

Submission ID #: 71603

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Title: Robot-Assisted Radical Prostatectomy in a Heart Transplant Patient

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Author Questionnaire

- 1. Microscopy:** Does your protocol require the use of a dissecting or stereomicroscope for performing a complex dissection, microinjection technique, or something similar? **No**
- 2. Software:** Does the part of your protocol being filmed include step-by-step descriptions of software usage? **Yes**
- 3. Filming location:** Will the filming need to take place in multiple locations? **No**
- 4. Testimonials (optional):** Would you be open to filming two short testimonial statements **live during your JoVE shoot**? These will **not appear in your JoVE video** but may be used in JoVE's promotional materials. **Yes**

If **Yes**, please provide the **full name and position** (e.g., Director of [Institute Name], Senior Researcher [University Name], etc.) of the author willing to participate.

**Mahmoud Farzat, MD, FEBU, Chairman of the department of urology, Diakonie Klinikum
Siegen**

Current Protocol Length

Number of Steps: 21

Number of Shots: 42

Interviews

Videographer: Obtain headshots for all authors available at the filming location.

INTRODUCTION:

~~REQUIRED: Summarize your research focus and the main questions it aims to answer.~~

- 1.1. **Mahmoud Farzat:** Our research focuses on the feasibility of robot-assisted radical prostatectomy in heart transplant recipients despite potential tacrolimus-associated healing complications.

- 1.1.1. INTERVIEW: Named Talent says the statement above in an interview-style shot, looking slightly off-camera.

~~Describe the research gap or limitation in existing methods and how this protocol addresses them.~~

- 1.2. **Mahmoud Farzat:** This protocol addresses the limited literature by providing a detailed step-by-step surgical protocol for heart transplant recipients undergoing major urological surgery.

- 1.2.1. INTERVIEW: Named Talent says the statement above in an interview-style shot, looking slightly off-camera.

CONCLUSION:

~~What does this protocol allow researchers to study or measure?~~

- 1.3. **Mahmoud Farzat:** This approach allows researchers to study detailed case preparation for treating heart transplant recipients undergoing robot-assisted radical prostatectomy.

- 1.3.1. INTERVIEW: Named Talent says the statement above in an interview-style shot, looking slightly off-camera.

~~Describe the most important consideration or challenge when performing this protocol.~~

- 1.4. **Mahmoud Farzat:** The most important challenge is managing unexpected, extremely rare ureteral lesion complications that were not encountered in the previous 2,000 cases.

- 1.4.1. INTERVIEW: Named Talent says the statement above in an interview-style shot, looking slightly off-camera.

~~How can future studies build on this work? Describe the questions or research directions that can be investigated next.~~

- 1.5. **Mahmoud Farzat:** Future studies should report each case and evaluate whether to continue, stop, or modify immunosuppressive therapy.

- 1.5.1. INTERVIEW: Named Talent says the statement above in an interview-style shot, looking slightly off-camera.

Videographer: Obtain headshots for all authors available at the filming location.

Testimonial Questions (OPTIONAL):

Videographer: Please capture all testimonial shots in a wide-angle format with sufficient headspace, as the final videos will be rendered in a 1:1 aspect ratio. Testimonial statements will be presented live by the authors, sharing their spontaneous perspectives.

What value do you expect this video article to have for other researchers working in your field?

1.6. **Mahmoud Farzat, Chairman of the Department of Urology, Diakonie Klinikum**

Siegen: (authors will present their testimonial statements live)

1.6.1. INTERVIEW: Named Talent says the statement above in an interview-style shot, looking slightly off-camera.

How does the video format of your article help you to share your work with the broader scientific community?

1.7. **Mahmoud Farzat, Chairman of the Department of Urology, Diakonie Klinikum**

Siegen: (authors will present their testimonial statements live)

1.7.1. INTERVIEW: Named Talent says the statement above in an interview-style shot, looking slightly off-camera.

Ethics Title Card

This research has been approved by the ethics committee at the Westfalen-Lippe Medical Association and the University of Muenster. Informed consent was obtained from all the patients

Protocol

***Videographer:** Please always record an audio slate while filming each shot mentioned in the shotlist.*

2. Preoperative Management and Anesthetic Setup

Demonstrator: Mahmoud Farzat

- 2.1. To begin, perform a standard preoperative assessment [1]. Conduct electrocardiography to assess cardiac rhythm and detect ischemic or conduction abnormalities [2]. Perform transthoracic echocardiography to evaluate ventricular function and valvular status [3]. In consultation with the treating cardiac team, adjust tacrolimus therapy [4], then reduce the dose [5].
 - 2.1.1. WIDE: Talent reviewing the patient's medical records and discussing the preoperative evaluation with the patient. ***Videographer:** Please obtain CU shot as well for this shot.*
 - 2.1.2. Talent attaching electrocardiography leads to the patient and initiating the recording.
 - 2.1.3. Talent performing transthoracic echocardiography on the patient with the ultrasound probe.
 - 2.1.4. Talent reviewing tacrolimus therapy with the cardiac team.
 - 2.1.5. Shot of the tacrolimus dosage plan being reduced.
- 2.2. Administer prophylactic intravenous ampicillin and sulbactam 30 minutes before skin incision [1].
 - 2.2.1. Talent administering intravenous ampicillin/sulbactam to the patient.
- 2.3. Initiate perioperative thromboprophylaxis following the institutional protocol while considering the patient's surgical risk profile [1].
 - 2.3.1. Talent initiating perioperative thromboprophylaxis.
- 2.4. Through a radial arterial catheter, establish invasive arterial blood pressure monitoring to allow real-time beat-to-beat blood pressure assessment [1].
 - 2.4.1. Talent establishing invasive arterial blood pressure monitoring through radial arterial catheter.
- 2.5. Induce general anesthesia under comprehensive invasive hemodynamic monitoring using carefully titrated intravenous agents to avoid hypotension [1]. Apply continuous electrocardiography [2], pulse oximetry [3], and capnography [4] to monitor cardiac rhythm, oxygenation, and ventilation status throughout the procedure [5].

- 2.5.1. Talent inducing general anesthesia with invasive hemodynamic monitoring in place.
- 2.5.2. Talent applying electrocardiography electrodes to the patient's chest.
- 2.5.3. Talent placing the pulse oximeter sensor on the patient's finger.
- 2.5.4. Talent connecting the capnography sampling line to the patient.
- 2.5.5. Close-up shot of the monitor displaying continuous electrocardiography, pulse oximetry, and capnography waveforms simultaneously during the procedure
- 2.6. Insert central venous access for fluid and vasoactive agent administration and for central venous pressure monitoring [1].
 - 2.6.1. Talent inserting central venous access.
- 2.7. Maintain anesthesia to ensure stable hemodynamics, avoid fluid overload, and preserve cardiac allograft function through balanced fluid administration and vasopressor support [1].
 - 2.7.1. Talent managing anesthesia with fluid and vasopressor administration.
- 2.8. Next, place the patient in a Trendelenburg position with the legs in stirrups to optimize pelvic exposure [1].
 - 2.8.1. Talent positioning the patient in Trendelenburg with the legs in stirrups.
- 2.9. Carefully pad all pressure points to prevent neurovascular injury [1]. Establish pneumoperitoneum using carbon dioxide insufflation [2] and gradually increase the intra-abdominal pressure to 12 to 15 millimeters of mercury [3].
 - 2.9.1. Talent padding the patient's pressure points.
 - 2.9.2. Talent establishing pneumoperitoneum with carbon dioxide insufflation.
 - 2.9.3. SCREEN: Show the insufflator display as the intra-abdominal pressure is increased and stabilizes between 12 and 15 millimeters of mercury.

Videographer: Please record the computer screen for the shots labeled as SCREEN as back-up
- 2.10. Closely monitor the hemodynamic response to insufflation [1]. Adjust as needed to maintain stable cardiovascular parameters [2].
 - 2.10.1. SCREEN: Shot of hemodynamic parameters during insufflation.
 - 2.10.2. Talent adjusting management parameters in response to hemodynamic changes.

3. Robot-Assisted Radical Prostatectomy and Extended Pelvic Lymphadenectomy

- 3.1. Utilize a standard four-port transperitoneal configuration for robot-assisted radical prostatectomy [1].
 - 3.1.1. Operating room setup showing the standard four-port transperitoneal configuration for robot-assisted radical prostatectomy.
- 3.2. Insert the trocars under direct vision [1]. Position the robotic arms with adequate spacing to prevent collisions between arms during instrument manipulation [2].
 - 3.2.1. Talent inserting the trocars under direct vision.
 - 3.2.2. Talent positioning the robotic arms with adequate spacing.
- 3.3. Dock the robotic system in a midline position aligned with the patient's pelvis to facilitate optimal instrument access [1].
 - 3.3.1. Talent docking the robotic system in line with the patient's pelvis.
- 3.4. Dissect the bladder neck while carefully identifying and preserving anatomical landmarks [1]. Preserve the neurovascular bundles bilaterally, where oncologically feasible, using nerve-sparing techniques [2].
 - 3.4.1. SCREEN: SCOPE.mp4: 00:25:51-00:25:58, 00:28:45-00:28:50
 - 3.4.2. SCREEN: SCOPE.mp4: 00:37:40-00:37:56
- 3.5. Perform apical dissection while preserving urethral length to facilitate a tension-free anastomosis. Using bipolar cautery and Hem-o-lok (*hem-o-lok*) clips, maintain hemostasis throughout the procedure [1].
 - 3.5.1. SCREEN: SCOPE.mp4: 00:41:36-00:41:42, 00:44:10-00:44:20
- 3.6. Dissect bilateral extended pelvic lymph node regions, including the external iliac, internal iliac, and obturator lymph node regions [1]. Then, dissect the lymph nodes around the common iliac vessels and the presacral area if lymph node metastasis is suspected on prostate-specific membrane antigen positron emission tomography computed tomography or PSMA-PET-CT (*P-S-M-A-pet-C-T*) imaging [2].
 - 3.6.1. SCREEN: SCOPE.mp4: 01:03:20-01:03:30, 01:04:47-01:04:50
 - 3.6.2. SCREEN: SCOPE.mp4: 01:28:05-01:28:20, 01:29:45-01:29:55
- 3.7. Then, retrieve the prostate and lymph node specimens through the supraumbilical incision [1].
 - 3.7.1. Shot of retrieving the prostate and lymph node specimens through the supraumbilical incision.
- 3.8. Perform a watertight urethrovesical anastomosis using continuous resorbable sutures. Through a transurethral catheter, establish urinary diversion [1] and place a suprapubic catheter according to institutional standards [2].
 - 3.8.1. SCREEN: SCOPE.mp4:00:54-33-00:54:45, 00:58:40-00:59:02

- 3.8.2. ~~Talent inserting a transurethral catheter.~~ NOTE: This is a screen shot and merged with 3.8.1
- 3.8.3. ~~Talent placing a suprapubic catheter.~~ SCOPE.mp4: 01:52:22-01:54:15
- 3.9. Perform a final inspection of the operative field under reduced pneumoperitoneum to identify any residual bleeding points. Control any identified residual bleeding [1].
 - 3.9.1. SCREEN: SCOPE.mp4: 01:55:00-01:55:30
 - ~~3.9.2. SCREEN: Shot of the residual bleeding being controlled.~~ NOTE: Combined with 3.9.1
- 3.10. Remove all trocars under direct vision [1]. Perform fascial closure at the mini-laparotomy site and the 12-millimeter assistant trocar site [2]. Close the skin incisions [3].
 - 3.10.1. Talent removing the trocars under direct vision.
 - 3.10.2. Talent performing fascial closure at the mini-laparotomy site and the 12-millimeter assistant trocar site.
 - 3.10.3. Talent closing the skin incisions.
- 3.11. Extubate the patient [1]. Transfer the patient to a monitored unit, with continuation of baseline immunosuppression and close monitoring of tacrolimus levels [2].
 - 3.11.1. Talent extubating the patient.
 - 3.11.2. Talent transferring the patient to a monitored unit.

Results

4. Results

4.1. Following postoperative readmission, the CT-scan revealed left ureteral extravasation with urinoma and hydronephrosis [1].

4.1.1. LAB MEDIA: Figure 2. *Video editor: Highlight the white arrow in the middle-left area of the image and the dark area immediately around the arrow tip.*

4.2. Subsequent retrograde pyeloureterography confirmed the diagnosis [1].

4.2.1. LAB MEDIA: Figure 2. *Video editor: Zoom in on the contrast-filled tube running vertically through the image and the area indicated by the white arrow.*

1. Electrocardiography
Pronunciation link: <https://www.merriam-webster.com/dictionary/electrocardiography>
IPA: /ɪˌlek.troʊˌkɑːr.diˈɑːɡrə.fi/
Phonetic Spelling: ihˌlekˌtrohˌkarˌdeeˌogˌruhˌfee
2. Transthoracic
Pronunciation link: <https://www.merriam-webster.com/medical/transthoracic>
IPA: /ˌtrænz.θəˈræs.ɪk/
Phonetic Spelling: tranzˌthuhˌrasˌɪk
3. Echocardiography
Pronunciation link: <https://www.merriam-webster.com/dictionary/echocardiography>
IPA: /ˌek.oʊˌkɑːr.diˈɑːɡrə.fi/
Phonetic Spelling: ekˌohˌkarˌdeeˌogˌruhˌfee
4. Tacrolimus
Pronunciation link: <https://www.merriam-webster.com/medical/tacrolimus>
IPA: /təˈkroʊ.lə.məs/
Phonetic Spelling: tuhˌkrohˌluhˌmuhs
5. Ampicillin
Pronunciation link: <https://www.merriam-webster.com/dictionary/ampicillin>
IPA: /ˌæm.pəˈsɪl.ɪn/
Phonetic Spelling: amˌpuhˌsilˌin
6. Sulbactam
Pronunciation link: <https://www.merriam-webster.com/medical/sulbactam>
IPA: /sʌlˈbæktæm/
Phonetic Spelling: sulˌbakˌtam
7. Thromboprophylaxis
Pronunciation link: <https://www.howtopronounce.com/thromboprophylaxis>
IPA: /ˌθrɑːm.boʊˌproʊ.fiˈlæks.ɪs/
Phonetic Spelling: thromˌbohˌprohˌfihˌlakˌsis
8. Hemodynamic
Pronunciation link: <https://www.merriam-webster.com/dictionary/hemodynamic>
IPA: /ˌhiː.moʊ.daiˈnæm.ɪk/
Phonetic Spelling: heeˌmohˌdyeˌnamˌɪk
9. Capnography
Pronunciation link: <https://www.merriam-webster.com/dictionary/capnography>
IPA: /kæpˈnɑːɡrə.fi/
Phonetic Spelling: kapˌnogˌruhˌfee
10. Vasoactive
Pronunciation link: <https://www.merriam-webster.com/dictionary/vasoactive>
IPA: /ˌveɪ.zoʊˈæk.tɪv/
Phonetic Spelling: vayˌzohˌakˌtiv
11. Allograft
Pronunciation link: <https://www.merriam-webster.com/dictionary/allograft>

- IPA: /'æɪ.ə.ɡræft/
Phonetic Spelling: al·uh·graft
12. Trendelenburg
Pronunciation link: <https://www.merriam-webster.com/medical/Trendelenburg%20position>
IPA: /tren'del.ən.bɜːg/
Phonetic Spelling: tren·del·uhn·berg
13. Pneumoperitoneum
Pronunciation link: <https://www.merriam-webster.com/medical/pneumoperitoneum>
IPA: /,nuː.mouː.pɛr.ɪ.tə'niː.əm/
Phonetic Spelling: noo·moh·pehr·ih·tuh·nee·uhm
14. Lymphadenectomy
Pronunciation link: <https://www.merriam-webster.com/medical/lymphadenectomy>
IPA: /,lɪm.fæd.ə'nek.tə.mi/
Phonetic Spelling: lim·fad·uh·nek·tuh·mee
15. Oncologically
Pronunciation link: <https://www.merriam-webster.com/dictionary/oncological>
IPA: /,ɑːŋ.kə'lɑː.dʒɪ.kəl.i/
Phonetic Spelling: ong·kuh·loj·i·kuh·lee
16. Anastomosis
Pronunciation link: <https://www.merriam-webster.com/dictionary/anastomosis>
IPA: /ə,næs.tə'mou.sɪs/
Phonetic Spelling: uh·nas·tuh·moh·sis
17. Resorbable
Pronunciation link: <https://www.merriam-webster.com/dictionary/resorbable>
IPA: /rɪ'zɔːr.bə.bəl/
Phonetic Spelling: ree·zor·buh·buhl
18. Urethrovesical
Pronunciation link: <https://www.howtopronounce.com/urethrovesical>
IPA: /jʊ,riːθrou'ves.ɪ.kəl/
Phonetic Spelling: yoor·ee·throh·ves·ih·kuhl
19. Extravasation
Pronunciation link: <https://www.merriam-webster.com/dictionary/extravasation>
IPA: /ɪk'stræv.ə'seɪ.ʃən/
Phonetic Spelling: ik·strav·uh·say·shuhn
20. Pyeloureterography
Pronunciation link: <https://www.howtopronounce.com/pyeloureterography>
IPA: /,paɪ.ə.luː.jʊ,riː.tə'raː.grə.fi/
Phonetic Spelling: pie·uh·loh·yoo·ree·ter·og·ruh·fee