MEDIA: 2025-08-19_142830_VID003 09:52–09:58; 10:22–10:25
 - 3.3.2. LAB MEDIA: 2025-08-19_142830_VID004 07:01–07:03; 07:09–07:12; 07:16–07:18
- 3.4. The initial anastomotic suture was placed at the most dependent point of the renal pelvis along the renal axis, aligned precisely with the inferior extent of the longitudinal ureterotomy [1]. After placing the initial stitch, the anastomotic tension was assessed and confirmed to be satisfactory [2].
 - 3.4.1. LAB MEDIA: 2025-08-19_142830_VID004 08:20–08:24; 08:30–08:34; 08:48–08:52
 - 3.4.2. LAB MEDIA: 2025-08-19_142830_VID004 09:21–09:28
- 3.5. The posterior wall of the ureter and renal pelvis was anastomosed using a continuous suturing technique [1]. Subsequently, the remaining connecting portion of the renal pelvis was completely divided [2], and the anterior wall was anastomosed in a similar continuous fashion [3].
 - 3.5.1. LAB MEDIA: 2025-08-19_142830_VID005 02:49–02:51; 02:59–03:02; 03:09–03:11; 03:15–03:19; 05:41–05:48
 - 3.5.2. LAB MEDIA: 2025-08-19_142830_VID005 06:55–07:04

3.5.3. LAB MEDIA: 2025-08-19_142830_VID005 09:07–09:10; 09:18–09:21; 09:30–09:35; 09:40–09:43

4. Double-J (D-J) Ureteral Stent Insertion

4.1. A 6-French pneumoperitoneum needle was percutaneously inserted at the body surface projection of the left renal pelvis located below the left costal margin [1].

4.1.1. LAB MEDIA: 2025-08-19_142830_VID006 02:41–02:43; 02:51–02:53; 02:55–02:57

4.2. A super-smooth guidewire and a double-J, or D-J (*D-J*) ureteral stent were introduced through the puncture site [1]. Under direct laparoscopic visualization, the D-J stent was placed in an antegrade fashion by advancing the distal end into the bladder [2] and positioning the proximal end within the renal pelvis [3].

4.2.1. LAB MEDIA: 2025-08-19_142830_VID006 03:22–03:27; 04:06–04:09

4.2.2. LAB MEDIA: 2025-08-19_142830_VID006 05:05–05:09; 05:20–05:25; 05:35–05:42; 05:54–06:00

4.2.3. LAB MEDIA: 2025-08-19_142830_VID006 06:06–06:14

4.3. Successful placement was confirmed by visualizing the distal coil of the D-J stent entering the bladder along the ureteral course [1]. The renal pelvis was then irrigated [2], and a meticulous inspection was performed to confirm the absence of active bleeding [3].

4.3.1. LAB MEDIA: 2025-08-19_142830_VID008 00:43–00:48

4.3.2. LAB MEDIA: 2025-08-19_142830_VID008 04:22–04:26; 04:29–04:32

4.3.3. LAB MEDIA: 2025-08-19_142830_VID008 04:38–04:42; 04:45–04:50

4.4. The previously preserved stenotic segment of the ureteropelvic junction was excised [1]. The anterior wall of the ureter and renal pelvis was then anastomosed to complete the ureteropelvic reconstruction [2].

4.4.1. LAB MEDIA: 2025-08-19_142830_VID007 01:49–01:58

4.4.2. LAB MEDIA: 2025-08-19_142830_VID007 07:48–07:52; 08:19–08:23

NOTE: Treat this as a separate section

Closure and Drainage

4.5. The pneumoperitoneum pressure was reduced to confirm anastomotic integrity [1].

4.5.1. LAB MEDIA: 2025-08-19_142830_VID009 04:23–04:26; 04:37–04:45

4.6. The operative field was irrigated [1] and the mesenteric incision was closed with a 4-0

(*four-oh*) absorbable suture [2]. An 18-French silicone drain was placed via the auxiliary port site, followed by incision closures and postoperative care [3-TXT].

4.6.1. LAB MEDIA: 2025-08-19_142830_VID009 06:42–06:45; 07:04–07:08

4.6.2. LAB MEDIA: 2025-08-19_142830_VID010 00:10–00:15; 00:32–00:36; 01:07–01:10

4.6.3. LAB MEDIA: 2025-08-19_142830_VID010 07:03–07:06; 07:12–07:15 TXT: See text protocol for **TXT: See text protocol for postoperative management**

Results

5. Results

5.1. Postoperative follow-up ultrasound findings showed mild left hydronephrosis at one month follow-up [1]. At 5-month follow-up, mild left hydronephrosis with low renal pelvic tension [2] and improved left renal cortical thickness compared with preoperative status were observed [3].

5.1.1. LAB MEDIA: Annotated Figure 4A. *Video Editor: Please emphasize the region highlighted by the blue arrow.*

5.1.2. LAB MEDIA: Annotated Figure 4B. *Video Editor: Please emphasize the region highlighted by the blue arrow.*

5.1.3. LAB MEDIA: Annotated Figure 4C. *Video Editor: Please emphasize the region highlighted by the red arrow.*

5.2. The 9-month follow-up showed stable left hydronephrosis without evidence of progression [1].

5.2.1. LAB MEDIA: Annotated Figure 4D. *Video Editor: Please emphasize the region highlighted by the red and blue arrows.*

1. Stenotic

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

IPA: /stəˈnɒtɪk/

Phonetic Spelling: stuh·NAA·tik

2. Transmesenteric

Pronunciation link: No confirmed link found

IPA: /ˌtrænzˌmɛzənˈtɛrɪk/

Phonetic Spelling: tranz·mez·uhn·TAIR·ik

3. Laparoscopic

Pronunciation link: No confirmed link found

IPA: /ˌlæpərəˈskɒpɪk/

Phonetic Spelling: lap·uh·ruh·SKAA·pik

4. Pyeloplasty

Pronunciation link: No confirmed link found

IPA: /ˈpaɪələʊˌplæsti/

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

5. Atraumatic
Pronunciation link: No confirmed link found
IPA: /,etɹə'mætɪk/
Phonetic Spelling: ay·traw·MAT·ik
6. Hydronephrotic
Pronunciation link: No confirmed link found
IPA: /,haɪdrounə'fratɪk/
Phonetic Spelling: hy·droh·nuh·FRAA·tik
7. Mesentery
Pronunciation link: <https://www.merriam-webster.com/dictionary/mesentery>
IPA: /'mezən'teri/, /'mesən'teri/
Phonetic Spelling: MEZ·uhn·tair·ee; MESS·uhn·tair·ee
8. Avascular
Pronunciation link: No confirmed link found
IPA: /eɪ'væskjələr/
Phonetic Spelling: ay·VAS·kyuh·ler
9. Mesenteric
Pronunciation link: <https://www.merriam-webster.com/medical/mesenteric>
IPA: /,mezən'terɪk/, /,mesən'terɪk/
Phonetic Spelling: mez·uhn·TAIR·ik; mess·uhn·TAIR·ik
10. Retroperitoneal
Pronunciation link: <https://www.merriam-webster.com/dictionary/retroperitoneal>
IPA: /,retroʊ,pɛrətə'niəl/
Phonetic Spelling: reh·troh·pair·uh·tuh·NEE·uhl
11. Perirenal
Pronunciation link: No confirmed link found
IPA: /,pɛri'rinəl/
Phonetic Spelling: pair·ee·REE·nuhl
12. Gerota's
Pronunciation link: No confirmed link found
IPA: /dʒə'roʊtəz/
Phonetic Spelling: juh·ROH·tuhz
13. Ureter
Pronunciation link: No confirmed link found
IPA: /jʊ'ritər/
Phonetic Spelling: yoo·REE·ter
14. Anastomosis
Pronunciation link: No confirmed link found
IPA: /ə,næstə'moʊsɪs/
Phonetic Spelling: uh·nas·tuh·MOH·suhs
15. Ureterotomy
Pronunciation link: No confirmed link found
IPA: /,jʊrətə'ratəmi/
Phonetic Spelling: yoo·ruh·tuh·RAA·tuh·mee

16. Anastomotic
Pronunciation link: No confirmed link found
IPA: /əˌnæstəˈmɒtɪk/
Phonetic Spelling: uh·nas·tuh·MAA·tik
17. Pneumoperitoneum
Pronunciation link: No confirmed link found
IPA: /ˌnuːmoʊˌpɛrɪtəˈniːəm/
Phonetic Spelling: noo·moh·pair·ih·tuh·NEE·uhm
18. Percutaneously
Pronunciation link: No confirmed link found
IPA: /ˌpɜːrkjuˈteɪniəsli/
Phonetic Spelling: per·kyoo·TAY·nee·uhs·lee
19. Antegrade
Pronunciation link: No confirmed link found
IPA: /ˈæntəˌɡreɪd/
Phonetic Spelling: AN·tuh·grayd
20. Ureteral
Pronunciation link: No confirmed link found
IPA: /jʊˈrɪtərəl/
Phonetic Spelling: yoo·REE·ter·uhl
21. Ureteropelvic
Pronunciation link: No confirmed link found
IPA: /jʊˌrɪtəroʊˈpɛlvɪk/
Phonetic Spelling: yoo·REE·tuh·roh·PEL·vik
22. Anastomosed
Pronunciation link: No confirmed link found
IPA: /əˈnæstəˌmoʊzd/
Phonetic Spelling: uh·NAS·tuh·mohzd
23. Hydronephrosis
Pronunciation link: <https://www.merriam-webster.com/medical/hydronephrosis>
IPA: /ˌhaɪdroʊnəˈfroʊsɪs/
Phonetic Spelling: hy·droh·nuh·FROH·suhs