Endourology Urology Rotation Handbook

Introduction to the Endourology Rotation

The Endourology rotation is designed to provide urology residents with comprehensive exposure to the diagnosis and minimally invasive management of urinary stone disease, minimally evasive surgery, and other upper and lower urinary tract conditions. During this rotation, residents will gain hands-on experience with a range of endoscopic and percutaneous techniques, including ureteroscopy, laser lithotripsy, and percutaneous nephrolithotomy (PCNL), as well as extracorporeal shock wave lithotripsy (ESWL). In addition, the rotation offers exposure to minimally invasive surgical approaches for a variety of urologic conditions, including laparoscopic and robotic-assisted procedures for renal and ureteral pathology. Residents will also participate in the evaluation and surgical management of benign prostatic hyperplasia (BPH), including transurethral resection and laser-based techniques as well as robot-assisted simple prostatectomy (RASP). Emphasis is placed on preoperative planning, intraoperative decision-making, and postoperative management, with opportunities for progressive autonomy and participation in advanced procedures. The rotation also integrates relevant imaging, patient counseling, and multidisciplinary care principles to prepare residents for independent endourologic practice.

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Rotation Specific Objectives

Medical Knowledge

1. Develop an approach to urological emergencies, including GU trauma, testicular torsion, priapism, and septic renal colic, ensuring timely and appropriate care.
2. Develop an understanding of the pathophysiology and diagnosis of urinary stone disease and an evidence-based approach to medical management, including prevention and treatment strategies.
3. Develop competency in interpreting urological imaging and apply this information to guide patient care.
4. Develop an understanding of the mechanisms, indications, and physiological effects of medical and surgical therapies for benign prostatic hyperplasia.
5. Develop an understanding of the pathophysiology, management and follow-up of upper and lower urinary tract obstruction
7. Develop an understanding of the natural history, diagnosis, staging, treatment outcomes, and complications for GU malignancies such as prostate, urothelial, adrenal and kidney cancers Develop an understanding of the role, indications and potential complications of management (medical and surgical) for the treatment of urological malignancies; as well as an understanding of the role and indications for percutaneous, angiographic, and emerging techniques, including their potential complications.
8. Develop an understanding of multidisciplinary treatment options for urological malignancies, including the roles of chemotherapy, targeted therapies, radiotherapy, and surgical oncology.

Surgical Skill and Knowledge

1. Develop an understanding of the indications and the ability to competently perform surgical procedures for the management for urinary stone disease, including the management of intraoperative and postoperative complications.
2. Develop the ability to competently perform surgical procedures for the treatment of benign prostatic hyperplasia
3. Develop the ability to competently apply the technical skills required for minimally invasive procedures in the diagnosis and treatment of urological malignancies including the management of postoperative complications.
4. Develop an understanding of the indications and the ability to competently perform surgical procedures for the management for urinary stone disease, including the management of intraoperative and postoperative complications.

Achievable EPAs during Endourology Rotation

Transition to Discipline	Foundations	Core	Transition to Practice
TD1, TD2, TD3, TD4	F1, F2, F3, F4, F5, F6, F8	C1, C2, C3, C5, C6, C7, C8, C9, C10 (Senior), C11, C15, C17, C18, C19 (Senior)	Senior - P1, P2, P3, P4, P5, P6

Potential Diagnostic and Surgical Procedures Exposure

Common	Less Common	Diagnostic
Percutaneous nephroscopy and lithotripsy of the upper urinary tract	Cystoscopic/ureteroscopic stricture incision of the urinary tract	Rigid and flexible cystoscopy, and urethroscopy
Antegrade nephroscopy and ureteroscopy	Suprapubic catheter insertion	Retrograde urethrography, cystography and pyelography
Complex urinary catheter insertion	Urethral dilatation and visual internal urethrotomy	Rigid and flexible ureteroscopy
Transurethral resection of prostate, using standard or alternative electrocautery or laser	Laparoscopic / Robot Assisted Pyeloplasty	
Transurethral fulguration of bladder lesions	Laparoscopic / Robot Assisted Adrenalectomy	
Ureteric catheterization, including insertion and removal of ureteral catheter/stent	Drainage/debridement of genital abscess	
Rigid ureteroscopy, lithotripsy, and basket extraction of calculi of the upper urinary tract	Cavernosal shunt: distal or proximal	
Retrograde flexible ureteroscopy/nephroscopy and lithotripsy of upper urinary tract stones	Repair of penile fracture	
Laparoscopic / Robot Assisted Nephrectomy: simple, radical	Urethral dilatation and visual internal urethrotomy	
Laparoscopic / Robot Assisted Partial nephrectomy	Ureteric reconstruction	

Laparoscopic / Robot Assisted Nephroureterectomy	Bladder Repair	
Laparoscopic / Robot Assisted Prostatectomy	Exploration for testicular torsion with or without orchidopexy	

Expectations and Responsibilities

Rounding

Time	Inpatient	Consult	Notes
Morning	Required to round on all endourology inpatients -Write Progress Note -Formulate Plan -Discuss inpatients with appropriate staff	Required to round on all consults -Write Progress Note -Formulate Plan -Be sure to discuss with staff	Ensure all emails are sent to Faculty **AND** orders are in **BEFORE** clinical activities
Afternoon	Round on all patients -Refine Plan -Update staff as needed	Round on the ACTIVE or sick consults	May round with Faculty you are with that day

Endourology Weekly Schedule – please note the schedule may change

Day	Time	Dr. Denstedt	Dr. Razvi	Dr. Pautler	Dr. Bjazevic
Monday	AM	ESWL/OR	OR	Clinic	Admin/OR
	PM				
Tuesday	AM	Clinic	Admin	OR	Virtual Clinic
	PM				
Wednesday	AM	OR	Clinic	ESWL/Clinic/OR	OR/Clinic /ESWL
	PM				
Thursday	AM	Admin/OR	Virtual Clinic	Admin	Clinic
	PM		Clinic	pDAP	
Friday	AM	Clinic/ESWL	ESWL/OR /Admin	Admin/ESWL	Admin/OR
	PM				

Outpatient Clinics

Location: Urology Clinic – Fourth Floor B Zone at St. Joesph's Hospital
Start: 8:00 AM - *Punctuality is a must, and tardiness will be considered unprofessional.*
Etiquette:

- Charts placed in the mailbox outside the clinic doors indicate they are available to see.
    - When seeing patients try to preferentially see consults instead of follow-ups, we do notice.
- Always introduce yourself to the patient
    - Ask for permission to do a physical exam
    - ensure that a chaperon is available
- Review every patient with faculty
    - If the faculty is busy, place the chart back in the door and start seeing another patient
- Document encounter at the end of the clinic (dictation/documentation format below)
- Always have a plan (even if you are not sure, try to think what you would do next)
- For Dr. Denstedt, enter pre-operative and peri-operative orders in clinic for patients who have a planned OR including necessary medicine and anesthesia consults
- Multi-disciplinary stone clinic occurs every 3rd Thursday afternoon of the month and residents are expected to attend unless there is an OR that requires coverage

End: 3:00 - 5:00 PM

Consults and Ward Management

Consultations will be directed to the residents on the Endourology rotation.

- Triage the consultation and determine the urgency (see now or later)
- Assess patient, formulate plan and review with faculty
- Ensure emails with PIN are sent to the faculty immediately after review
    - Please cc the faculty's administrative assistant
- Document a consultation note in the EMR and place the patient on consult list if the patient requires following

Ward concerns and issues will be directed to the residents on the Endourology rotation.

- Triage and determine the urgency.
- **If sick or if you are unsure, then contact either the fellow (if available) or the faculty right away.**

Operating Room

Location: B Zone – First Floor at St. Joseph's Hospital
Start: Wednesday – 9:00 AM, Monday, Tuesday, Thursday, Friday – 8:00 AM

Etiquette:

- Meet the patient and introduce yourself
    - Be there 15 minutes before OR start time
    - Mark the side, ensure paperwork is properly filled out
    - Load the necessary imaging in the OR room or draw the prostate map on the board
    - Answer any questions but say 'I do not know' if you do not.
- Be present in the OR 5 minutes before the start time
    - Bonus points – set up OR, get necessary equipment
    - Required to do the surgical pause (know this)

Tips and Tricks:

- Be polite, the nurses probably know more than you
- Make sure you adhere to sterile technique
- Read up on the procedure or watch videos the day before
    - KNOW the patient and why we are doing the procedure (again, we will notice)
    - Take notes of the procedure and review these before the next time
- Maybe enter postoperative orders the night before (always double check these after the procedure as things may have changed depending on how the procedure went)

After the OR:

- Confirm ANY questions about the postoperative care with the faculty
    - This is important, we will assume you know otherwise
- Ensure you bring the patient to the PACU and provide handover to the PACU nurses
- Ensure that the postoperative orders are there
    - Ensure the scripts and CCAC forms are on the chart for the patient
        - We do not want them to call in looking for orders or a script
        - When preparing scripts for patients ensure the necessary LU codes are included on the prescription
            - Alpha blockers LU351
            - Anti-cholinergics/beta-agonists LU290

Documentation

Ensure that all consultations, operative notes, progress notes, ED notes are dictated in a timely manner. Discharge summaries are to be done the day of discharge.

Dictations:

Consultations Code: 34 ***Elements:*** **Identification** **History of Presenting Illness** **Past Medical and Past Surgical History** **Allergies and Medication** **Birth History and Family History** • **focus on the history of bleeding disorders or malignant hyperthermia** **Social History** **Investigations** **Physical Exam** • **Include weight, Tanner stage and back exam** **Impression and Plan**	**Clinic Code: 42** **Elements:** **Patient age, diagnosis, previous plan** **Current status or changes** **Physical Exam** **Investigations** **Impression and Plan** • **Ensure to include what if's** ○ **If this then we will do this** ○ **If that then we will do that**
Operative Notes Code: 32 **Elements** **Preoperative Diagnosis** **Postoperative Diagnosis** **Procedure** **Surgeon** **Assistant** **Anesthesiologist** **Anesthetic** **Blood Loss** **Complications** **Specimen** **Clinical Note** **Operative Note** **Plan** • **Include scripts, follow-up plan and instructions given**	**ED Note Code: 35** **Elements** **MUST include Diagnosis** **The rest is the consultation/clinic format**

ALWAYS:

- CC the family doctor
- Put DICTATED BUT NOT PROOFREAD

Common Postoperative Orders by Procedures

Post-Ureteroscopy

- Pain Management: Advil and Tylenol as needed, avoid opioids unless required
- Stent Management: Tamsulosin and anticholinergic
- Diet: Regular
- Antibiotics: 3-7 days, directed by prior culture and history of infections
- IV Fluids: None
- Discharge: Home the same day
- Follow-Up: Clinic in 2 weeks with imaging and stent removal (staff will organize)

Post-Percutaneous Nephrolithotomy

One-Day Stay

- Pain Management: Advil and Tylenol as needed, avoid opioids unless required
- Stent Management: Tamsulosin and anticholinergic
- Diet: Regular
- Antibiotics: 3-7 days, directed by prior culture and history of infections
- IV Fluids: None
- Discharge: Home the same day
- Follow-Up: Clinic in 2 weeks with imaging and stent removal (staff will organize)
- Home instructions: No heavy lifting or strenuous activity for 2 weeks

Same Day Admission

- If high PCNL tract (above 12th rib) obtain chest x-ray in PACU (Dr. Razvi and Dr. Bjazevic)
- Expected length of stay: overnight
- Pain Management: Advil and Tylenol as needed, avoid opioids unless required
- Stent Management: Tamsulosin and anticholinergic
- Diet: DAT
- Antibiotics: IV antibiotics for 24 hours and then transition to PO antibiotics for 3-7 days, directed by prior cultures
- IV Fluids: Maintenance and then saline lock when eating and drinking well
- Imaging: KUB or CT KUB POD1 (confirm with staff)
- Catheter: out POD 1
- Nephrostomy tube:
    - Clamp POD 1 in AM if patient clinically well and afebrile (no need to clamp the NT if stent is present)
    - Remove if post-op imaging looks good and patient has tolerated clamping for 4 hours (discuss with staff prior to removing)
    - If tract is high (above 12th rib), then remove NT like a chest tube
    - If no stent can remove foley at the same time as the nephrostomy tube

    - If stent present, keep foley in until flank is dry for 4 hours and then remove
- Follow-Up: Clinic in 2 weeks with imaging and stent removal (staff will organize)
- Home instructions: No heavy lifting or strenuous activity for 2 weeks

Post-Transurethral resection of prostate/bladder tumor

- Pain Management: Advil and Tylenol as needed, avoid opioids unless required
- Foley: Run CBI until clear
    - TURP – TOV in AM
    - TURBT – confirm with staff when foley should be removed
- Diet: Regular
- Antibiotics: 3-7 days, directed by prior culture and history of infections
- IV Fluids: Maintenance and saline lock when eating drinking well
- Follow-Up: Clinic in 4-6 weeks to review pathology (staff will organize)

Post-RARP

- Expected length of stay is overnight (home next day)
- CBC in PACU
- Pain Management:
    - NSAIDs and Tylenol alternating regularly
    - Opioids PRN
- Bladder Spasm Control: anticholinergics, or mirabegron PRN
- Antibiotics:
    - Ancef for 24 hours perioperatively
    - Antibiotics at time of catheter removal
        - Cipro or Septra DS for 3 days, starting the day prior to Foley removal
- Anticoagulation: Heparin 5000U q8h
- Diet: DAT
- IV Fluids: Maintenance and saline lock when eating drinking well
- Drain: Remove when output minimal, confirm with staff prior to removing
- Home Instructions:
    - Continue antispasmodics, Advil/Tylenol
    - CCAC for routine catheter care
    - Do NOT allow anyone to remove or manipulate the catheter aside from a member of the urology team
    - No heavy lifting (<10 lbs) for 6 weeks to avoid a hernia
- Follow-Up: 2 weeks post-op for catheter removal

Post-Robotic Pyeloplasty

- Expected length of stay: overnight to 2 days

- Pain Management:
    - NSAIDs and Tylenol alternating regularly
    - Opioids PRN
- Bladder Spasm Control: Flomax, anticholinergics, or mirabegron
- Anticoagulation: Heparin 5000U q8h
- Catheter out POD 1 if mobilizing and drain output minimal
- Drain out POD 2 if output minimal
- Antibiotics:
    - Ancef for 24 hours perioperatively
- Diet: DAT
- Home Instructions:
    - No heavy lifting (<10 lbs) for 6 weeks to avoid a hernia
- Follow-Up: 6 weeks post-op for stent removal

Post-Robotic Partial Nephrectomy

- CBC in PACU and 6 hours post-op
- Expected length of stay: overnight to 2 days
- Pain Management:
    - Tylenol regularly for 48 hours, then PRN
    - Opioids PRN
- Bladder Spasm Control: Anticholinergics, or mirabegron PRN
- Anticoagulation: Heparin 5000U q8h
- Catheter out POD 1 if mobilizing and drain output minimal
- Drain out POD 2 if output minimal
- Antibiotics:
    - Ancef for 24 hours perioperatively
- Anticoagulation: Heparin 5000U q8h
- Diet: Diet as tolerated
- Home Instructions:
    - No heavy lifting (<10 lbs) for 6 weeks to avoid a hernia
- Follow-Up: 4 weeks post-op for wound check and pathology review

Post-Laparoscopic Nephrectomy

- Expected length of stay: overnight to 2 days
- Pain Management:

    - NSAIDs and Tylenol alternating regularly
    - Opioids PRN
- Bladder Spasm Control: Anticholinergics, or mirabegron PRN
- Anticoagulation: Heparin 5000U q8h
- Catheter out POD 1 if mobilizing
- Antibiotics:
    - Ancef for 24 hours perioperatively
- Anticoagulation: Heparin 5000U q8h
- Diet: Diet as tolerated
- Home Instructions:
    - No heavy lifting (<10 lbs) for 6 weeks to avoid a hernia
- Follow-Up: 4 weeks post-op for wound check and pathology review

Common Endourological Conditions

The following are common topics you will see and manage during your rotation. Please ensure that you are familiar with the following:

Urolithiasis

- Management of urolithiasis
    - Management options: Observation, Shockwave lithotripsy, Ureteroscopy, Percutaneous nephrolithotomy
    - Indications of treatment
    - Understand key differences between management options and patient pre-operative counselling
- Medical management of urinary stone disease
    - Principles of metabolic evaluation
    - Dietary management strategies
    - Utilization of medical management and subsequent monitoring
- Guidelines
    - CUA Evaluation and medical management of stone disease: https://www.cua.org/system/files/Guideline-Files/7872_revised.pdf
    - CUA Management of ureteral calculi: https://www.cua.org/system/files/Guideline-Files/7581_v4.pdf
    - AUA Surgical management of kidney stones: https://www.auanet.org/documents/Guidelines/PDF/clinical-guidance/Surgical-Management-of-Stones.pdf

    - AUA Medical management of kidney stones: https://www.auanet.org/documents/Guidelines/PDF/clinical-guidance/Medical-Management-of-Kidney-Stones.pdf

Benign Prostatic Hyperplasia

- Investigation and management of voiding dysfunction and BPH
- Performing and interpreting urodynamics
- Lifestyle management of lower urinary tract voiding symptoms
- Medical management of BPH and OAB
- Surgical management of BPH
- Guidelines
    - CUA Male Urinary Tract Symptoms: https://www.cua.org/system/files/Guideline-Files/7906_V2.pdf
    - AUA BPH: https://www.auanet.org/documents/Guidelines/PDF/2023%20Guidelines/BPH%20Unabridged%2002-20-24%20Final.pdf

Prostate cancer

- PSA screening
- Prostate biopsies
- Risk stratification and management of prostate cancer
    - Principles of active surveillance
    - Indications for radical prostatectomy
        - Postoperative management of a radical prostatectomy
    - Indications for radiotherapy (definitive, salvage, SBRT)
    - Indications for androgen deprivation therapy
        - Understand side effects and difference between LHRH agonists and antagonists
- Imaging investigations: CT, bone scan, MRI, PSMA PET
- Genetic testing (somatic and germline) and hereditary syndromes
- Advanced/Metastatic prostate cancer
    - ADT
    - ARPIs
    - Chemotherapy (docetaxel)
    - Lutetium
    - Radiotherapy
- Guidelines:
    - NCCN: https://www.nccn.org/professionals/physician_gls/pdf/prostate.pdf

Bladder and Upper Tract Urothelial Cancer

- AUA hematuria evaluation guidelines
- Risk stratification and management options for NMIBC
    - Cystoscopic surveillance
    - Intravesical treatments: immunotherapy (BCG), chemotherapy, nadofaragene firadenovec, Nogapendekin alfa inbakicept-pmln (N-803)
    - Systemic therapy: pembrolizumab
- Management options for MIBC
    - Neoadjuvant and adjuvant chemotherapy and immunotherapy
    - Radical cystectomy and urinary diversion options
        - Understand potential surgical complications
    - Trimodal therapy
- Staging investigations: CT, MRI, FDG-PET
- Genetic testing (somatic and germline) and hereditary syndromes
- Indications for adjuvant systemic therapy:
    - Immunotherapy
    - Chemotherapy
- Management of advanced urothelial cancer
    - Immunotherapy
    - Chemotherapy
    - Enfortumab-vedotin
- Guidelines:
    - NCCN: https://www.nccn.org/professionals/physician_gls/pdf/bladder.pdf

Kidney Cancer

- Bosniak cystic renal mass classification and management
- Solid renal mass evaluation and differential diagnosis
- Indications for renal mass biopsies
- Genetic testing (somatic and germline) and hereditary syndromes
- Localized renal cell carcinoma
    - Active surveillance
    - Partial nephrectomy
    - Radical nephrectomy
    - Ablation
    - Radiotherapy
- Advanced/metastatic renal cell carcinoma
    - Role of cytoreductive nephrectomy
    - Clinical trials
    - Principles of systemic therapy

        - Immunotherapy
        - TKIs
- Guidelines:
    - NCCN: https://www.nccn.org/professionals/physician_gls/pdf/kidney.pdf

Adrenal Lesions

- Workup of an adrenal nodule
- Differential of benign and malignant adrenal lesions
- Imaging of adrenal nodules
- Indications for adrenalectomy
- Management of advanced adrenocortical carcinoma
- Guidelines:
    - NCCN: https://www.nccn.org/professionals/physician_gls/pdf/testicular.pdf

Endourology Rotation – Key Contacts

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Useful Resources & References

- **Books:** Campbell-Walsh Urology, Hinman's
- **Guidelines:** CUA, AUA, EAU, NCCN guidelines
- **Online Resources:** Urology teaching websites and case studies
- **Key Journal Articles:** Recent advancements and landmark studies in endourology