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Is Proton Beam Therapy Ready for Prime Time?

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This year, an estimated 60,000 men will receive radiation therapy for prostate cancer in the United States, of whom the vast majority will receive intensity-modulated radiation therapy (IMRT). A small proportion of patients will receive proton beam therapy, which has grown in popularity in the last 2 decades, with claims to provide more accurate dosing while reducing treatment-related toxicities.1

Proton beam therapy is not a novel form of radiation therapy. Its clinical use in radiation oncology dates to the 1950s, where it found a niche in the treatment of pediatric and complex head/neck tumors. The primary benefit of proton beam therapy lies in the physical properties of the energy source itself—the proton. While traditional radiation therapies utilize photons that transmit energy to all tissues within their directed path, a proton is roughly 1,800 times heavier and carries an elemental charge. This imparts momentum to the proton, which decelerates as it penetrates tissue, eventually releasing most of its energy at a specific depth with little dose deposition in front of and beyond the target through a phenomenon known as the “Bragg peak.” This rapid dose falloff at depth can decrease radiation exposure to adjacent normal tissue by a factor of 2 to 3.2

In the 1990s, proton therapy was explored for use in prostate cancer with the hopes of reducing treatment morbidity to the rectum and bladder.1,3

Proton beam therapy appears to have similar oncologic outcomes compared to IMRT based on many single-institution experiences. A contemporary study found 5-year freedom from biochemical progression rates to be 99%, 94% and 74% for low-, intermediate- and high-risk prostate cancer, respectively.4 However, whether proton therapy’s theoretical toxicity benefit translates to a meaningful clinical improvement is less clear. A case-matched study of patients receiving proton beam treatment and IMRT between 2009 and 2012 found no differences in late genitourinary and gastrointestinal toxicities 90 days after treatment, despite proton therapy showing an 8.5- and 6-fold reduction in radiation dose to the bladder and rectum, respectively.2

A population-based study using SEER (Surveillance, Epidemiology, and End Results)-Medicare linked data demonstrated that IMRT was associated with less gastrointestinal morbidity compared to proton therapy.5 A separate Medicare analysis of 27,000 men who received proton beam treatment showed an association with lower genitourinary toxicities at 6 months compared to IMRT, but found no differences in genitourinary or gastrointestinal toxicities at 12 months.2

In the late 2000s, proton beam therapy gained momentum in prostate cancer treatment as direct-to-patient marketing fueled demand and cancer centers engaged in a “radiation arms race” to offer the latest therapies.3 As a result, the number of proton treatment centers exploded from 5 in 2009 to 39 in 2021 (see Figure).6

Proton treatment centers are expensive, and construction costs can range from $40–$250 million. Once operational, its profitability favors simple prostate cancer treatments over more complex or pediatric tumors, which take longer and are more technically demanding.7 Indeed, cost analyses of proton facilities show that a single gantry center treating only complex or pediatric patients would need to fill 85% of its treatment slots to cover debt costs, but could recoup the same amount in 4 hours of prostate cancer treatments.9

This economic model appears to have driven practice patterns toward high throughput prostate cancer treatment. Even still, operating margins for proton treatment centers are volatile and have been undermined by insurers’ growing reluctance to reimburse. According to The New York Times, in 2018 nearly a third of all centers in the U.S. were losing money, had defaulted on their debt or had to overhaul their finances.8

Given the available evidence, proton beam therapy appears to have similar cancer control and toxicity rates compared to IMRT, but at significantly higher cost, with estimates showing it to be between 1.5 and 2 times more expensive.3 Median Medicare reimbursement for proton therapy in 2008 and 2009 was $32,428, which was 75% more expensive than IMRT ($18,575).5 Additionally, stereotactic body radiation therapy—which typically delivers 5 fractions of radiation over 2.5 weeks instead of the standard 40 fractions over 8 weeks—is an alternative treatment that is gaining momentum and emerging as an attractive option due to its short duration and cost-effectiveness.4 In an era when value has become an important factor in quality care, proton therapy has been justifiably scrutinized for overzealous commercial development and expense that has outpaced the clinical evidence. However, proponents of proton beam therapy argue that the technology has not reached its full potential and that improvements in treatment delivery make comparisons from decade-old studies obsolete.

Proton treatment is also expected to become more affordable with a trend toward smaller treatment centers that are less expensive. Moreover, shortening treatment durations using hypofractionation protocols is another opportunity for cost savings.3

Several randomized controlled trials comparing IMRT to proton beam therapy are currently underway with primary completion dates anticipated within the next few years. The Prostate Advanced Radiation Technologies Investigating Quality of Life (PARTIQoL; NCT01617161) trial will involve 12 treatment centers with a planned sample size of 400 patients. Patients will receive IMRT or proton therapy in either standard or hypofractionation protocols with...
IS PROTON BEAM THERAPY READY FOR PRIME TIME?

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“...These studies will provide the first high-quality data directly comparing proton beam therapy to IMRT for prostate cancer and are likely to influence its future as a sustainable treatment option.”

The primary outcome comparing gastrointestinal quality of life scores 24 months after treatment. Additionally, the study will compare disease-specific quality of life, cost-effectiveness, dosimetry, biomarker identification, and disease-specific and long-term survival. Another large, prospective, pragmatic controlled comparison trial (Prospective Comparative Study of Outcomes With Proton and Photon Radiation in Prostate Cancer [COMPPARE]; NCT03561220) started recruitment in 2018 and will assess quality of life measures, toxicity rates and freedom from biochemical progression in 3,000 men receiving either photon or proton therapy. These studies will provide the first high-quality data directly comparing proton beam therapy to IMRT for prostate cancer and are likely to influence its future as a sustainable treatment option.

Until then, we should view proton beam therapy as an expensive option with mixed toxicity benefits.


Innovations in Urological Surgical Education

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The word “doctor,” derived from Latin docere, to teach, epitomizes the intimate relationship between medicine and teaching.1 Surgical education requires integration of clinical reasoning and technical skill in a background of complex anatomy and pathology.2 The modern trainee must assimilate a rapidly expanding body of medical knowledge and surgical procedures with increasing administrative demands, during a shortened residency containing more required “nonsurgical” curricular elements (quality improvement, patient safety, health care disparities, interprofessional training), while operating within work hour restrictions. This great pressure to optimize operative learning has expanded interest in surgical education innovation.3

Examples of innovation can be found in the Scott Department of Urology at Baylor College of Medicine, with initiatives such as the Surgical Time Out and Debrief Feedback Model, the Resident Wellness Curriculum, patient-specific robotic surgical rehearsal and the virtual sub-internship elective. In this article, we will focus on educational initiatives that have inspired program culture shifts and collaborative learning by embracing technology and modern concepts in well-being and feedback (see Figure).

One example of faculty and trainees collaborating to effect positive change is our Surgical Time Out and Debrief model, developed with the goal of maximizing the educational value of each surgical case experience through structured preoperative and postoperative discussion between residents and attendings. The preoperative Time Out allows the resident to identify and discuss unique aspects of patient history pertinent to surgical decision making along with technical considerations, and the resident specifies an individualized goal for the case.”

The preoperative Time Out allows the resident to identify and discuss unique aspects of patient history pertinent to surgical decision making along with technical considerations, and the resident specifies an individualized goal for the case. The postoperative Debrief calls for immediate real-time feedback guided by validated surgical assessment tools, to provide specific and actionable feedback. With pre- and post-implementation surveys...
and serial evaluations with the validated assessment tools, we found this initiative resulted in improved perceptions among resident and attending physicians of perioperative surgical technical discussions, improved satisfaction with feedback frequency and objective improvement in resident technical skills. This initiative highlights the value in fostering an open dialogue between residents and faculty that begins before the incision, to align goals and expectations, which hopefully increases trust and surgical autonomy. This dialogue continues following the case to review the resident’s performance and reinforce learning points. The legacy of this initiative is a sustained culture shift supporting structured preoperative goal-setting and postoperative discussions. We have incorporated technology into this model with innovative platforms such as the SIMPL application, in which residents and faculty increased. 7 The legacy of this initiative is a sustained culture shift supporting structured preoperative goal-setting and postoperative discussions. We have incorporated technology into this model with innovative platforms such as the SIMPL application, in which residents and faculty can track their individual learning points. The legacy of this initiative is a sustained culture shift supporting structured preoperative goal-setting and postoperative discussions. We have incorporated technology into this model with innovative platforms such as the SIMPL application, in which residents and faculty increased. 7

“Our residents also complete a curriculum for simulated learning of minimally invasive skills, leveraging the da Vinci® simulation trainer and the Fundamentals of Laparoscopic Surgery course, utilizing our institution’s Simulation Lab. Employing patient-specific 3-D models of kidneys with renal masses derived from cross-sectional imaging, residents practice renal mass resections tailored to specific cases. 4 Skill development is also tracked using a robotic case “passport” to monitor successful execution of critical portions of a case amongst varying attendings. Simulation can extend beyond technical skills to patient safety analyses and interprofessional interactions as well.

With unexpected changes to in-person medical student learning in the spring of 2020 from the coronavirus pandemic, our department utilized its innovative to host a novel virtual sub-internship experience for fourth-year medical students.”

“With unexpected changes to in-person medical student learning in the spring of 2020 from the coronavirus pandemic, our department utilized its innovative to host a novel virtual sub-internship experience for fourth-year medical students.”

In urological surgical training, we increasingly recognize the importance to develop both technical and nontechnical skills for surgical and clinical competence. 8 Innovations that adapt to an everchanging health care climate can serve as catalysts and foster a culture that values ongoing learning, promotes a sense of agency among residents and faculty alike, and equally prioritizes technical skill acquisition along with strong nontechnical skills. Surgical training has undergone a major paradigm shift from that of the Halstedian apprenticeship to standardized clinical and surgical assessments. 9 Innovations focused on resident empowerment, wellness and use of technology can augment this shift to train holistic, confident, surgically competent urologists.


“Educational innovation also includes focus on personal development, through initiatives such as our Resident Wellness Curriculum, instituted after identifying program-specific targets for improvement.”

ERRATUM
The Middle East Female Urologist: How Far Have We Come Today?
In the table providing the number of female urologists in the Middle East by country, the number of female urologists in Israel has been corrected to 35, and the source has been changed to Israeli Urological Association and the urologist community. The table has been corrected in the online and PDF versions of the article.
Office-Based Awake Child Urological Procedures: Earn the Family’s Trust

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The idea of performing minor office-based urological procedures in young children may not sound like an exciting idea to many but can offer several important benefits to the children including avoiding the risks associated with general anesthesia, reduction in cost and associated financial burden on the family, and low complication rates. There has been excellent safety and efficacy reported on several office procedures commonly performed in pediatric urology including newborn circumcisions, urethral meatoectomy, lysis of penile adhesions/skin bridges, lysis of labial adhesions and excision of benign lesions. The increasing advancement of safe and effective local anesthetic agents has led to the shift of traditionally performing these procedures under general anesthesia to an office setting (Fig. 1).

At Children’s Hospital of Philadelphia, we believe we have avoided general anesthesia in children by performing nearly 500 urological procedures every year in the office with reported high success rates and high patient satisfaction rate. While the trend in increased adoption of office procedures in pediatric urology continues, the obvious concerns of patient discomfort and pain are important factors to understand and address.

Strategies in Process

We believe there are several important factors to consider in order to ensure a safe, comfortable and satisfactory office procedure that limits pain in the child and eases the family. It is essential to create a supportive and comfortable office setting to entail mutual trust between the care team, child and family. A collaborative shared decision making approach with the family is a vital aspect of informed consent, particularly for office based awake procedures. Families should be counseled on the risks and benefits of undergoing the same procedure in both the office setting and under general anesthesia in an unbiased manner, making sure the family understands that it’s their choice rather than the will of their surgeon that determines the course of treatment. Another extremely valuable tool is an interdisciplinary approach that utilizes child life services and patient care advocates in the decision making process and during the procedures. They can help engage the child with playful interactions and digital media, address any patient discomfort or anxiety, and act as a conduit to express parental and/or patient concerns to the care team and thus best engage the family during the procedure (Fig. 2). In addition to education on the diagnosis and treatment options, it is important to reassure the family that a procedure in the office will be stopped at any time if the child or parent feels discomfort or reluctance, thus ensuring the family and child feel that they are in the driver’s seat. All team members present in the procedure should be perceptive of any verbal or physical cues from the child or parent that will warrant immediate stopping of the procedure. In addition, an institutional adoption of a multimodal approach to pain management is essential for optimal care.

To ensure smooth office workflow and optimize patient experience, after application of topical anesthetic we ask the patient and family to engage in playful activities in the waiting area until the full

“Families should be counseled on the risks and benefits of undergoing the same procedure in both the office setting and under general anesthesia in an unbiased manner, making sure the family understands that it’s their choice rather than the will of their surgeon that determines the course of treatment.”

Figure 1. Exam room setup for office-based circumcision including Gomco clamp.

Figure 2. Simple distractions including toys and books to help children feel more comfortable during office-based procedures.

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“Office-based procedures are an excellent alternative to general anesthesia that offers a safe, convenient and cost-effective approach to pediatric care.”

Outcomes

We recently reported our own institutional experience, highlighting a success rate of greater than 95% in nearly 1,500 office procedures performed in our office over a 5 year period, with 98.9% of the cohort avoiding the risks associated with general anesthesia. While literature continues to report higher success rates in several urological procedures in the pediatric setting, the difficulty of performing validated questionnaires in children due to patient age poses limitations in assessing true patient reported outcomes (PROs). A study by Smith assessing parent perception of discomfort in children undergoing office-based procedures showed that 96% of parents were satisfied with the decision to have their child undergo the procedure in the office instead of under general anesthesia. While proxy reported outcomes may be temporary substitutions for PROs in the pediatric setting, it is critical to further investigate the development and implementation of validated questionnaires that accurately report PROs in children. Robust data in PROs are important for prospective improvement and aid with surgical decision making, pre-procedure care and counseling, as well as maximizing patient outcomes.

Conclusion

Office-based procedures are an excellent alternative to general anesthesia that offers a safe, convenient and cost-effective approach to pediatric care. Successful office-based awake child procedure care will be influenced by numerous factors including shared decision making with the patient and family, interdisciplinary collaboration with child life services, informative counseling and multimodal pain management strategies. As the use of office-based procedures continues to grow in the field of pediatric urology, additional ways to improve care based on PRO feedbacks in pediatrics is critical and should be our natural next step.

Beyond Nurture: State of the Art and Future Directions for Germline Genetics in Urothelial Carcinoma

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Introduction

There were ~83,730 new cases of bladder cancer estimated in 2021, with ~17,200 predicted to be lethal. Environmental risk factors such as smoking exposure and aromatic amines increase the risk of developing urothelial carcinoma (UC; see Figure). The accessibility to genomic sequencing and decreased costs of germline testing enhanced the understanding of genetic predisposition to UC. The Nordic Twin Study reported that the familial risk of developing bladder cancer was almost twofold higher in monozygotic (9.9%) compared to dizygotic twins (5.5%). Overall, the study reported a substantial ~30% heritable risk of bladder cancer.

Lynch Syndrome: A Prototype Cancer Susceptibility Syndrome in UC

Lynch syndrome is a cancer syndrome, which also predisposes to upper tract UC as well as bladder cancer. The cumulative risk of UC by 70 years is ~7% with the highest risk found in MSH2 germline carriers of pathogenic and likely pathogenic (P/LP) variants. Routine surveillance for UC is recommended, although urinalysis and imaging in conjunction with screening for other malignancies may be employed.

Multi-Genic Approaches: A Promising Arena for New Discoveries of Rare Variants in UC

Recently, the tides have shifted from a high-penetrance single-gene approach toward a multi-genic approach. Genome-wide association studies (GWAS) center on the combined effect of low-penetrance genetic variants and have been the mainstay of studying associations between candidate variants and risk of cancer. GWAS in bladder cancer identified 13 bladder cancer susceptibility alleles. Rare cancer risk variants are understudied although important as they 1) provide additional insight to heritability of UC and 2) are more recent compared to GWAS risk variants and are more likely to be localized geographically.

Recent work by Carlo et al used a targeted sequencing panel of 431 genes and studied a relatively unselected cohort of 586 patients at a single academic center with UC (see Table). The frequency of P/LP variants in patients with UC was 14% (80/586) with the majority harboring P/LP variants in DNA damage repair genes (DDR, 66/586, 11%) such as BRCA2 (1.5%), MSH2 (1.4%) and BRCA1 (1.4%). Carlo et al also identified enrichment in BRCA2 and MSH2 compared to controls from the Exome Aggregation Consortium. Importantly, a quarter of patients carried high-penetrance germline variants and would have been overlooked by current guidelines. Recent work by Carlo et al used a targeted sequencing panel of 431 genes and studied a relatively unselected cohort of 586 patients at a single academic center with UC (see Table).

Table. Prevalence of germline P/LP variants among most frequently altered genes in UC in 3 previously published studies

<table>
<thead>
<tr>
<th>Gene</th>
<th>No./Total No. Memorial Sloan Kettering Cancer Center (586) (%)</th>
<th>No./Total No. Invitae (1,038) (%)</th>
<th>No. Well Cornell (80) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>APC</td>
<td>11/586 (1.9)</td>
<td>1/752 (0.1)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>ATM</td>
<td>3/586 (0.5)</td>
<td>13/827 (1.6)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>BRCA1</td>
<td>8/586 (1.4)</td>
<td>20/867 (2.3)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>BRCA2</td>
<td>9/586 (1.5)</td>
<td>18,867 (2.1)</td>
<td>1 (1.3)</td>
</tr>
<tr>
<td>CHEK2</td>
<td>7/586 (1.2)</td>
<td>24/862 (2.8)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>CNDP2</td>
<td>—</td>
<td>—</td>
<td>3 (3.8)</td>
</tr>
<tr>
<td>EPHB5</td>
<td>—</td>
<td>—</td>
<td>3 (3.8)</td>
</tr>
<tr>
<td>FH</td>
<td>4/586 (0.7)</td>
<td>5/390 (1.3)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>ITGA7</td>
<td>—</td>
<td>—</td>
<td>3 (3.8)</td>
</tr>
<tr>
<td>KLRK5</td>
<td>—</td>
<td>—</td>
<td>3 (3.8)</td>
</tr>
<tr>
<td>MIF</td>
<td>1/586 (0.2)</td>
<td>4/339 (1.2)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>MLH1</td>
<td>2/586 (0.3)</td>
<td>10/957 (1)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>MSH2</td>
<td>8/586 (1.4)</td>
<td>34/969 (3.5)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>MUTYH</td>
<td>6/586 (1)</td>
<td>15/754 (2)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>POLQ</td>
<td>—</td>
<td>—</td>
<td>3 (3.8)</td>
</tr>
<tr>
<td>TP53</td>
<td>1/586 (0.2)</td>
<td>2/929 (0.2)</td>
<td>0 (0)</td>
</tr>
</tbody>
</table>

“The accessibility to genomic sequencing and decreased costs of germline testing enhanced the understanding of genetic predisposition to UC.”

Continued on page 9
variants. In another study, whole exome analysis of germline DNA identified deleterious germline variants in 45 of 80 (56%) patients with UC (see Table). In contrast to prior work, extensive deleterious variants in new genes were identified with ITGA7, POLQ, KLK6, EPHB6 and CNDP2 being the most frequent genes harboring deleterious germline variants. Importantly, some somatic pathogenic variants in MLH1, MSH2, MSH6, PMS2, EPCAM, and satellite instability, Lynch syndrome evaluation is indeed building.

Somatic Profiling May Guide Germline Evaluation

National Comprehensive Cancer Network guidelines recommend germline testing if a somatic pathogenic variant confers germline risks (eg BRCA1, BRCA2, PALB2, micro-satellite instability, Lynch syndrome genes [MLH1, MSH2, MSH6, PMS2], EPCAM). Importantly, some somatic alterations are common in some genes such as p53 mutations and may not confer germline implications in the absence of personal or family history of cancers.

Future Directions

Expanding testing among underrepresented populations

As we gain more insights into the genetic determinants of UC, future work should concentrate on genotyping of underrepresented populations, developing algorithms to computationally narrow down candidate variants of unknown significance (VUSs) for functional annotation and ensuring paired tumor-normal sequencing is performed to better understand drivers of disease.

Germline studies in UC to date mostly include White patients with minimal representation of other populations. Non-Whites only constituted a small minority of the large cohorts evaluating germline variants in UC. Population genetics has shown us that 1) risk variants differ in prevalence across ancestral populations, 2) some high-risk variants only occur in certain ancestries and 3) risk variants that are most relevant to a certain ancestry may be best detected by studying samples from the ancestry itself, rather than extrapolating from other ancestries. Future work should focus on sampling more non-White patients to better elucidate germline predisposition in other ancestral population and potentially identify high-risk variants that have gone unnoticed.
The HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) survey. Thirty percent of the outcomes data are dependent upon in-hospital mortality, with the remainder related to the number of patients discharged to home after admission.\(^3\)

While it seems appropriate that an evidence-based measure of specialty performance is, at least in part, based on patient mortality while under their care, there is evidence to suggest that there are flaws in the underlying methodology used to attribute patient deaths to each specialty. This, in turn, impacts the accuracy of the rankings. For example, the death of a patient may be assigned to urology, yet the specialty caring for the patient was cardiology. This is because the USNWR data are based on administrative insurance data using Medicare Severity Diagnosis Related Groups (MS-DRGs). USNWR uses an independently developed mapping schema to assign MS-DRGs to each specialty using closed insurance claims; therefore, a death assigned to a particular specialty through an MS-DRG counts as a death for that specialty regardless of whether that specialty was ever involved in the patient’s care.\(^1,2\)

Given the potential misattribution of care that may be reflected in the rankings, we performed a retrospective analysis at our institution examining the rate of discordance between assigned care and actual specialty care received for urological patients. All inpatient deaths at our institution that were mapped to urology using the U.S. News schema from 2013 to 2017 were reviewed. We identified the cause of death via chart review and confirmed if the patient was cared for on the primary urology service or seen as a consultation during their admission. Author consensus was then used to determine if the mortality was related to a urological surgery or primary diagnosis.\(^2\)

Nineteen patients were mapped to urology. Only 3 of these 19 patients (16%) were cared for primarily by urology. The remaining 16 patients (84%) were on a medical service. Of the 16 patients on a medical service, urology was only consulted on 2 patients (13%). Of the 19 patients mapped to urology, 10 (53%) were already on palliative care where death was the expected outcome. Overall, only 2 of the 19 (11%) deaths were potentially associated with urological care. The Table provides a detailed summary of the deaths and MS-DRGs attributed to urological care.\(^4\)

We found that there is a significant discordance in the 30-day inpatient mortalities mapped to urology versus the actual care received at our urban, tertiary-care institution. Only 16% of the deaths assigned to urology were actually cared for by a urologist, and this number does not change when including patients seen as consultation (11%). While our data are limited given the small sample size and data from only a single institution, the sensitive nature of hospital mortality data largely precludes a multi-institutional analysis. Furthermore, to validate our findings, an identical analysis was also performed for otolaryngology, which is another surgical specialty ranked by USNWR. This revealed nearly identical findings of a high discordance between assigned care and actual specialty care, such that 49% of otorhinolaryngology deaths were assigned to otorhinolaryngology versus actually being admitted to cardiology.

“A perfect ranking system will require higher fidelity source data other than closed Medicare claims, which likely will require practice-level reporting via a clinical data registry.”

Table. Summary of patient deaths attributed to urology

<table>
<thead>
<tr>
<th>Category</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admitting service:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicine and subspecialties</td>
<td>16</td>
<td>84</td>
</tr>
<tr>
<td>Urology</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>Cause of death:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urosepsis</td>
<td>5</td>
<td>26</td>
</tr>
<tr>
<td>Cardiac arrest</td>
<td>4</td>
<td>21</td>
</tr>
<tr>
<td>Respiratory failure</td>
<td>8</td>
<td>42</td>
</tr>
<tr>
<td>Unknown or other</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Urology consulted during admission:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>No</td>
<td>14</td>
<td>88</td>
</tr>
<tr>
<td>Palliative care at time of death:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>10</td>
<td>53</td>
</tr>
<tr>
<td>No</td>
<td>9</td>
<td>47</td>
</tr>
<tr>
<td>Procedure:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>4</td>
<td>21</td>
</tr>
<tr>
<td>Foley catheter</td>
<td>11</td>
<td>58</td>
</tr>
<tr>
<td>Transurethral surgery</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Intra-abdominal/retroperitoneal urological surgery</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>MS-DRG description:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other kidney and urinary tract procedures with MCC</td>
<td>14</td>
<td>74</td>
</tr>
<tr>
<td>Major bladder procedures with MCC</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Malignancy, male reproductive system with CC</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Transurethral procedures with MCC</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Kidney and ureter procedures for neoplasm with MCC</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

CC, complication or comorbidity. MCC, major complication or comorbidity.
suggested this issue is not isolated to a single specialty.

In-hospital mortality is one of many factors included in the US-NWR specialty rankings. Nevertheless, it is the largest modifiable factor that is in the control of the individual specialty, rather than fixed at the hospital level, like nursing ratios, or dependent upon external expert opinions. Our data highlight several important points when considering the use of US-NWR rankings. First, the systemic inaccuracies we found in attribution of care diminish the validity of the USNWR rankings to reflect the care actually delivered. As a result, specialists should not rely on these rankings to benchmark or measure their outcomes against their peers, and similarly, patients should not assume that a high-ranking specialist will provide high-quality care simply because they are ranked high. An ideal ranking system will require higher fidelity source data other than closed Medicare claims, which likely will require practice-level reporting via a clinical data registry. This is still relatively new in urology but expanding with AUA initiatives like AQUA (the AUA Quality Registry).3


The Current State of High Submuscular Inflatable Penile Prosthesis Reservoir Placement

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Background

Traditional inflatable penile prosthesis (IPP) implantation has for decades involved reservoir placement into the space of Retzius (SOR). Using a penoscrotal approach to access the external inguinal ring, the transversalis is pierced. The reservoir is passed through this tunnel to reach its desired location deep in the pelvis (transinguinal [TI] technique). There the reservoir resides within the preperitoneal space, posterior to the transversalis fascia and anterior to the bladder (Figs. 1 and 2, A).

Despite the widespread practice of TI-SOR reservoir insertion over many decades, infrequent but severe reservoir-related complications are well recognized. Such complications include injury of the bladder at the time of reservoir insertion,1 subsequent erosion of the reservoir into the urinary bladder,2 neobladder,3 ileal conduit or colon,2 ureteral obstruction,6 small-bowel obstruction and compression of the external iliac vein leading to deep venous thrombosis.8 Distances from the external inguinal ring to the full bladder and to the iliac vein have been estimated to be only 2–3 cm.9 Bladder decompression, avoidance of dissection deep and lateral to the external ring, and use of Trendelenburg position at the time of reservoir insertion are recommended to minimize the risk of pelvic visceral injury during reservoir placement. The current era of robotic pelvic surgery has further elevated concerns for inadvertent intraperitoneal IPP reservoir placement among patients with altered pelvic anatomy.

The introduction of the reservoir lock-out valve in the early 2000s facilitated alternative reservoir placement options without unwanted pressure-related auto-inflation of the cylinders. The “ectopic” reservoir concept was first popularized for penoscrotal IPP implantation by Wilson et al in 2002.10 In 2011, Perito popularized a similar ectopic approach during infrapubic IPP insertion with reservoir placement posterior to the anterior abdominal wall musculature and anterior to the transversalis fascia.11 In Perito’s technique, the surgeon enters the external inguinal ring via an infrapubic incision and drives a nasal speculum cephalad and lateral toward the ipsilateral shoulder to bluntly develop a pocket posterior to the transversalis abdominis.

In 2013, we coined the term “high submuscular” (HSM) reservoir placement, which differed from Perito’s approach by 1) utilizing a penoscrotal incision, 2) implementing a long atraumatic clamp to dissect a space above the pelvis and 3) emphasizing a more medial reservoir position posterior to the rectus abdominis (Fig. 1, Position 1).12 Both approaches incorporate a TI approach with intent to remain anterior to the transversalis fascia in order to maximize the distance from the reservoir to critical pelvic structures such as the bladder and iliac vessels. High patient satisfaction and low rates of reservoir palpability supported the use of the HSM technique.12 In 2015 Colplast gained U.S. Food and Drug Administration approval for HSM IPP reservoir placement.13

Development of HSM Technique

Several critical appraisals of HSM reservoir placement merit discussion. Mayo Clinic researchers...
performed TI-HSM reservoir insertion on 20 cadavers followed by abdominal peritoneal exploration to determine the exact position of each reservoir. While 80% of reservoirs were anterior to the transversalis fascia, 20% were in unintended locations (10% retroperitoneal, 5% preperitoneal, 5% intraperitoneal). The authors highlighted the natural variability of inguinal canal make-up (ie fusion of abdominal wall layers) as a possible explanation for why blunt development of the HSM space may entail variability in final reservoir position.

At UT Southwestern, we recently conducted a decade-long retrospective analysis of reservoir location using cross-sectional radiographic imaging performed for nondevice-related reasons in the years following IPP insertion. Among 561 first-time IPP patients, 114 had imaging available for review by radiologists blinded to the method of reservoir insertion. Three different reservoir insertion techniques were used (29 TI-SOR, 80 TI-HSM, 5 counter-incision [CI]-HSM). Although substantial variability in the final resting positions of reservoirs placed with a TI-HSM approach was observed, reservoir-related complications in the TI-HSM group (total 405) were limited to 1 delayed bowel injury and 9 reservoir herniations. There were no complications in the CI-HSM group (total 25). Using the same radiographic database, the distances between reservoirs and critical pelvic structures were found to be roughly 5 times longer for HSM compared to SOR reservoirs. Major and minor mass effects from the reservoir onto the bladder or iliac vessels were significantly less common with the HSM approach (Fig. 2).

The HSM method of reservoir placement has become common practice among implanters worldwide, especially for higher risk patients like those with a history of colostomy, neobladder, hernia repair, renal transplant or other major pelvic surgery. In the only single-institution head-to-head comparison, patient satisfaction was higher among patients who underwent HSM than SOR reservoir placement. In 2020, a refined “Five Step Technique” for HSM reservoir placement was promoted to increase reproducibility and minimizing complications.

We now regularly use a lower abdominal CI to avoid the location variability associated with TI insertion. The CI-HSM approach allows for direct visualization of the transversalis fascia through the fibers of the rectus abdominis, avoids the need for manipulation of the inguinal canal and virtually eliminates the main risk of TI-HSM placement—reservoir herniation. The largest study to compare the CI-HSM technique (51) to non-CI techniques (483) found similar rates of device infection (2% vs 4%, p = 0.71) and an increased median operative time of 17 minutes with CI use.

Summary

After a decade of clinical experience and refinement, the HSM approach for IPP reservoir placement has proven to be safe and well tolerated. Avoiding deep pelvic dissection in urological prosthetic surgery has become a popular strategy, especially in high-risk reoperative patients or when performed in an ambulatory surgical setting.

Disclosures: Dr. Morey receives honoraria for being a guest lecturer/meeting participant for Boston Scientific and Coloplast Corp. Dr. Dropkin receives honoraria for being a guest lecturer/meeting participant for Boston Scientific.

Addressing the Urological Concerns of Gender Diverse and Transgender Youths: What a Pediatric Urologist Should Know

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An increasing number of transgender and gender diverse (TGD) youth are seeking health care services today, and pediatric urologists are likely to care for these patients even outside specialized multidisciplinary programs focused on gender affirmation. This article focuses on points to consider when caring for TGD youth, including creating an inclusive office environment, urological care considerations and current legislation that may affect the ability of TGD youth to seek gender-affirming care.

Trans-Competent Care

As approximately 1 in 4 transgender adults may avoid a necessary doctor’s visit because of fear of being mistreated, trans-competent care is essential. The patient’s interactions with the physical environment and every member of the workforce are equally important in providing an inclusive, safe environment (Fig. 1). Our patients have unique gender identities and preferences for how they would like to be addressed, which may change over time as their gender identity is explored. A familiarity with basic gender identity terminology and understanding the differences between gender identity, gender expression and sexual orientation are imperative to communicate with patients. Inclusive intake forms can provide space for patients to express their pronouns and gender identity, and are ideally reflected in the electronic medical record (EMR). Most TGD youth desire opportunities for EMR-wide preferred name and pronoun documentation, regardless of legal name. Introductions that include your pronouns can signal to patients that your office is a safe space. All office staff have a role in affirming a patient’s gender identity. Cultural competency trainings include content such as education about TGD youth, health disparities, gender-affirming communication and data entry into the EMR. Examples of online educational modules are available at The Fenway Institute. Finally, the physical environment in which you provide care matters. Gender-neutral bathrooms, “safe space” signage, and inclusive waiting room artwork and magazines all reveal awareness and inclusivity.

Urological Care

To provide comprehensive urological care for TGD youth, it is helpful to understand the typical gender-affirming treatments available at different ages, including gonadotropin-releasing hormone agonists around the typical time of puberty (reversible pubertal suppression), exogenous hormones in early adolescence and gender-affirming bottom surgery, which in most cases is restricted to patients 18 years or older.

Genital exams

TGD patients, whose genitals are often a significant source of their gender dysphoria, may be particularly anxious about genital exams. Demonstrate that it is a safe environment and discuss why there is a need for the exam—spending the extra time and effort is important. In addition, careful attention to the child’s medical history and examination occasionally reveals an underlying intersex or differences of sex development condition.

Voiding dysfunction

Voiding dysfunction occurs in TGD patients as in all youth, though the rates in this population are unknown. Common coexistent mental health issues for TGD youth include anxiety, depression and eating disorders, all known to also be associated with voiding dysfunction. Additionally, TGD patients often feel uncomfortable using public restrooms and may hold their urine for long periods of time. Hormone initiation can trigger lower urinary tract symptoms that may require working with the patient’s hormone provider to adjust dosing.

Table 1. Fertility preservation options for TGD patients

<table>
<thead>
<tr>
<th>Option</th>
<th>Experimental?</th>
<th>Eligible Pt Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oocyte cryopreservation</td>
<td>No</td>
<td>Tanner 3+ TGD people with ovaries, willing/able to undergo ovarian stimulation</td>
</tr>
<tr>
<td>Sperm cryopreservation</td>
<td>No</td>
<td>Tanner 3+ TGD people with testicles, willing/able to produce a sample by masturbation</td>
</tr>
</tbody>
</table>
| Ovarian tissue cryopreservation| No (but just recently declared nonexperimental) | • TGD adolescents with ovaries, on (or previously on) GnRH agonists, have not completed endogenous puberty
|                                |              | • TGD people with ovaries, Tanner 3+, not willing/able to undergo ovarian stimulation   |
| Testicular tissue cryopreservation | Yes         | • TGD adolescents with testicles, on (or previously on) GnRH agonists, have not completed endogenous puberty
|                                |              | • TGD people with testicles, Tanner 3+, not willing/able to produce a sample by masturba... |

“Hormone initiation can trigger lower urinary tract symptoms that may require working with the patient’s hormone provider to adjust dosing.”

Continued on page 14
Table 2. Examples of transgender legislation types

<table>
<thead>
<tr>
<th>Expansive</th>
<th>Restrictive</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Nondiscrimination protections</td>
<td>• Single-sex facility restrictions</td>
</tr>
<tr>
<td>• Updating gender markers on identification documents</td>
<td>• &quot;Bathroom bills*&quot;</td>
</tr>
<tr>
<td>• Health care protections</td>
<td>• First amendment defense acts and other religious exemptions</td>
</tr>
<tr>
<td></td>
<td>• Adoption, marriage</td>
</tr>
<tr>
<td></td>
<td>• Transgender youth in sports</td>
</tr>
<tr>
<td></td>
<td>• Health care restrictions</td>
</tr>
</tbody>
</table>

“Tucking is a practice used by trans women to conceal the testicles and penis, pushing the testicles up into the inguinal canal and the penis down. Understanding this practice is important in the context of clinical concerns such as testicular pain, epididymo-orchitis, urinary tract infections and genital skin irritation, although no robust literature exists.”

Sexual health and fertility

Opening the door to talk about sexual health is important, and TGD individuals who are on testosterone and estrogen should be aware that being on hormones is not sufficient contraception. In particular, amenorrhea does not equate to pregnancy prevention among transmasculine individuals taking testosterone, and unintended pregnancies have been reported. However, TGD individuals who choose gender-affirming treatments are at risk for future infertility. Pubertal suppression and gender-affirming hormones suppress gonadal function to varying degrees, and gonadectomy results in permanent sterilization. Therefore, individuals who receive gender-affirming treatments should receive counseling regarding the potential for future infertility and subfertility.

Established and experimental fertility preservation options both...
apply to TGD individuals, with eligibility dependent on pubertal status and gonadal type (Table 1). Uptake of the nonexperimental options has been limited due to considerations including exacerbation of gender dysphoria from procedures necessary to complete fertility preservation (ie masturbation, hormones for ovarian stimulation/egg retrieval).7,8

Legislation

There has been a significant increase in transgender-focused legislation at the state level over the last 4–5 years in the United States. The types of legislation can be divided into “expansive” and “restrictive” categories, with restrictive-type legislation predominating and potentially limiting the care pediatric urologists can provide to TGD patients (Table 2). During the 2022 legislative session, there have been 5 active expansive-type health care bills in 5 states and 25 active restrictive-type health care bills in 19 states. Most of these bills have intersex “carve-outs,” meaning the proposed restrictions do not apply to individuals with verified disorders/differences of sex development conditions. Figure 2 summarizes recent transgender-related health care bills in the United States. Though access to health care is highly variable and dependent on state-level policies and politics, the Affordable Care Act prohibits health care discrimination at federally funded health care facilities based on gender identity.

Transition to Adult Care

Transition of care to adult services (also known as “transition care”) ideally provides uninterrupted care for the patient. With the growth of specialized pediatric clinics for TGD health care services, an emphasis should be placed on creating partnerships with adult programs of equal standards of care. Already a vulnerable population, transgender and nonbinary youth may face unique obstacles in this paradigm change, and thus our goal should be to create a safe, competent and gender-affirming medical home for emerging adults.8

Noncancerous Pelvic Conditions: Public Health Priorities

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Kansas University Medical Center, Kansas City

The following is based on presentations made in a plenary session at the annual Society of Urodynamics, Female Pelvic Medicine & Urogynecological Reconstruction meeting held this year in San Diego, California.

Why are so many of the conditions under the care of urologists considered quality of life conditions not prioritized by patients, clinicians, researchers, payers and society?

Stereotyped pelvic conditions related to bodily functions that are not “talked about” are identified as personal failures, “facts of life” or even treated as not important by some medical care providers. These conditions are deprioritized by being labeled “benign” or “quality of life” conditions. These conditions are considered to be nuisances, caused by prioritized conditions such as diabetes, cardiovascular, neurological and mental health conditions, despite evidence that these pelvic conditions could cause or exacerbate these prioritized conditions. Our research reflects this more traditional way of thinking and stymies our ability for truly innovative discoveries that will improve the lives of individuals who suffer with these conditions.

Trying to change this thought process is an immense challenge that starts with having a broad framework to organize our thinking about the “downstream” impacts of these noncancerous pelvic conditions (NPCs).

Before describing the framework, it is helpful to first clarify the term noncancerous pelvic health. We know that urological conditions often coexist and in many cases are impacted by reproductive, sexual and rectal/colon conditions. Among pelvic conditions, not only does the pathophysiology often overlap, but so does the “sensitive” nature of these conditions and the perceived importance, or lack thereof, of these conditions.”

Among pelvic conditions, not only does the pathophysiology often overlap, but so does the “sensitive” nature of these conditions and the perceived importance, or lack thereof, of these conditions.


4. The National LGBTQIA+ Health Education Center of The Fenway Institute. Available at https://www.lgbtqiahealtheducation.org


worsen these conditions. The hope is to identify risk factors that we can mitigate or factors predictive of health that we can encourage or support. With downstream burdens, however, the focus is not on what causes these conditions, but how these conditions impact (or burden) the self as well as society. For example, urinary incontinence can lead to social isolation, loneliness and depression. Focusing on the downstream burden demonstrates how NPCs represent a paradigm shift in conceptualizing the significance of NPCs, signaling that NPCs are more than just an annoyance, but instead are serious health conditions that deserve more attention as public health priorities.

The framework consists of 2 broad sections: one that focuses on the downstream impacts of NPCs on biology and the other that focuses on the downstream impacts of NPCs on social ecology, starting with the mind/individual, through interpersonal relationships, organizations, the community, society and even the ecosystem (eg the negative impact of diaper use on the environment). This broader framework takes clinicians outside of their training and comfort zone and is inclusive of social determinants of health. For clinicians with interests outside of the pelvis, not only can the pelvis cause/exacerbate issues elsewhere in the body (as alluded to above with mental health), but pelvic dysfunction can serve as an early warning sign for dysfunction elsewhere in the body.

The conceptual framework should be viewed as a starting point, not an end, in describing and organizing these downstream burdens. There is much still to understand about how NPCs impact the biology of an individual as well as the various levels of social ecology.

So, what can be done going forward? We recommend improving upon the “story” using the conceptual framework as an organizing tool. This will involve additional research to fully understand the burdens and the social determinants associated with NPCs. We need to train and engage interested parties in advocacy techniques. Additionally, we need to determine our goals: the “ask.” NPCs span a variety of professional societies (American Urological Association; American Urogynecologic Society; International Continence Society; International Urogynecological Association; International Society for the Study of Women’s Sexual Health; Society of Gynecologic Surgeons; Society of Urodynamics, Female Pelvic Medicine & Urogenital Reconstruction; Society of Women in Urology and many more!) and interest groups. Although scientifically these groups may be diverse and may not often work together, we all would benefit from a concerted effort in determining how best to improve funding support for NPCs. We should continue to extend scientific outreach to physicians outside of urology, including primary care and other nonsurgical specialties.

Expanding our understanding of social determinants of health and developing policies to effectively address these social needs remains an unmet need for NPCs. Recognizing that NPCs can and do have significant downstream burdens emphasizes that they should be viewed as serious public health priorities that require more attention. It is up to all of us to continue advocating for our patients and highlighting their unmet needs to expand research efforts and ultimately help people live a healthy life.

Successful Same-Day Discharge for Robot-Assisted Radical Prostatectomy: A Systematic Review and Meta-Analysis

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Conor Jones, MD
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Study Need and Importance
Same-day discharge (SDD) following robot-assisted radical prostatectomy (RARP) is emerging as a standard of care. The results of this systematic review and meta-analysis can be utilized for the development of future SDD pathways in centers moving toward an ambulatory RARP model.

What We Found
SDD following RARP is both feasible and safe, with comparable complication and readmission rates when compared to inpatient RARP (see Figure). Additionally, SDD may offer potential health care cost savings with high patient satisfaction rates. Within the paper, we summarized all available SDD protocols to assist in the development of future pathways.

Limitations
Study evidence was not obtained from randomized control trials. Furthermore, studies included were published in the United States and France, and therefore these results may not be generalizable to other countries.

Interpretation for Patient Care
SDD following RARP is both feasible and safe, and likely will become the standard of care in contemporary urological care. This ambulatory model may have benefits in health care cost savings while maintaining high patient satisfaction rates, though this may vary based on country of implementation.
The Impact of Magnesium Supplementation on Kidney Stone Formation

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Magnesium supplementation has been shown to inhibit crystal formation, thus reducing the risk of kidney stone formation. The electrolyte works through 3 proposed mechanisms: 1) binding oxalate in the gastrointestinal tract, preventing its absorption, 2) binding oxalate in urine to outcompete its interaction with calcium and 3) chelating with citrate, preventing its resorption to increase urinary citrate levels.1

While these mechanisms may appear ideal for the prevention of stone formation, the implementation of this agent into the stone prevention armamentarium has not been successful. First, the oral formulation of magnesium oxide and hydroxide are poorly absorbed. When taken on an empty stomach, there is little to no change in urinary magnesium, although this does improve nominally when taken with meals. Second, magnesium supplementation is known to cause diarrhea, which significantly limits its tolerability.2 Third, foods high in magnesium also tend to have high oxalate levels, which negates the benefits of the magnesium. Fourth, compliance with preventive medication remains challenging in this population, as exemplified by potassium citrate with adherence rates as low as 13% and an average retail cost of $154.80 for a 1-month supply.3

Despite these limitations, clinical evaluation of magnesium has demonstrated equivocal results. For example, Eisner et al were able to demonstrate that an increased magnesium intake was associated with decreasing hyperoxaluria in patients on a retrospective review of 24-hour urinalysis.4 Yet a prospective, double-blind, randomized, controlled trial conducted by Ettinger et al to examine the effectiveness of magnesium hydroxide in the prevention of calcium oxalate stones failed to show a difference. In this study, a total of 82 patients taking magnesium oxide supplements (650 mg or 1,300 mg) or placebo were included.5 No difference was observed in the recurrence rate between the 2 groups.

While magnesium alone may not have a large clinical impact, utilization of potassium citrate and magnesium together has previously been shown to decrease stone formation. Ettinger et al demonstrated that the combination of potassium citrate/magnesium citrate as compared to placebo reduced stone recurrence by 93% in the calcium stone group. Urine citrate excretion increased from 587 to 769 mg per day, while pH changed from 6.01 to 6.29 in 24-hour urine collections.6 Importantly, gastrointestinal side effects of the potassium citrate/magnesium citrate combination were not significantly different from placebo.

Despite the equivocal results in idiopathic stone formers, there are specific circumstances where magnesium supplementation is indicated due to the underlying pathophysiology of the disease, such as in the control of calcium nephrolithiasis in enteric hyperoxaluria and hypomagnesemia.7 Outside of these indications the effectiveness of magnesium is still debatable. Furthermore, all magnesium-based kidney stone prevention supplements are non-U.S. Food and Drug Administration approved, but most do follow guidelines for medical foods. As a result, there is minimal study of the formulations or preparations to verify their reported components, and there are no head-to-head trials comparing the effectiveness of these different formulations. Yet, the majority of supplements contain a combination of potassium and magnesium that are comparable to or cheaper than the cost of potassium citrate tablets (see Table).7,8

Overall, magnesium supplementation to reduce kidney stone formation may have a role in certain disease states, such as enteric hyperoxaluria, but it remains of limited utility in the idiopathic stone former. It is difficult to augment this electrolyte in the average American diet, and although magnesium supplementation may result in increased urinary levels, its effect on stone prevention remains equivocal. This is yet another example of why there remains a need for further investigation of existing therapeutics, and the development of new therapeutics for secondary prevention of nephrolithiasis, as our arsenal remains limited. Hopefully, ongoing clinical trials will

<table>
<thead>
<tr>
<th>Table. Stone supplements with magnesium. Adapted from Stern et al.1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Name</strong></td>
</tr>
<tr>
<td><strong>Litholyte®</strong></td>
</tr>
<tr>
<td><strong>TheraLith® XR</strong></td>
</tr>
<tr>
<td><strong>Kidney C.O.P.®</strong></td>
</tr>
<tr>
<td><strong>KSPtabs</strong></td>
</tr>
<tr>
<td><strong>StoneStop</strong></td>
</tr>
<tr>
<td><strong>LithoBalance™</strong></td>
</tr>
<tr>
<td><strong>Potassium citrate (generic)</strong></td>
</tr>
<tr>
<td><strong>Magnesium Oxide</strong></td>
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</tbody>
</table>

*Continued on page 19*
identify a clear leader in this space with the evaluation of multiple available agents.1


### JU INSIGHT

The Effect of Different Types of Prostate Biopsy Techniques on Post-Biopsy Infectious Complications

<table>
<thead>
<tr>
<th>Table. Main findings</th>
<th>Transrectal Ultrasound-Guided PB ( ≤ 4 ) Biopsy Cores</th>
<th>Transrectal Targeted MRI-TRUS Fusion or TRUSPB ( ≤ 4 ) Biopsy Cores</th>
<th>Transrectal Targeted In-Bore MRI-Guided PB ( ≤ 4 ) Biopsy Cores</th>
<th>Transperineal MRI-TRUS Fusion Guided PB ( ≥ 10 ) Biopsy Cores</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Infectious complictions within 7 days post-biopsy (No.), adjusted OR (95% CI)</td>
<td>4.0 (104)</td>
<td>1.0 (4)</td>
<td>0.41 (0.12–1.12)</td>
<td>2.1 (19), 0.68 (037–1.20)</td>
</tr>
<tr>
<td>% Infectious complications within 30 days post-biopsy (No.), adjusted OR (95% CI)</td>
<td>4.8 (125)</td>
<td>1.3 (5)</td>
<td>0.42 (0.14–1.04)</td>
<td>2.3 (21), 0.58 (0.33–0.99)</td>
</tr>
<tr>
<td>% Hospitalization within 7 days post-biopsy (No.)</td>
<td>2.8 (73)</td>
<td>0.3 (1)</td>
<td>1.2 (11)</td>
<td>0.0 (0)</td>
</tr>
<tr>
<td>% Bacteremia within 7 days post-biopsy (No.)</td>
<td>1.0 (25)</td>
<td>0.3 (3)</td>
<td>0.0 (0)</td>
<td>0.0 (0)</td>
</tr>
</tbody>
</table>

TRUS: transrectal ultrasound.

"Prophylaxis-resistant bacteria were found in 62% and 78% of the bacteria isolated from cultures of patients within 7 and 30 days post-biopsy, respectively."

**What We Found**

In total, 4,233 PBs in 3,707 patients were included. After transrectal ultrasound-guided PB (TRUSPB; 12±1.4 biopsy cores), 4.0% (2,607) of all patients had infectious complications within 7 days post-biopsy. Transperineal magnetic resonance imaging (MRI)-ultrasound fusion guided PB (16±3.7 biopsy cores) was associated with significantly lower infection rates than TRUSPB (adjusted OR: 0.29 [0.09–0.73] 95% CI). Transrectal targeted MRI-ultrasound fusion guided PB (3.1±0.8 biopsy cores) and transrectal targeted in-bore MRI guided PB (2.8±0.8 biopsy cores) also showed fewer infectious complications than TRUSPB (adjusted OR: 0.41 [0.12–1.12] 95% CI, respectively). Similar results were found for infectious complications within 30 days post-biopsy, hospitalization and bacteremia (see Table). Prophylaxis-resistant bacteria were found in 62% and 78% of the bacteria isolated from urine cultures of patients within 7 and 30 days post-biopsy, respectively.

**Limitations**

Differences in the risk of infectious complications when taking different numbers of biopsy cores in transperineal PB were not assessed. Due to the retrospective nature of our study, some post-biopsy infections might have been missed. However, we do not expect this to differ between the cohorts.

**Interpretation for Patient Care**

Post-biopsy infections can be reduced using a transperineal approach. Reducing the number of biopsy cores by using a transrectal targeted PB only approach could be a reasonable alternative. Diagnostic accuracy should be decisive here. In view of the high percentage of prophylaxis-resistant bacteria isolated from post-biopsy urine cultures, culture-based prophylaxis could potentially also contribute to the reduction of infectious complications.

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**Study Need and Importance**

Infection rates after transrec- tional prostate biopsy (PB) are rising due to growing numbers of fluoroquinolone-resistant rectal flora. Alternatives must be sought as these infections can be severe and lead to sepsis. We compared infectious complication rates between different PB techniques with various numbers of biopsy cores.

---

**“Prophylaxis-**

**Resistant parents were found in 62% and 78% of the bacteria isolated from cultures of patients within 7 and 30 days post-biopsy, respectively.”**
Lymph Node Dissection at the Time of Nephroureterectomy: What Does the Literature Tell Us?

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University of Oklahoma, Oklahoma City

It is widely accepted by urologists that a pelvic lymph node (LN) dissection (LND) is an integral part of the surgical management of muscle-invasive urothelial carcinoma (UC) of the bladder. However, despite the pathological similarities between invasive UC of the bladder and upper-tract UC (UTUC), no such guideline-based consensus exists regarding the utilization of LND at the time of radical nephroureterectomy (RNU) for UTUC. The reasons for this are multifaceted and include low-quality evidence, variable lymphatic metastatic landing zones based on tumor location and challenges in risk-stratifying UTUC patients prior to surgical intervention. The lack of accepted dissection templates and resultant lack of consistency in the literature make comparisons across studies difficult. Furthermore, clinicians do not agree on metastatic landing zones based on anatomic tumor location, with significant ongoing controversy surrounding the concept of cranial migration of mid to distal ureteral tumors and the impact on dissection templates. Taken in the context of a relatively rare malignancy, compiling high-quality data that guides management has proven challenging.

Despite being validated in the literature as both feasible and safe, performance of LND at the time of RNU appears infrequent. A Canadian population-based study demonstrated that only 27% of RNU surgical specimens included LNs. The lack of adoption speaks to the inconsistent evidence base that is generally limited to single-institution series, which again lack strict inclusion parameters and LND templates. In response to the lack of high-quality evidence, the Upper Tract Urothelial Collaborative was developed, which has improved the available literature to include multi-institutional series evaluating the role of LND for UTUC. However, even these studies continue to be limited by heterogeneity in the patient population and a lack of templated LNDs.

The potential value of LND for UTUC at the time of RNU can be viewed from the perspective of staging/prognostics and/or from a therapeutic perspective. In the case of the former, there is a body of evidence to support a staging benefit from LND at the time of RNU. Larger multi-institutional and population-based studies have demonstrated that patients with pathological LN metastasis (pN+) have a worse prognosis with lower cancer-specific survival (CSS) compared to patients with no LN metastasis (pN0) or unknown status (pNx). This is important information when determining which patients to triage into more aggressive adjuvant treatment pathways following RNU. The available literature also indicates that patients with no organ-confined disease likely benefit the most from LND. Despite these studies, in the absence of prospective trials with rigorous inclusion criteria and strict dissection templates, conclusions cannot be definitively drawn. It should be acknowledged that some studies do attempt to define dissection templates, but most are retrospective and multi-surgeon series, calling into question how strictly those templates could be adhered to.

The therapeutic benefits of LND for UTUC, or lack thereof, are considerably less established and remain a controversial topic among clinicians. There is evidence across several studies that a CSS benefit can be derived from performing an LND at the time of RNU compared to no LND. Some authors have even demonstrated an overall survival benefit in patients undergoing LND in small retrospective series. Roscigno et al., in a large multi-institutional study, found CSS to be significantly longer in pN0 patients compared to pNx (73% vs 48%, p <0.0001). It must be noted, however, that no difference in CSS was observed between pN0 and pNx cohorts. However, a large multi-institutional analysis did find...
that a difference in CSS between pN0 and pNx cohorts existed, although this benefit was only true for patients with ≥pT2 disease.4 Once again, the evidence suggests that more locally advanced/nonorgan-confined disease may benefit the most from LND at the time of RNU. Conversely, another large multi-institutional cohort analyzed by Lughezzani et al demonstrated no evidence that LND has a therapeutic benefit.10 Still, in the absence of established dissection templates, this body of literature remains heterogeneous in its inclusion criteria and thereby heterogeneous in its conclusions.

A pervasive theme in the evaluation of this literature is the lack of predefined dissection templates, which limits standardization of surgical approach and interpretation of studies against one another. Several authors have published works to refine our understanding of metastatic landing zones in UTUC. Most recently, Matin et al confirmed understood migration patterns for proximal tumors (renal pelvis and proximal ureteral tumors; Fig. 1) while expanding our understanding of migration patterns in mid to distal ureteral tumors.2 Notably, this study revealed that cranial migration of LN metastasis can be observed in mid ureteral (62.5%–100%) and distal ureteral (16%–25%) tumors (Fig. 2). The cranial migration phenomenon appears to be stepwise, however, which suggests that intraoperative frozen section may ultimately define the extent of the dissection.

In order to establish guidelines surrounding LND at the time of RNU, it is paramount that randomized controlled trials be conducted utilizing predetermined dissection templates and strict inclusion criteria. Until we can expand this knowledge base, however, the available evidence suggests consideration of template-based LND at the time of RNU to gain prognostic information that guides adjuvant care pathways and possibly improves oncologic outcomes, especially for patients with nonorgan-confined disease.


LYMPH NODE DISSECTION AT THE TIME OF NEPHROURETERECTOMY

Continued from page 20

FOCUSED Acoustic Shock Wave Technology has the capability of reaching 1000 bar, offering greater flexibility and potency than Radial Pressure Wave (RPW) units.

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Would Surgeons Opt for Polypropylene Mesh if They Hypothetically Had Stress Urinary Incontinence or Pelvic Organ Prolapse?

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Study Need and Importance

Polypropylene mesh, although widely used in female pelvic medicine, continues to be a controversial issue. Given its negative association with transvaginal mesh kits which were reclassified as high-risk devices by the U.S. Food and Drug Administration in 2011, many patients continue to express hesitation about polypropylene mesh, even for mesh with approved use in mid-urethral slings for stress urinary incontinence (SUI) and mesh used for transabdominal sacrocolpopexy for pelvic organ prolapse (POP)—both of which are endorsed by both SUFU (Society of Urodynamics, Female Pelvic Medicine, and Urogenital Reconstruction) and AUGS (American Urogynecologic Society).

What We Found

This paper is important because it provides a comprehensive yet succinct history of the controversy surrounding polypropylene mesh use in female pelvic surgery. We hope that the primary findings of our paper—that surveyed female pelvic medicine surgeons from both SUFU and AUGS (141 participants) would prefer synthetic mid-urethral slings for hypothetical SUI (69%, p <0.001) and transabdominal sacrocolpopexy for hypothetical POP (27%, p <0.001; see Figure)—may assuage some of the fears and negative connotations patients may have regarding the appropriate use of mesh in female pelvic surgery.

Limitations

Our study is not free from limitations. Primarily, our survey instrument was not validated, and our response rate is 20%, which is on the low range of normal for an email survey.

Interpretations for Patient Care

However, we hope that this paper will serve as a resource for female pelvic medicine providers counseling patients about the appropriate use of mesh in female pelvic surgery. Our hope is that it achieves this goal through its succinct history of the polypropylene mesh controversy issue as well as possibly normalizing the experience of mesh use in female pelvic surgery by knowing their own surgeon would likely opt for this intervention if they hypothetically experienced the same issue.
The Evolving Paradigm in the Management of Secondary Pyeloplasty

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Introduction

Pyeloplasty has traditionally been considered the gold standard technique for surgical treatment of ureteropelvic junction obstruction (UPJO). The most common pyeloplasty technique utilized in the primary repair setting is dismembered pyeloplasty, which has been associated with success rates of up to 97% in the adult population.1 Laparoscopic and robotic pyeloplasty have established equivalence to the gold standard of open pyeloplasty in treating UPJO, with the added benefits of smaller incisions, less pain and convalescence.2 However, failed pyeloplasty has remained a challenging problem as secondary repair is often complicated by peripelvic scarring and obliteration of normal dissection planes. Traditional treatment options include endoscopic techniques, ureterocalicostomy or secondary pyeloplasty. Secondary repair is complicated, and thus there is no clearcut management paradigm for recurrent UPJO after prior failed intervention.

Endoscopic Techniques

Endoscopic techniques, including endopyelotomy and balloon dilation, have been historically valued for their low morbidity profile, but these approaches have limited success rates ranging from 20%–70% in the redo setting.3,4 Evidence suggests that it is inferior to a reoperative approach, especially as a secondary treatment modality.5

Ureterocalicostomy

Ureterocalicostomy is generally reserved for patients with a recurrent UPJO associated with an inaccessible, completely intrarenal pelvis. The reported success rates among adult populations range from 60%–75% in this setting.6 However, given the higher technical demands associated with ureterocalicostomy and the added morbidity with having to resect the lower pole of the kidney, the literature supporting the use of ureterocalicostomy is limited to small case series.

Revisinal Pyeloplasty

The challenges involved with revisional pyeloplasty are related to the basic tenets of reconstructive surgery: mucosa-to-mucosa approximation, preservation of the blood supply and a tensionless repair. Fibrosis and scarring surrounding the ureteropelvic junction, as well as the risk of further disruption to the already fragile ureteral blood supply, can add to the complexity of these cases. Traditional teaching describes the utilization of various renal pelvic flap options such as the spiral flap, vertical flap and Y-type flap for revisonal pyeloplasty. Although most urology trainees are accustomed to the theoretical application of these flaps as seen in textbooks, the actual viability of these flaps is questionable, and success rates of these flaps are not well supported by the literature.

Despite the aforementioned challenges, secondary pyeloplasty has been described as a suitable option for definitive repair, with reported success rates of 83%–91%.7,8 Although redo repair may be more difficult to perform as evidenced by its higher median estimated blood loss and longer median operative times, secondary pyeloplasty is associated with similar safety and efficacy when compared to primary pyeloplasty.9

Most studies report on the utilization of dismembered (transecting) pyeloplasty for management of recurrent UPJO. A transecting pyeloplasty is necessary in cases involving an obliterative UPJO or a UPJO secondary to a missed crossing vessel during primary pyeloplasty. However, due to the importance of preserving the ureteral blood supply in a reoperative field, nontransecting techniques may provide advantages in the secondary repair setting. Nontranssecting pyeloplasty can avoid the need for an extensive ureterolysis and circumferential transection across the renal pelvis, which may be difficult to perform in the reoperative setting and can lead to excessive ureteral devascularization with impaired healing. Furthermore, nontransecting techniques may help facilitate a tension-free anastomosis since part of the ureter remains in continuity. Traditionally described nontransecting techniques include the Fenger (Heineke-Mikulicz) and YV pyeloplasty, which solely involve making a longitudinal incision along the length of the stricture. These techniques, however, are typically limited to management of short-segment (<1.5 cm) strictures and for high insertion UPJO in patients without a redundant renal pelvis.

In the last decade, the major developments in robotic ureteral reconstructive surgery have included the use of near-infrared fluorescence technology to assess real-time tissue perfusion, nontransecting techniques to preserve the ureteral blood supply and buccal mucosa tissue grafting.10 These concepts that were applied toward ureteral stricture disease were also well suited to address recurrent UPJO.

Similar to the aforementioned nontransecting techniques, robotic buccal mucosa grafting involves making a longitudinal incision along the anterior surface of the strictured UPJO rather than transection across the UPJO. A buccal mucosa graft is then harvested and anastomosed in an onlay fashion to the remaining defect. As such, this technique maintains the advantages of preserving the ureteral vascularity and offers the ability to manage longer and more complex strictures, which may not be possible with other nontransecting techniques. Multi-institutional data from CORRUS (Collaborative of Reconstructive Robotic Ureteral Surgery) have shown similar success rates in primary and secondary pyeloplasty when buccal mucosa grafting is an available option.9

Conclusion

Robotic pyeloplasty not only is a reliable option for management of primary UPJO, but also is an effective method for secondary repair of recurrent UPJO. Although previous thinking favored the utilization of endoscopic management in secondary repair due to the risks of subsequent field, recent developments suggest that shifting the paradigm from transsecting techniques and flaps to nontransecting techniques and tissue grafting may further improve outcomes for this challenging situation.

Disclosures

Daniel Eun is a consultant for Intuitive Surgical, Johnson and Johnson, Medtronic and Histosonic; has ownership interest in Melzi Corp; and receives grant support from Hitachi Medical.

References

**Prostate-Specific Membrane Antigen Is a Biomarker for Residual Disease following Neoadjuvant Intense Androgen Deprivation Therapy in Prostate Cancer**

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**Study Need and Importance**

Patients with intermediate- to high-risk prostate cancer may be offered neoadjuvant hormonal therapies prior to radical prostatectomy. In a recent clinical trial where neoadjuvant hormonal therapy was intensified by the addition of the androgen receptor pathway inhibitor enzalutamide, treatment response was measured by the volume of tumor remaining in the prostate. Patients with less than 0.05 cm³ residual disease are expected to have prolonged durations of biochemical recurrence-free survival. However, meticulous examination of prostatectomy tissue after surgery may be required for accurate quantification of remaining cancer cells, which can be confounded by treatment effects that may further limit the utility of routine hematoxylin and eosin staining and standard prostate cancer immunohistochemical markers.

**What We Found**

Following 6 months of neoadjuvant androgen deprivation therapy plus enzalutamide, in 35 patients, we observed that immunohistochemistry (IHC) with antibodies against prostate-specific membrane antigen (PSMA) demonstrated 96% sensitivity for residual tumor cells (see Figure). In addition, anti-PSMA IHC was 82% specific for tumor. By contrast, in a control untreated cohort (37) anti-PSMA IHC was only 28% specific for tumor (see Figure). Positive staining in both cohorts was positively correlated (r=0.67) with gene expression measured by whole transcriptome sequencing.

**Limitations**

Our data come from a single-center, single-arm, phase 2 clinical trial with an independent control cohort. While matched biopsies may have been preferable for within-person comparisons, we were limited by the fact that most biopsies would not have harbored enough glands for robust analyses.

**Interpretation for Patient Care**

Anti-PSMA should be considered as a standard immunohistochemical marker when evaluating prostate tumors following neoadjuvant hormone therapies. This is especially appropriate for cases with difficult-to-detect residual tumors and for determining whether a patient may benefit from adjuvant systemic therapies after surgery.
Duplex kidneys are present in the general population at a rate of about 1% and account for 3%–21% of prenatally detected renal anomalies.1–4 While there are significant data on the natural history and outcomes for prenatal hydronephrosis in simplex kidneys, duplex kidneys tend to be less studied. In part, this could be due to difficulties in collecting a large enough cohort to report meaningful data. Management of duplex kidneys can also be quite variable based on provider preference. Because of this, our regional consortium, the Mid-Atlantic Pediatric Academic Consortium (M-PAC), decided to study duplex kidneys to better understand practice patterns and identify trends in management. Our aim was twofold. This was our first project as a regional consortium; hence, we wanted to work out the logistics for a successful project among multiple institutions. Our other aim, of course, was to have a large, pooled cohort of duplex kidneys to report significant findings that may guide practitioners on their recommendations to patients.

From 4 academic institutions, we collected data on 242 patients with 271 duplex renal units with hydronephrosis. Primarily, we wanted to evaluate predictive factors for surgical intervention and urinary tract infection (UTI) with duplex kidneys. From our cohort, we learned that 67% of patients underwent surgical intervention for reasons including obstruction (53%), nonfunctioning upper pole (28%) and history of UTI (27%).

The most common interventions were incision of ureterocele (27%), heminephrectomy (25%) and ureteral reimplantation (20%; Table 1). No differences were seen in surgical management based on institution. Several factors were predictive of surgical intervention, including hydronephrosis (Society of Fetal Urology and urinary tract dilation grading) and number of prior UTI events (p=0.03/0.001 and p=0.002, respectively). Pathologies including upper pole ureterocele (p=0.02), ectopic ureter (p=0.004) and obstruction (p=0.04) were also significant predictors of surgical intervention (Table 2).

We found that 30% of the cohort had a UTI. We demonstrated that male gender (p=0.03), circumcision (p=0.01) and antibiotic prophylaxis after the first year of life (p=0.03) were protective against UTI. A large majority of patients in our study were on antibiotic prophylaxis during the first year of life; however, antibiotic prophylaxis did not correlate with decreased UTI risk during the first year of life (Table 3). Roughly half of the UTI events in our cohort occurred during the first year of life. Our data may suggest

Table 1. Demographic and clinical characteristics

| Mean mos age at first pediatric urology visit (SD) | 4.4 (8.5) |
| Mean yrs followup (SD) | 2.6 (1.8) |
| No. female/total no. (%) | 178/242 (73.5) |
| No. male/total no. (%) | 64/242 (26.4) |
| No. circumcision/total no. (%) | 43/64 (67.2) |
| No. uncircumcised/total no. (%) | 21/64 (32.8) |
| No. upper pole lesion location/total no. (%): | |
| Lt | 115/242 (47.5) |
| Rt | 98/242 (40.5) |
| Bilat | 29/242 (12.0) |
| No. upper pole pathology/total no. (%): | |
| Ectopic ureter | 64/271 (23.6) |
| Obstruction | 10/271 (3.7) |
| Ureterocele | 128/271 (47.2) |
| Upper pole VUR | 8/271 (3.0) |
| Nonobstructive hydronephrosis | 41/271 (15.1) |
| No pathology | 20/271 (7.4) |
| No. surgery type/total no. (%): | |
| Incision ureterocele | 57/215 (26.5) |
| Heminephrectomy | 54/215 (25.1) |
| Reimplant | 43/215 (20.0) |
| Ureteroureterostomy | 20/215 (9.3) |
| Total nephrectomy | 10/215 (4.6) |
| Pyeloplasty | 5/215 (2.3) |
| Percutaneous nephrostomy | 4/215 (1.9) |
| Ureter ligation | 1/215 (0.5) |
| Other | 22/215 (10.2) |
| No. indication for surgery/total no. (%): | |
| Obstruction | 115/215 (52.3) |
| Urine leakage | 7/215 (3.2) |
| Past UTI | 58/215 (26.7) |
| UTI risk with kidney dilation | 30/215 (13.8) |
| Nonfunctioning kidney | 60/215 (27.6) |
| Other | 34/215 (15.6) |

VUR, vesicoureteral reflux.

Table 2. Predictors of surgery

<table>
<thead>
<tr>
<th>Multivariate Logistic Regression</th>
<th>OR</th>
<th>95% CI</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution (referent VCU):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC Children’s</td>
<td>0.64</td>
<td>0.21–1.90</td>
<td>0.99</td>
</tr>
<tr>
<td>UNC</td>
<td>0.57</td>
<td>0.21–1.55</td>
<td>0.66</td>
</tr>
<tr>
<td>UVA</td>
<td>0.46</td>
<td>0.17–1.23</td>
<td>0.21</td>
</tr>
<tr>
<td>Hydronephrosis grade:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU</td>
<td>1.58</td>
<td>1.06–2.37</td>
<td>0.03*</td>
</tr>
<tr>
<td>UTD</td>
<td>1.93</td>
<td>1.30–2.87</td>
<td>0.001*</td>
</tr>
<tr>
<td>Pathology:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ectopic ureter</td>
<td>5.70</td>
<td>1.72–18.93</td>
<td>0.004*</td>
</tr>
<tr>
<td>Ureterocele</td>
<td>3.54</td>
<td>1.23–10.21</td>
<td>0.02*</td>
</tr>
<tr>
<td>Obstruction</td>
<td>5.63</td>
<td>1.05–30.21</td>
<td>0.04*</td>
</tr>
<tr>
<td>Vesicoureteral reflux</td>
<td>1.68</td>
<td>0.23–12.47</td>
<td>0.61</td>
</tr>
<tr>
<td>Hydronephrosis</td>
<td>0.47</td>
<td>0.12–1.82</td>
<td>0.27</td>
</tr>
<tr>
<td>No. UTI events</td>
<td>2.13</td>
<td>1.32–3.45</td>
<td>0.002*</td>
</tr>
</tbody>
</table>

UNC, University of North Carolina at Chapel Hill. UTD, urinary tract dilation. UVA, University of Virginia. VCU, Virginia Commonwealth University.

*Met significance.
that the predisposition for UTI is so great in the first year of life with the duplex kidney pathology that antibiotics are ineffective in preventing infection. Pathology was not a significant predictor of UTI risk. We have seen similar trends in UTI risk with simplex kidneys with hydronephrosis where male gender and circumcision were significant factors in decreased UTI rates.\(^5,6\)

To my awareness, this study is one of the largest cohorts to date to describe the history, management, and risk factors for surgery and UTI of duplex kidneys. Perhaps the more interesting aspect of the study includes that the rate of surgery for duplex kidneys is fairly high, at almost 70%. UTI rates with duplex kidneys (30%) also appear much higher compared to those quoted for all prenatal hydronephrosis cases, at 8%.\(^5\) Put together, this may suggest duplex kidneys with hydronephrosis should be treated differently than the routine prenatal hydronephrosis case, where the majority of these can spontaneously improve.

To circle back to one of our aims of the M-PAC project, we learned that consortium work is not easy. In the field of urology, many national and regional groups have been successful: the Society for Fetal Urology Hydronephrosis Registry, National Spina Bifida Patient Registry, Multi-Institutional Bladder Exstrophy Consortium (MIBEC) and the Michigan Urological Surgery Improvement Collaborative (MUSIC), just to name a few. These groups require extreme dedication and time of the collaborators, a regulatory control person, checks and balances for quality data, and strong leadership to pull projects together. We at the M-PAC group hope to be able to continue to deliver more as we finally have our first project under our belts.

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**Table 3. Predictors of UTI**

<table>
<thead>
<tr>
<th>Predictor</th>
<th>OR</th>
<th>95% CI</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (male)</td>
<td>0.42</td>
<td>0.19–0.91</td>
<td>0.03*</td>
</tr>
<tr>
<td>Circumcision status</td>
<td>0.16</td>
<td>0.04–0.66</td>
<td>0.01*</td>
</tr>
<tr>
<td>Hydronephrosis grade:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU</td>
<td>1.17</td>
<td>0.85–1.60</td>
<td>0.33</td>
</tr>
<tr>
<td>UTD</td>
<td>1.14</td>
<td>0.84–1.55</td>
<td>0.39</td>
</tr>
<tr>
<td>Pathology:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ectopic ureter</td>
<td>1.21</td>
<td>0.42–3.47</td>
<td>0.72</td>
</tr>
<tr>
<td>Ureterocele</td>
<td>0.79</td>
<td>0.29–2.15</td>
<td>0.65</td>
</tr>
<tr>
<td>Obstruction</td>
<td>0.54</td>
<td>0.09–3.12</td>
<td>0.49</td>
</tr>
<tr>
<td>Vesicoureteral reflux</td>
<td>4.79</td>
<td>0.98–23.29</td>
<td>0.06</td>
</tr>
<tr>
<td>Hydronephrosis</td>
<td>0.52</td>
<td>0.13–2.25</td>
<td>0.39</td>
</tr>
</tbody>
</table>

UTD, urinary tract dilation.

*Met significance.

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**IN THE NEXT ISSUE — AUGUST 2022**

How Does Health Services Research Inform Neurogenic Bladder Management? “Will I Ever Void Again?”
Christopher S. Elliott, MD, PhD

Stress Urinary Incontinence Surgery in Childbearing-Aged Patients
Olufemiiwa Famakinwa Milhouse, MD

Female Urethroplasty with Dorsal Onlay Buccal Mucosal Graft: A Single-Institutional Experience
Margaret M. Higgins, MD; Janine L. Oliver, MD and Brian J. Flynn, MD

Fertility Preservation in Pediatric Patients: Who, What and Why (or Why Not)?
Aloha L. Siebert, MD, PhD, MPH and Emilie K. Johnson, MD, MPH, FACS

Contemporary Urological Management of Men with Persistent Genital Arousal Disorder/Genito-Pelvic Dysesthesia
Irwin Goldstein, MD
Referral Patterns for Infertile Men: Predictors of Continued Treatment by Reproductive Endocrinologist versus Referral to a Nearby Urologist

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Study Need and Importance
The American Urological Association and American Society for Reproductive Medicine national guidelines for the management of male infertility state that men at risk for subfertility should be further evaluated by a urologist, ideally with specialization in male reproduction. The adherence of U.S. fertility clinics to these guidelines is not well known. In this study, we aimed to investigate management practices of U.S. fertility clinics with regard to male infertility, including website educational information, continued treatment by reproductive endocrinologists (REIs) and referral to a urologist located within 5 miles of the fertility clinic.

What We Found
We found that the majority of fertility clinic websites discussed male infertility evaluation, while less than half discussed treatment options. Clinics that were academically affiliated, had an accredited embryo laboratory and referred patients to a urologist were less likely to have the REI physician manage male infertility (see Table). Practice affiliation, practice size and website discussion of surgical sperm retrieval were the strongest predictors of nearby urological referral.

Interpretation for Patient Care
The results of this study highlight characteristics of U.S. fertility clinics that may predict whether male patients of infertile couples are managed by REIs or by a nearby outside urologist. Our findings reveal that the management of couples who present to assisted reproductive technology clinics with male factor infertility is dependent upon clinic size and practice setting.

Table. Multivariable logistic regression model predicting management of male factor infertility by REIs

<table>
<thead>
<tr>
<th>Variable</th>
<th>No. (%)</th>
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<th>OR (95% CI)</th>
<th>OR p Value</th>
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</table>

Number of observations in the original data set was 477.
*Statistical significance at alpha <0.05 by chi-square test.
†As reported in the 2018 Centers for Disease Control and Prevention Fertility Clinic Success Rates Report.
A New Modified Bipedicle Scrotal Skin Flap Technique for the Reconstruction of Penile Skin in Patients with Paraffin-Induced Sclerosing Lipogranuloma of the Penis

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Study Need and Importance

Sclerosing lipogranuloma of the penis (SLP) caused by subcutaneous paraffin injection by nonmedical personnel as a procedure for penile girth enhancement is a serious problem in Southeast Asia and Eastern Europe. There is a consensus on mandatory complete excision of the lipogranuloma-affected tissue in these patients. However, the type of subsequent penile skin reconstruction technique is controversial. Herein, we introduce a new modified penile skin reconstruction procedure with a bipedicle scrotal skin flap to treat paraffin-induced SLP (see Figure).

What We Found

The new technique is an effective single-stage treatment option with a high success rate and good functional results. The overall complication rate was 26.5% in 49 patients. Only Clavien–Dindo grade 1 and 3 complications occurred during the postoperative period. According to the patient-reported questionnaire, surgery was successful in 90% of the patients. Erectile dysfunction, pain or tension during erection, premature ejaculation and penile lymphedema were observed in 2, 3, 1 and 1 patients, respectively. All patients reported the ability to have sexual intercourse.

Limitations

A single-center retrospective design and high dropout rate in followup visits (16.3%) and questionnaire responses (38.8%) are the limitations of our study.

Interpretation for Patient Care

The modified penile skin reconstruction technique is an optimal treatment option for patients with SLP with intact scrotal skin. Advantages of the scrotal skin flap include easy accessibility, mobility, rich vascularity and similarity to penile skin in color, elasticity, and tactile and erogenous sensations. Being a 1-stage procedure, patients are spared from the biggest disadvantage of 2-stage surgery, ie the abnormal position of the penis between the 2 operations.

Advantages of the scrotal skin flap include easy accessibility, mobility, rich vascularity and similarity to penile skin in color, elasticity, and tactile and erogenous sensations. Being a 1-stage procedure, patients are spared from the biggest disadvantage of 2-stage surgery, ie the abnormal position of the penis between the 2 operations.

Erectile dysfunction, pain or tension during erection, premature ejaculation and penile lymphedema were observed in 2, 3, 1 and 1 patients, respectively.
Twitter Footprint and the Match in the COVID-19 Era: Understanding the Relationship between Applicant Online Activity and Residency Match Success

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Study Need and Importance

With the advent of COVID-19, many residency candidates have been restricted in their ability to complete away rotations and other academically relevant activities. Given the importance of interaction between candidates and their desired program, these limitations likely had major impacts on the 2020–2021 match. In recent years, social media (SoMe) have helped foster connections between people all around the world. Twitter specifically has become a candidate’s modern “business card,” offering applicants a networking opportunity.

What We Found

Data acquired from the Twitter application programming interface, including tweets, likes, and retweets for matched and unmatched applicants on Twitter, were verified with the American Urological Association and external processes. A total of 28,500 English language posts from 295 unique usernames were utilized in the analysis. Matched applicants generally showed a higher number of tweets (171 vs 83, p=0.001), and followers (171 vs 83, p=0.001) and likes (2.57 vs 1.5, p=0.048). Our analysis further highlighted there was a spike of new accounts created in May 2020 across both groups. Matched applicants were not only more likely to tweet overall (308.42 vs 146.23), but were also more likely to tweet “positive” content based on natural language processing (42.13% vs 38.88%). When assessing the relationship between respective matched program and matched applicant, 65.13% of the time an applicant and program mutually followed each other on Twitter prior to matching, with neither the program nor the applicant following each other only 5.88% of the time.

Limitations

While our representation of the matched and unmatched cohorts on Twitter is in line with American Urological Association demographics, identification of individual applicant factors such as letter of recommendation, clerkship grades and honors, among other factors, are not accessible for this analysis. Furthermore, there may exist inherent characteristics of the applicants who are more active on Twitter that are not analyzed in this study, allowing for a more successful residency match not analyzed by our parameters.

Interpretation for the Future

The academic landscape for residency and fellowship applicants has drastically changed due to virtual platforms. While programs and applicants both try to navigate the logistics of a changing environment, we hope our study provides candidates guidance on how to best express interest in particular residency programs and establish mentorship opportunities through the use of SoMe. Future studies might also focus on pragmatism, ie what might be most useful to applicants and programs, with practical instruction on how to best incorporate SoMe platforms into their application in real time.
Robot-Assisted Radical Prostatectomy Using the KangDuo Surgical Robot-01 System: A Prospective, Single-Center, Single-Arm Clinical Study

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Civil Aviation General Hospital, Civil Aviation Medical College of Peking University, Chaoyang District, Beijing, People’s Republic of China


Study Need and Importance
Prostate cancer is considered the second most common cancer in men all over the world. Radical prostatectomy is currently the standard strategy for management for localized prostate cancer. The oncologic and functional results of robot-assisted radical prostatectomy with the da Vinci® robotic system are reportedly comparable or superior to those of open and laparoscopic radical prostatectomy. Furthermore, the robot-assisted radical prostatectomy offers significantly improved perioperative parameters, superior ergonomics, shorter learning curve and fewer complications.”

“Furthermore, the robot-assisted radical prostatectomy offers significantly improved perioperative parameters, superior ergonomics, shorter learning curve and fewer complications.”

Limitations
The main limitations lie in a small sample and a short follow-up, and no comparison to the da Vinci robotic system was performed.

Interpretation for Patient Care
Safe and effective management of localized prostate cancer is feasible using the KangDuo surgical robot. The KangDuo surgical robot might offer a new option for minimally invasive surgery.

What We Found
Robot-assisted radical prostatectomy using the KangDuo surgical robot was performed in 16 patients by 1 surgeon. All surgeries were performed without conversion to open, laparoscopic or robotic surgery with the da Vinci robotic system. There were no severe (Clavien–Dindo grade ≥3) perioperative complications or major technical problems. The median docking time and console time were 5.9 (range 2.5–11.5) and 87 minutes (range 70–120), respectively. The positive surgical margin rate was 25% (4/16) and the continence rate was 87.5% (14/16) at 1 month after catheter removal.
A Nationwide Analysis of Risk of Prostate Cancer Diagnosis and Mortality following an Initial Negative Transrectal Ultrasound Biopsy with Long-Term Followup

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Memorial Sloan Kettering Cancer Center, New York, New York
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Copenhagen Prostate Cancer Center, Copenhagen University Hospital, Rigshospitalet, Denmark. University of Copenhagen, Denmark
Martin Andreas Røder, MD, PhD
Copenhagen Prostate Cancer Center, Copenhagen University Hospital, Rigshospitalet, Denmark. University of Copenhagen, Denmark


Study Need and Importance
Magnetic resonance imaging (MRI) and targeted biopsies of the prostate can find high-grade prostate cancers in 50% of men with previous negative systematic transrectal ultrasound (TRUS) biopsies. However, the risk of missing lethal prostate cancer in systematic TRUS biopsies remains at debate. Long-term population-based analysis of men with initial negative TRUS biopsies without MRI can elucidate the oncologic risk of these missed cancers.

What We Found
Among 37,214 men with negative TRUS biopsy and a median followup of 10 years, the 15-year prostate cancer-specific mortality was 1.9% (95% CI: 1.7–2.1). In men with prostate specific antigen (PSA) <10 ng/ml at the time of biopsy, the risk was 1.3% (95% CI: 0.9–1.6), even lower in men with normal digital rectal examination (see Figure). The risk was 4.6% (95% CI: 3.4–5.8) for PSA above 20 ng/ml. Among men who underwent re-biopsy, 12% were found to have Gleason score ≥7. The risk of detecting a Gleason score ≥7 increased with longer time to re-biopsy. Prostate cancer mortality after re-biopsy was similar to mortality after initial biopsy.

“Among 37,214 men with negative TRUS biopsy and a median followup of 10 years, the 15-year prostate cancer-specific mortality was 1.9% (95% CI: 1.7–2.1).”

Limitations
Missing pre-biopsy PSA values and missing information on other variables such as prostate volume or PSA kinetics were the primary limitations. Clinical information was not available, and there were no stringent guidelines for followup programs or indication for re-biopsy as the data reflect clinical practice over a 20-year period.

Interpretation for Patient Care
Our findings document that mortality from prostate cancer in men with initial negative systematic TRUS biopsies is very low and raise questions about the routine use of MRI in this clinical setting. The data point to the fact that high-grade cancers found by MRI in this setting do not have the oncologic risk attributed to men with high-grade prostate cancer found in the initial biopsy set.
CASE REPORT

Growing Intra-Abdominal Mass after Radical Orchiectomy for Testicular Cancer

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Background

Testicular tumors account for 1%–1.5% of male neoplasms and 5% of urological tumors. 1 Most testicular cancers occur in young men aged 18–35 years and the incidence has increased during recent decades, particularly in industrialized countries, with 3 to 10 new cases per 100,000 males per year in Western societies. 2–4 It is the most common solid tumor in males between 15 and 40 years old. At diagnosis, 1%–2% of cases are bilateral, and the predominant histology is germ cell tumor (TGCT, 90%–95% of cases). 1 Histologically, TGCTs are divided into seminomas (50%), nonseminomas (40%) and combined tumors (10%). The peak incidence is in the third decade of life for nonseminoma testis and mixed germ cell tumor patients, and in the fourth decade for seminoma testis patients. 1 More than 50% of germ cell tumors include more than one basic germ cell tumor type, except for spermatocytic seminoma. 2 In 5% of TGCT patients the primary site is at an extragonadal location. It has a high overall survival with correct treatment and followup, with a low mortality rate in young adults. Nevertheless, it causes approximately 0.1% of cancer-related mortality in men. Testicular tumors are usually diagnosed at ultrasonography and are staged at computerized tomography (CT) or magnetic resonance imaging. Around 20% of cases are metastatic at diagnosis. 3

A timely diagnosis and intervention are critical to improve survival in these patients.

Stage III TGCTs are treated with radical inguinal orchiectomy, followed by chemotherapy. In some cases where there is a high suspicion that it may be a testicular choriocarcinoma, chemotherapy may be started without histopathology confirmation. In others, radiotherapy is also required to treat the metastasis. 4,14

Growing teratoma syndrome (GTS) is a rare clinical entity that affects patients with nonseminomatous germ cell tumors. 5,6 It is characterized by an enlarging residual mass or recurrent growing masses of the retroperitoneum or other locations that appear during or after chemotherapy, and that are proven to be a mature teratoma in the presence of normal levels of tumor markers. Histological examination is the only way to confirm the diagnosis. GTS typically presents within 2 years of initial treatment after recurrence of mass growth and/or metastasis. 5,14

Case Presentation

We present a 29-year-old male with a mixed nonseminomatous TGCT stage IIIc (American Joint Committee on Cancer-Union for International Cancer Control) who had undergone right orchiectomy and was discovered to have progressive disease with a large retroperitoneal and mesenteric mass on followup, despite chemotherapy, with negative tumor markers.

He presented to our institution for a second opinion, as he was given no further treatment options and was considered for palliative care after completing extensive chemotherapy [1 cycle of bleomycin, etoposide and cisplatin without response, 3 cycles of etoposide, ifosfamide and cisplatin with partial response, and 4 cycles of paclitaxel, ifosfamide and cisplatin with increase in the abdominal mass]. His original biopsy confirmed a mixed TGCT with 50% mature teratoma, 15% immature teratoma, 30% yolk sac tumor, 5% embryonal carcinoma and foci of choriocarcinoma. The mesenteric mass was mixed, solid and cystic, and measured 25×18×8 cm and increased in size during neoadjuvant treatment. A repeat abdominal CT scan showed the same solid cystic mass in his abdomen, measuring 31×20×27 cm, with ascites and possible carcinomatosis (Fig. 1).

On physical examination his abdomen was distended with a large and firm palpable mass and a large protruding umbilical hernia (Fig. 2). The decision was made to repeat his imaging and to discuss his case at a multidisciplinary team meeting. The abdominal and chest CT confirmed the presence of a large cystic and septated mesenteric mass (24.2×28.4 cm), surrounding various arteries and displacing the bowel, associated to small cystic and solid peritoneal seedings and moderate ascites. Considering these findings and his clinical progress, the possibility was raised of a GTS. Treatment alternatives (cytoreductive surgery, selective embolization) and their risks were discussed with the patient, but acknowledging he had no further chemotherapy options, the decision was made to proceed with surgery

“`The abdominal and chest CT confirmed the presence of a large cystic and septated mesenteric mass (24.2×28.4 cm), surrounding various arteries and displacing the bowel, associated to small cystic and solid peritoneal seedings and moderate ascites.”`

“A timely diagnosis and intervention are critical to improve survival in these patients.”

Figure 1. Preoperative CT scan of the abdomen showing a large solid cystic mass, measuring 31×20×27 cm, with ascites and possible peritoneal seedings.
mainly to improve his quality of life. He underwent an extensive lumbaroic lymphadenectomy and resection of the retroperitoneal tumor, with repair of the umbilical hernia, through a midline supraumbilical laparotomy and lateron resection of the retroperitoneal lumboaortic lymphadenectomy without complications (Fig. 2, d). Abundant ascites and a large solid cystic mass were found. Many of the larger cysts were aspirated to allow for a better view and safer resection, preserving the duodenum, major vessels, the kidneys and the ureters, and complete resection was achieved (Fig. 2, c and d). He did not develop any complications and was discharged on postoperative day 6. The histopathology report confirmed the diagnosis of a metastatic mature predominantly cystic teratoma. He underwent a followup CT scan and clinical review 2 and 4 months after the surgery with no evidence of recurrence of the tumor. The CT scan only showed inflammatory changes of the surgical site and a small postoperative residual collection inferior to the right kidney (Fig. 3).

**Discussion**

Mixed germ cell tumors contain more than 1 germ cell component (in different quantities) and are much more common than any of the pure histological forms, representing 32%–60% of all germ cell tumors. About 90% of the patients with nonseminomatous tumors can achieve complete cure with aggressive chemotherapy. Although prognosis of testicular tumors depends largely on clinical stage, histological type and adherence to the treatment influence the prognosis as well. Metastatic mature teratoma is a common radiological and histopathological finding after chemotherapy for metastatic nonseminominatous germ cell tumors. The leading theory for these residual tumors is the selective chemotherapy resistance of teratomas versus the high chemotherapy sensitivity of the embryonal components. Metastatic mature teratomas should be resected because of their malignant potential and occasional progression to GTS with the invasion of the surrounding structures.

**Conclusions**

GTS is an extremely rare condition, with a very poor prognosis without the correct and prompt management. Close followup after treatment for nonseminomatous germ cell tumors is mandatory for early detection of this syndrome, which can occur even many years after tumor onset. Normal blood makers can be misleading, and surgery remains the only curative treatment.
Unusual Form of InterStim® Lead Migration: The Impact of Improper Pocket Size

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Introduction
Sacral nerve stimulation (SNS) is a U.S. Food and Drug Administration-approved treatment that has grown in popularity over the years for its effectiveness and relatively long durability at treating refractory lower urinary tract as well as bowel symptoms, particularly overactive bladder (OAB) symptoms, nonobstructive urine retention and fecal incontinence.1,2 Lead migration is a known complication of SNS with a reported rate of 10%–35%.3-5 Herein, we present a case of device malfunction through lead migration due to twisting of the lead wires requiring surgical revision.

Case Report
The subject is a 70-year-old woman with a history of total hysterectomy, chronic lower back and radiating leg pain, and multiple back surgeries, who presented to us 8 years ago with mixed urinary incontinence. The patient had transobturator tape sling for stress urinary incontinence had lower urinary tract symptoms she had her device removed in August 2017. The device was reimplanted in November 2017 with successful results (Fig. 1). Recently, she encountered multiple falls and developed recurrence of her storage lower urinary tract symptoms. Interrogation of the implantable pulse generator (IPG) and lead revealed high impedance, which suggested lead breakage. Follow-up pelvic x-ray showed abnormal twisting and full migration of the lead from the sacral bone (Fig. 2). The patient was counseled about the findings, and since she previously experienced improvement of lower urinary tract symptoms she was counseled on InterStim revision and replacement with the new MRI-compatible IPG and lead. During the procedure, we found the lead completely broken off the IPG, fully migrated off the sacrum and with multiple bizarre twists.

Another interesting intraoperative finding was that the IPG was found to be freely floating in the pocket, with the pocket seeming too capacious (Fig. 3). The old implant was removed, the IPG pocket was refashioned and a new InterStim device was placed without difficulties with return to baseline urinary function.

Discussion
This is an unusual case of InterStim lead migration where the lead became dislodged from the sacrum and twisted multiple times within the IPG pocket, which ultimately led to complete detachment of the IPG from the lead. While rare, this most likely occurred due to significant capacious pocket being left behind, allowing for the multiple twisting to occur. This is supported by the fact that we found the IPG to be freely floating inside the pocket and the fact that the IPG will not be allowed to flip multiple times creating those twists without enough room to do so. Guzman-Negron et al in 2020 described 2 similar cases.6 One patient had recurrent OAB symptoms after full InterStim implant and was found to have lead migration with twisting. The second patient underwent a full InterStim implant with initial improvement of symptoms which recurred 6 months later without any history of trauma, and the twisted lead wire was again replaced with no difficulty. Siegel et al in 2000 reported their experience with 219 patients in the original MDT-103 study where they identified complications in 181 participants, most of which were secondary to lead migration (11.8%) and lead and/or IPG-related pain (17.4%), with approximately 10.5% having their implant explanted for lack of efficacy after initial successful lead stimulation.7 Additionally, van

Figure 1. Initial pelvic x-ray after device reimplantation showing the device in correct position. A, posteroanterior view. B, lateral view.

Figure 2. Followup pelvic x-ray showing lead migration. A, posteroanterior view. B, lateral view.

Continued on page 35
Arteriovenous Fistula and Nephrectomy after Ureteroscopy

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Introduction

Semirigid ureteroscopy and holmium laser is considered first-line therapy for many patients with ureteral stones. In recent years, flexible ureteroscopy and holmium laser or thulium fiber laser has become a first-line therapy option for kidney stones.1 During these procedures, the risk of major complications is low, but in some cases this may pose a risk of serious morbidity and even mortality.2 These rare complications can include the development of arteriovenous fistula (AVF). In most cases, AVF is satisfactorily treated with arterial embolization, but some cases require nephrectomy because of unsuccessful embolization and persistent bleeding.2 Our aim is to show a rare case of nephrectomy after semirigid ureteroscopy due to persistent bleeding.

Case Report

In our center, a 61-year-old male patient presented with a 7-day history of left flank pain. He had a history of 2 previous ureteroscopies and 1 session of extracorporeal shock wave lithotripsy for ureteral and kidney stones. The patient also had a history of 2 previous ureteroscopies and 1 session of extracorporeal shock wave lithotripsy for ureteral and kidney stones. The patient also had a history of 2 previous ureteroscopies and 1 session of extracorporeal shock wave lithotripsy for ureteral and kidney stones. The patient also had a history of 2 previous ureteroscopies and 1 session of extracorporeal shock wave lithotripsy for ureteral and kidney stones. The patient also had a history of 2 previous ureteroscopies and 1 session of extracorporeal shock wave lithotripsy for ureteral and kidney stones.

Kerrebroeck et al in 2007 followed 163 SNS patients for 5 years and noted that 19.9% and 42.1% of patients required surgical intervention due to complications at year 1 and 5, respectively.3 However, they attributed this high complication rate to the fact that their study population included complicated cases that had undergone surgery during the procedure learning curve and with relatively old surgical techniques.2 Moreover, White et al in 2009 concluded that after a mean followup of approximately 3 years, 30.3% of their SNS patients experienced complications, with lead migration, infection and IPG-related pain occurring in 5.9%, 3.5% and 2.7% of the patients, respectively, while confirming a history of trauma, chronic pain and duration of followup to be frequently implicated.4 Lead migration rates appear to vary in the literature, potentially explained by varying implantor experiences, differing clinical practices and different definitions of migration. Our case brings an interesting point that falls/truma may be another factor responsible for leaving the patient susceptible to future device dysfunction due to breakage or lead damage. In those situations, it may be prudent to perform device interrogation and system check. In addition, we found a pelvic x-ray to be very helpful in identifying the lead position. To prevent future occurrences, we recommend creating a suitable sized pocket for the IPG. Too tight a pocket space can lead to erosion of the implant and chronic pain. Too spacious a pocket, on the other hand, can risk fluid collection/infection as well as similar complications of lead twisting and IPG malposition as in this case.

Conclusion

InterStim is an established treatment modality for refractory OAB. Lead migration is a known complication of the procedure. Recurrence of patient urinary and/or fecal symptoms raises the suspicion of lead migration. InterStim device interrogation and pelvic x-ray can help establish the diagnosis. Proper patient counseling to avoid lead/IPG trauma and physical shock as well as sticking to the proper technique can help minimize this complication.  

References

arteriovenous fistula and nephrectomy after ureteroscopy

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(creatinine 3.1 mg/dl), CT scan demonstrated multiple clots in the kidney, ureter and bladder. Blood transfusion was undertaken and cystoscopy with clot evacuation was performed. Ureteroscopy showed multiple clots throughout the ureter. Double-J stent relocation was performed and embolization was elected. Antiplatelet therapy was suspended and replaced by enoxaparin 40 mg/day due to Hematology Department indications.

Endovascular embolization with coils was performed (Fig. 1). Left renal arteriography showed an upper calyx AVF and pseudoaneurysm. Coil embolization was achieved successfully. Three days after embolization, gross hematuria recurred and hemoglobin dropped again. CT scan evidenced persistence of AVF and contrast leakage (Fig. 2). A second embolization was performed with similar findings and results to the first procedure, but the patient became hemodynamically unstable and surgical exploration was required.

Open nephrectomy was performed and multiple clots were found in the renal urinary system (Fig. 3). After surgery, hematuria resolved and the patient had good recovery. He remained hospitalized for another 2 weeks because of antibiotic treatment, with good clinical recovery. After 6 months, he is stable with chronic renal disease because of the atrophic contralateral kidney (creatinine 2.8 mg/dl), and in joint followup with Nephrology with no dialysis requirement.

Discussion

AVF is a well-known complication after percutaneous nephrolithotripsy, but is extremely rare after pure endoscopic procedures such as semirigid ureteroscopy or flexible ureteroscopy. In these surgeries, treatment is performed entirely through the urinary tract, avoiding potential damage to the renal vessels caused by percutaneous access, which leads to a very low reported incidence of hemorrhage following ureteroscopy (0.15%–0.4%).

The exact physiopathology of bleeding in these cases remains unclear, but it may be caused by the damage produced to the pelvicalyceal system by the guidewire and the elevated pressure the kidney is subjected to during ureteroscopy, generating rupture of the renal parenchyma and bleeding.

In our case, extracorporeal shock wave lithotripsy and previous surgeries which the patient underwent may have contributed to the parenchymal damage, but this remains unclear.

Endovascular superselective embolization is the first option to treat bleeding originating in AVFs. This usually produces complete cessation of bleeding and occlusion of the vascular lesion. The side effect of this procedure is that it reduces functional kidney tissue, and it is common to observe a predictable decrease in renal function after performing an embolization. Nephrectomy is our final choice to solve this uncommon but life-threatening complication, which was performed in our case after 2 embolizations without resolution and persistence of bleeding.

Conclusion

This case highlights the importance of maintaining low pressure during endoscopic procedures. Being aware of the constant outflow of irrigation solution is key. Semirigid ureteroscopy and flexible ureteroscopy have excellent safety profiles, but in a limited number of cases life-threatening complications may occur. Fast and accurate management is needed to handle these events.

A Female Resident’s Guide to Navigating a Post-Residency Career as a General Urologist

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University of Minnesota, Minneapolis

Dr. Smith* is a general urologist who joined a hospital-based practice after residency. Prior to her arrival, word spread that there would be a new female urologist in the practice, and female patients jumped at the chance to schedule appointments with her. Instead of scheduling her clinic time booking ureteroscopies, transurethral resection of prostates and other general urological procedures, her clinics were filled with patients seeking care for recurrent urinary tract infections, overactive bladder and pelvic pain. Patients often commented on how much time she spent listening to their concerns, and many requested frequent follow-up visits. She felt as though she couldn’t perform the work she had loved most in training. Additionally, she produced fewer relative value units than her partners and ultimately received lower pay.

The story of Dr. Smith is not uncommon. There is certainly a great need for urologists specializing in the care of female patients. However, for many urologists entering the workforce, this was not the practice they had envisioned. I spoke with a fellowship-trained endourologist who, 3 years after fellowship, sees 95% female urology. She often feels that she is unable to tailor her practice to her desired subspecialty, and frequently wonders why she had chosen to do fellowship altogether. Over the last several months, I conducted interviews with 20 practicing female urologists in different sites and practice models across the nation, seeking advice for women starting their careers. Several common themes emerged from these interviews:

If possible, look for a practice that has employed at least 1 other female urologist. Women make up over 10% of the urology workforce, and this percentage continues to increase each year as residencies graduate more females.¹

Look for a practice with good advanced practice provider (APP) support. Currently, 74.4% of practicing urologists report working with at least 1 APP.¹ If there is a clear pathway to referring nonsurgical patients to APPs, there is decreased burden on the practicing urologist to accommodate new patients who prefer a specific provider.

Be clear about who is scheduling your clinic patients. Often in hospital-based practices, there is a centralized scheduler making scheduling decisions. In other settings, the scheduler is someone internal who you can clearly communicate your expectations with. Additionally, it is helpful to ask about scheduling transparency.

Are you able to see which patient referrals go to other partners in the group? Do the other partners in the group have a say in which conditions they are willing to see? This can be important in determining if 1 provider is disproportionately seeing nonoperative patients.

Know the statewide discrimination policies in your area. Schedulers should not be permitted to schedule based on the gender of the physician, and in many states this is illegal. A well-meaning scheduler may be speaking with a female patient and inquire if they would prefer seeing a female physician, but this is considered discrimination. Certainly, most people would feel this way if schedulers asked male patients if they would prefer seeing a male provider.

After many years of learning a broad skillset of urological procedures in residency, females desiring a general urology practice can experience unforeseen challenges. This article can help bring awareness of these challenges and provide a framework for graduating residents to build a successful, fulfilling practice in whatever area of urology in which they choose to specialize.


Urology Resident Critically Injured

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On Friday night, March 18, 2022 (“Match Day”), Christopher Gonzales-Alabastro, a Northwestern Urology resident, was hit by a speeding SUV, thrown 40 feet, and terribly injured; the details are horrific.

Chris had worked all day in the clinic, and as he left, called it “a really good day” because that afternoon, 2 of his friends texted him that they had matched in excellent training programs. Chris was delighted for them. Later that evening, returning from dinner, Chris was walking with a friend in a marked crosswalk in Chicago’s “South Loop” when the SUV struck him. He sustained a traumatic brain injury, facial fractures, leg, pelvic and abdominal injuries and was rushed to the emergen-
Urology Resident Critically Injured

Continued from page 37

occupational and speech therapy, is making progress and shows determination to recover.

After discharge from the rehabilitation hospital, he will require 24/7 supportive care for some months, possibly further orthopedic surgery and, likely, continued rehabilitation beyond that.

To support Chris and his family, the Northwestern urology residency program director, Dr. Stephanie Kielb, and the residency program staff, Dr. Kelly Maxwell, Kelly Ross and Mary Kate Keeter, along with his fellow urology residents, initiated a GoFundMe for his care and continued rehabilitation.

There has been a tremendous outpouring of concern and support for this unfortunate young doctor who is beloved by all. Chris is an outstanding resident, having received several awards and much unsolicited praise from consulting services, medical students and support staff due to his collaborative spirit, kindness and giving nature. He is a role model for the junior residents and, as one of our residents commented, “Chris is the beating heart of our department.” A graduate of the University of California at Berkley and UCLA’s School of Medicine, Chris was completing his third year of the 6-year urology residency program at the time of the incident. It is so poignant, knowing how hard he has worked and how close he was to reaching his goal of becoming a urologist, that his life has been turned around in a split second.

The faculty and residents at Northwestern deeply appreciate everyone who has reached out to express their support and concern and made donations thus far; urology is full of truly wonderful people.

We encourage the larger urology community to support Chris’s recovery by contributing to his GoFundMe at https://gofundme/09968df0.

Urology and Ukraine: Volunteering on the Polish-Ukrainian Border

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On February 24, 2022, when the first bombs dropped and Russia invaded Ukraine, many Ukrainians began to flee the country. As of May 13, 6.1 million people, mostly women and children, had fled Ukraine. Poland houses the greatest number, with a total of 3.3 million.1 The majority have crossed at the Medyka border, with an estimated maximum of 12,000 people a day. The border has been flooded with people, mostly women and children, as men under the age of 60 are required to stay in Ukraine and fight. In this crisis, one of the groups that acted immediately was Sauveteurs sans Frontières (SSF), a nongovernmental medical relief organization. They erected and staffed a medical tent in Medyka, Poland on the Polish-Ukrainian border on February 27 (Fig. 1).

At the Medyka border, as of mid-April, SSF medical volunteers had treated over 5,000 patients and provided services to many thousands more. The medical tent houses an extensive variety of prescription medications, medical equipment and supplies. They are committed to providing 2 medical professionals (at least 1 medical doctor) at all times. They are also routinely sending medical supplies and other necessary items to hospitals and shelters throughout Ukraine.2

Since the end of February, many of us around the world have watched the daily news of Russia’s continued attack on Ukraine in disbelief and dismay and wondered how to help. Would donations find their way to the people who really needed them? My opportunity came directly from the urology community. While I was wondering if there were anything I could do, Laura Bukavina, MD MPH, flew to Poland, drove to the Ukrainian border, found SSF and has since connected physicians either personally or via social media to volunteer. Following in Laura’s footsteps, and with the guidance of other providers who had and were volunteering, Manoj Monga, MD and I began organizing donations and supplies to take with us (Fig. 2).

A few weeks later, we were on our way, first to Warsaw followed by a

Figure 1. The medical tent in Medyka, Poland on the Polish-Ukrainian Border.

“...We encourage the larger urology community to support Chris’s recovery by contributing to his GoFundMe at https://gofundme/09968df0.”
4-hour drive to the border.

Did we practice urology at the border? Once, maybe twice, but for the most part we were field medicine doctors. We saw a variety of ailments, including hypertension, gastroenteritis, allergic reactions, upper respiratory infections, presumed COVID, burns, old wounds, pink eye and 1 instance of nocturnal enuresis (a true win for the pediatric urologist on shift). We took vitals, checked glucose, deciphered and then gave medication, dressed wounds, started intravenous drips, checked on women in labor, and, likely most importantly, we were there to listen and care.

How did we communicate with those seeking medical assistance? Most of us do not speak Ukrainian or Russian; however, there are many volunteers, local and from all over the world, on the border who do. When in-person translation was unavailable, we relied on technology using our phones, FaceTime and Google Translate.

The majority of time when we were not working a medical shift was spent helping in other ways (Fig. 3). The border is now a space filled with resources. On arrival, people find medical assistance, places to sleep, areas for children to play, essential amenities (e.g., baby wipes, coats, toiletries etc.), SIM cards, veterinary care for their pets and pets that they rescued, food, beverages, snacks and transport to Tesco, a mall that has been converted to a center to help people sort out their next destination. Volunteers further fill the corridor offering help with bags, giving directions and staffing the tents lining the path. We remained busy sorting and packing supplies to send into Ukraine as well as distributing hats, gloves, sandwiches, stuffed animals, Matchbox cars and bubbles to children on both sides of the border.

At press time, the crisis in Ukraine is not over, and we should not forget that it continues as the time passes. We went there with the hope that we would be useful, but also concern that we might not. Surely someone would need a Foley? Right? Many of us feel that our super-specialization impedes our ability to help, but in fact this experience proves that medicine is a universal language (Fig. 4). We should all recognize that we have extremely valuable skills outside our specialty, and we can help. If
you are interested, several organizations including SSF continue to look for medical volunteers. It is impossible to do justice to or even relay all of the stories we heard or everything we saw and felt. I can still hear the nonstop “thump, thump, thump” of roll-er bags on the paver stones that was always in the background, the sound of escape, movement toward safety and the hope for better. I also continue to think about the Ukrainians we met who told us they did not like or want to be referred to as refugees and I understand. Their situation is beyond comprehension for most of us, even those of us who were there, and assigning a term like “refugee” makes them different, less relatable. At the end of the day these people who are running for their lives are just like us and our loved ones. They are doing the exact same things we would do: hurriedly gathering a few belongings, leaving the lives they have known and heading toward safety. And just like we would, they need people to show up for them.

During one overnight shift, a woman who didn’t need medical assistance walked into the tent and felt. I can still hear the nonstop “thump, thump, thump” of roll-er bags on the paver stones that was always in the background, the sound of escape, movement toward safety and the hope for better. I also continue to think about the Ukrainians we met who told us they did not like or want to be referred to as refugees and I understand. Their situation is beyond comprehension for most of us, even those of us who were there, and assigning a term like “refugee” makes them different, less relatable. At the end of the day these people who are running for their lives are just like us and our loved ones. They are doing the exact same things we would do: hurriedly gathering a few belongings, leaving the lives they have known and heading toward safety. And just like we would, they need people to show up for them.

During one overnight shift, a woman who didn’t need medical assistance walked into the tent and said, “Thank you for being here and not abandoning us.” We left the border amazed by the many people from all over the world who are tirelessly working to help Ukraine, with the hope that we as a global society will continue to show up for this and any other humanitarian crisis. We have no doubt, when we think about our specialty, that urology as a community will.


Coding Tips and Tricks

Coping for Posterior Tibial Nerve Technologies

Jonathan Rubenstein, MD, FACS
Chair, AUA Coding and Reimbursement Committee

The posterior tibial nerve can be accessed near the medial malleolus. Stimulation of this nerve inhibits bladder overactivity due to the activation of the sacral and central pontine micturition centers, which then send inhibitory signals to the bladder. There are a number of current and emerging technologies focused on the stimulation of the posterior tibial nerve for this indication. This article describes some of the currently available posterior tibial nerve stimulation technologies and the Current Procedural Terminology (CPT®) codes available, along with coding recommendations in the absence of specific CPT codes. Please note this is not an exhaustive list of all technologies, and the coding advice is based upon the available information at the time of publication.

Nonimplanted Technology: PTNS

Description: Posterior tibial nerve stimulation (PTNS) involves the insertion of a specialized needle near the posterior tibial nerve, which is then connected to a neuromodulation system. The nerve is typically stimulated for 30 minutes, after which the needle is removed. Therapy is typically once a week for 12 weeks, with maintenance PTNS performed as necessary.

Coding: One session of PTNS is reported using CPT code 64566, Posterior tibial neurostimulation, percutaneous needle electrode, single treatment, includes programming. This CPT code is a zero-day global procedure, meaning that associated evaluation and management services (such as checking in on the patient and clearing the patient for the procedure that day) are included in payment and should not be reported separately. PTNS has a personal supervision designation, meaning the performing provider must be present in the room at the time of the needle placement. PTNS is covered by Medicare when meeting appropriate criteria and with coverage limitations, while coverage varies among commercial insurers. Providers should check a patient’s insurance coverage and plan benefits and limitations prior to performing PTNS.

Implanted Technologies with CPT Codes: Protect PNS

Coding: There are 4 Category III (emerging technology) codes associated with this device despite it not yet being commercially available: CPT 0587T, Percutaneous implantation or replacement of integrated single device neurostimulation system including electrode array and receiver or pulse generator, including analysis, programming and imaging guidance when performed, posterior tibial nerve, CPT 0588T, Revision or removal of integrated single device, and the 2 programming codes, 0589T, Electronic analysis with simple programming of implanted integrated neurostimulation, 1–3 parameters, and 0590T, Electronic analysis... 4 or more parameters. Parenthetical notes should be evaluated to determine what can and cannot be billed at the same time as Protect PNS placement or replacement; for example, it instructs one not to report 0587T in conjunction with 64535, 64566, 64575, 64590, 95070, 95071, 95972, 0588T, 0589T or 0590T.

Implanted Technologies without Specific CPT Codes

eCoin®

Description: eCoin (Valencia Technologies, Valencia, California) is a fully implanted, leadless, nickel-sized and -shaped neuromodulation device, that is U.S. Food and Drug Administration approved for the treatment of urinary urge incontinence and is currently available. The eCoin implantation procedure typically is performed in office under local anesthesia and typically takes 20–30 minutes. The eCoin itself is both a battery and stimulator so it does not require an external power source, but is programmed using an external controller. It is typically programmed to provide 30-minute stimulation treatment sessions every 2 days for 2 weeks and then every 15 days thereafter. Adjustments can be made between sessions for effectiveness and comfort.

RENOVA

Description: The RENOVA iStim™ system (BlueWind Medical, Herzliya, Israel) is a wireless, battery-free tibial nerve stimulator system consisting of the implant itself and an external control.
unit. The implant is a receiver that is capable of delivering electrical pulses and is fixed near the posterior tibial nerve below the fascia using an open surgical approach. The external control unit provides the implant with the energy needed (closed-loop system) for treatment and allows the patient to adjust the amplitude in a range between the minimum and maximum tolerable level set by the clinician. Patients wear the external control unit only during treatment sessions. This device is currently experimental and not yet commercially available.

**Bioness StimRouter®**

**Description:** The Bioness StimRouter (Bioventus, Durham, North Carolina) is a neuromodulation system used for chronic pain that is experimental for overactive bladder. It consists of an implanted lead containing a receiver, electrodes and anchoring system, and is implanted percutaneously. It is transcutaneously powered by an external pulse transmitter. It is approved for chronic pain but also has been used for overactive bladder, mainly in Europe. Patients wear the external pulse transmitter on the skin during stimulation of the nerve, and a patient programmer can be used to change parameter settings and track usage.

**Other and Emerging Devices**

There are other tibial nerve devices in various stages of approval which are beyond the scope of this article at the time of publication.

**Coding:** For procedures that do not have a specific CPT code, the CPT codebook instructs providers to select and report an unlisted CPT code and not to select a CPT code that merely approximates the service provided. At the time of this publication, there has been no coding advice published by CPT that describes the appropriateness of a specific Category I or III CPT code use for implanted tibial nerve other than that described above. The most appropriate unlisted CPT code to choose for posterior tibial nerve technologies is CPT code 64999 Unlisted procedure, nervous system. As always it is important to check with a patient’s insurance for proper code choice and payment policy.

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**MEDICOLEGAL COLUMN**

**Coding for Posterior Tibial Nerve Technologies**

Continued from page 40

**Documentation at Trial: Is It Really That Important?**

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DOPF, P.C.

Martin B. Adams, JD
DOPF, P.C.

The absolute best way to understand the extraordinary importance of “Proper Documentation” is to consider an actual case. The case discussed below involved surgery done 9 years ago, for a pelvic organ prolapse. More specifically, a repair of the prolapse using mesh.

Set forth below are segments of Cross-Examination relating to the mesh and relating to the surgery itself:

**Q:** Dr. Jones, I will be questioning you about your new version of what happened almost 9 years ago. That is, the version that you are attempting to do now is Run Away from your Operative Report 9 years ago.

**A:** Understood.

**Q:** Will you agree with me that your Operative Report has multiple substantive details that you now disagree with?

**A:** Yes.

**Q:** Was your memory better when you dictated your Operative Report at the time of the surgery or did it become better at your deposition 3 years later … or did it become even better today … 9 years after the surgery?

**A:** It got better today.

**Q:** Do you agree with me that an Operative Report must be an accurate document?

**A:** Yes.

**Q:** Do you agree that other physicians and health care providers “Down the Road,” may or may not rely on what you have written in your Operative Report?

**A:** Agreed.

**Q:** Accordingly, for the patient’s safety and welfare, it is extraordinarily important that your Operative Report be correct. True?

**A:** As best as possible.

**Q:** In this Courtroom, you now want to “Run Away” from your Operative Report … True or False?

**A:** Not really.

**Q:** In addition to having mis-statements in your Operative Report, there are also multiple omissions in terms of what you did? Can we agree?

**A:** Not really.

**Q:** Can we agree that before you signed your Operative Report and attested to its accuracy, you read the report and thereafter confirmed it to be accurate?

**A:** I thought I did.

**Q:** Will you agree with me that one of the crucially important aspects of proper record keeping is for continuity of the patient’s care?

**A:** Yes.

**Q:** We cannot have physicians calling each other on the telephone asking for interpretations of Operative Reports while surgery is actually ongoing?

**A:** That does happen sometimes. But certainly not ideal.

**Q:** Will you agree with me that an accurate Report should preclude the need for such Emergency Intraoperative telephone calls?

**A:** Maybe.

**Q:** Can we agree that one of the more important purposes of accurate medical records is so that subsequent treating physicians can have the ability to know what treatment was rendered?

**A:** Yes.

**Q:** Your Operative Report indicates that a “Patch” of mesh was placed within the hernia defect and that this patch was then secured to the fascia. Why are you now telling us something different?

**A:** Because the wording of the Operative Report is inaccurate.

**Q:** Can we agree that what you are telling the Jury now is different than what was written in your Operative Report?

**A:** Yes.

**Q:** Can we agree, Sir, that what you are attempting to do now is create a Coverup?

**A:** Absolutely not.

**Q:** Dr. Jones, aren’t you rewriting your Operative Report in terms of your testimony so as to be found not guilty of malpractice?

**A:** No.

**Q:** You testified before our Jury that you did an underlay of mesh. But this was not referenced at all in your Operative Report?

**A:** That’s correct.

**Q:** There is no written evidence to support your new testimony … am I right?

**A:** Yes.

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Q: In your Operative Report you described the procedure as “Palliative.” But this patient had been cured of his cancer 6 years earlier.
A: Yes.
Q: You used the word “Palliative” to describe this hernia repair because you were attempting to communicate that this was a temporary repair … not a permanent repair?
A: That’s not true.
Q: Can we agree that there is no other reason to describe a Ventral Hernia Repair as “Palliative Surgery,” other than to communicate a short-term repair?
A: No. That is not true.
Q: Can we agree that Palliative Surgery is not meant to last long-term?
A: Sometimes yes, sometimes no.
Q: You now come to Court and claim that the patient’s alcoholism caused and contributed to the poor wound healing and the ultimate dehiscence and infection. Can we agree that there is not one word in the Hospital Chart nor in your Office Chart demonstrating that any of the health care providers were concerned about the plaintiff’s alcohol intake.
A: I agree. I don’t see a Note.
Q: You also attempt to blame your patient for not using the Wound VAC as prescribed. Do you see any Note in this 5,000-page Hospital Chart which indicates that your patient was not using the Wound VAC properly?
A: I don’t see such a Note.
Q: And now you’re once again trying to throw the patient’s case out of Court based upon something that you made up after you were sued. True?
A: Not at all.
Q: Can we agree there’s nothing in the chart indicating that the Wound VAC had to be worn 24 hours a day?
A: That’s true.
Q: But now you’re telling our Jurors that it had to be worn 24 hours a day?
A: True.
Q: But none of this is documented?
A: True.
Q: Were you too busy to document?
A: No.
Q: It is not disputed that this case centers around an infected mesh which resulted in sepsisemia and permanent injuries. Can we agree that there are absolutely no Notes reflecting any consideration to bring in an Infectious Disease Physician?
A: No Notes. But we did consider an Infectious Disease Consultation. Just not written down.
Q: You’re now saying that because you’re on trial. You never documented that at the time. True?
A: Yes.
Q: Can you agree with me that everything that you are trying to tell the Jury now is not supported by the medical records?
A: Some of it is.
Q: Why are you trying to sell us on a new set of facts that appear nowhere in the medical and Hospital records?
A: Just because it is not written, doesn’t mean that it didn’t happen.

Believe it or not, many, many cases are won by plaintiff’s counsel based upon poor/inaccurate/missing information documented in medical/hospital charts.
Please don’t let this happen to you!

### Have You Read?

**Craig Niederberger, MD, FACS**
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*Special thanks to Drs. Rachel Passarelli and Danielle Velez Leitner at Rutgers Robert Wood Johnson Medical School.*

These investigators conducted a retrospective study of abnormal semen analyses at their institution and observed that from 2002–2018, 51.9% were ordered by reproductive endocrinologists. AUA/American Society for Reproductive Medicine (ASRM) guidelines on the diagnosis of male infertility recommended reproductive urology evaluation for men with abnormal semen analyses. However, only 20.5% of the target patients were seen by reproductive urology. In surveys of these men, 77.3% did not know they had an abnormal semen analysis (SA) and only 5.6% recalled a recommendation for a reproductive urology consult.

As the authors aptly note, patients cannot seek help unless they know of a problem. This likely contributed to the low percentage of patients undergoing reproductive urology evaluation. This gap in care is highly problematic, as reproductive urology interventions may decrease the need for more invasive and expensive assisted reproductive technology. Additionally, it has been well-established that men with abnormal semen parameters are at higher risk of underlying illness. The abnormal SA may lead to the diagnosis of an underlying genetic disorder or motivate the patient to correct early metabolic disease. This can’t happen if they aren’t alerted to the problem, and it is a real missed opportunity.

Despite AUA/ASRM recommendations that men with abnormal SA are evaluated by reproductive urology, this occurs only a small percentage of the time. This article highlights the need for wider education among patients and physicians about the immediate and long-term benefits of reproductive urology evaluation in men with abnormal SA. Especially with the rapid expansion and acceptance of telemedicine, patients nationwide have greater access to specialty care but must first be made aware of the need for evaluation.


*Special thanks to Drs. Rabun Jones and Rodrigo Pagani at the University of Illinois at Chicago.*

Although the gender gap in urology has narrowed over the past decade, female faculty still constitute only about 14% of urological academics in the United States. The number of women in university leadership positions is even lower. Many factors are considered for promotion and tenure, including the impact factor of journals in which manuscripts are published. Unfortunately there remains a dearth of information on the association between female authorship and urology journal bibliometrics.

These investigators retrospectively reviewed urology journals to...
From the Chief Executive Officer

While these observations were vexing, review versus single-blinded peer review, and journal subspecialty associations were related to the proportion of first and last female authors. Among 14 of the highest-impact factor urology journals yielding 65,828 articles from 2015 to 2020, only 18.6% of first and last authors were female. Higher impact factor was frustratingly significantly associated with a lower proportion of female authorship. General urology journals had significantly lower representation of female senior authors than subspecialty journals. Subspecialty journals were significantly more likely to have female authors with double-blinded peer review versus single-blinded peer review, and no such difference was found in general urology journals. While these observations were vexing, fortunately over time there was a positive trend for overall rates of female authorship. This review characterizes the minefield that female trainees and junior attendings must navigate should they choose academic practice and highlights contributing factors to the gender gap in our field. There are limits to the study, including lack of inclusion of non-binary gender identities, potential misclassification of author names and importantly, that the impact factor is widely recognized as a highly flawed bibliometric. However, the findings provide food for thought when evaluating peer review processes, mentorship opportunities, and academic promotions through the lens of gender equity.


Special thanks to Drs. Andrew Lai and Rodrigo Pagani at the University of Illinois at Chicago.

National databases collect valuable information on uncommon disease entities in order to answer rare but important questions. The National Trauma Data Bank allowed these authors to compare the use of angioembolization versus surgical repair of high grade renal trauma. Previous studies were limited to single institutions with no more than 80 patients, whereas this study included nearly 500. Surgical repair has been the standard for renal salvage in patients requiring intervention, and interestingly these investigators found a threefold increase in the percentage of blunt renal traumas managed with angioembolization. Those with high-grade renal injuries had over 85% success rates. The adjusted analysis observed that those undergoing angioembolization had 79% lower odds of requiring subsequent nephrectomy compared with those undergoing surgical repair, an association which held after matching the cohorts. Those undergoing angioembolization were not advantaged in all areas, as this group had higher rates of blood transfusions, higher proportion of hemodynamically unstable patients, and higher median pulse rates compared to the surgical repair group.

Retrospective observational studies have their limitations, especially in selection bias. Some hypothesize that higher rates of nephrectomies after initial surgical repair are due to less experience with open surgery among younger urologists, but this is speculative. Clearly this well-performed study highlights a trend towards successful minimally-invasive approaches in high-grade renal trauma.

Michael T. Sheppard, CPA, CAE
CEO, American Urological Association

The AUA continues its ongoing focus on and prioritization of diversity. The AUA and Urology Care Foundation (UCF) Boards of Directors and staff are committed to working with our membership to advance diversity, equity and inclusion (DEI)-related efforts.

The AUA announced the formation of a Diversity and Inclusion (D&I) Task Force in December 2020. This group was charged with developing actionable recommendations for the Board by February 2022. The Task Force surveyed all AUA Sections and numerous stakeholder groups. Based on their feedback, the D&I Task Force presented recommendations to the Board in 5 focus areas: Just and Inclusive Environment; Diversity in the Workplace; Structural Competence; Advocacy; and Research. A key outcome of the Task Force’s recommendations is the establishment, by AUA bylaws, of a formal AUA D&I Committee. This Committee will advise the Board and AUA leadership on DEI issues and initiatives. The physician chair of the D&I Committee will hold the position of AUA Chief Diversity Officer.

Beyond the D&I Task Force’s directives, I’d like to review some of the programmatic areas AUA and UCF, its Boards, Councils, Committees and staff continue to implement daily as part of our commitment to being a global leader in advancing DEI within urology.

UCF Patient Education Council and Committee

The UCF Patient Education Council and Committee target a diverse audience including underserved and vulnerable populations. The Foundation’s vast library of educational offerings represents multiple ethnicities, ages and genders as well as condition areas and patient groups. The Foundation is committed to releasing its information in multiple formats to appeal to the various ways people consume information by offering patient education as detailed web articles and patient guides, as concise fact sheets and care blogs as well as multimedia formats, such as podcasts and videos. In 2021, the Foundation reached diverse audiences with many of our patient education materials, including health checklist bundles intended for Black men and women. In 2022, we are developing a new checklist bundle for Latinx men.

The Foundation team continues to ensure materials are linguistically appropriate and culturally competent, reflective of the global populations we serve. We continue to strive to increase visibility and awareness of our patient education through translations to extend global accessibility. Currently, the Foundation offers translations in 8 languages in addition to English, including Arabic, Brazilian Portuguese, Hindi, Italian, Punjabi, Spanish, Urdu and Vietnamese. In 2022, the Foundation began the last year of the 3-year plan to translate a majority of its patient education library into Spanish. Since March of this year, UrologyHealth.org now features a Spanish translations resource center featuring Spanish patient education materials, including videos and A-to-Z condition articles.

In collaboration with the AUA Communications team, the UCF leverages social media and digital communications platforms to celebrate various D&I-related months, weeks and days of the year. Involvement in these projects was extended to the AUA D&I Task Force, the UCF D&I Task Force and members of the Foundation’s Public Education Council, with vital support from compassionate industry partners. Early analytics of our digital platforms are
DIVERSITY, EQUITY AND INCLUSION INITIATIVES

“...The Foundation is committed to releasing its information in multiple formats to appeal to the various ways people consume information by offering patient education as detailed web articles and patient guides, as concise fact sheets and care blogs as well as multimedia formats, such as podcasts and videos.”

promising, exhibited by the popularity of the Spanish versions of our top viewed YouTube videos in recent months.

The Foundation’s strides in the area of D&I are reflected in its leadership as well. Last month, the Public Education Council welcomed 6 new members and has already established the UCF’s first female Chair-elect, Dr. Courtney Rowe. All of the Public Education Council’s leadership is selected with diversity as a priority, reflecting gender, race, specialty area, geographic location and professional experience or tenure.

Research

In early 2021, AUA launched the Leadership in Education, Achievement and Diversity (LEAD) Program, supported by UCF and Urovant Sciences. The LEAD Program supports three urology residents per year from racial and ethnic backgrounds who are underrepresented in urological research. The residents conduct mentored research, engage in AUA research education opportunities and attend networking events as they develop successful research careers.

Similarly, in May 2022, the Urology Care Foundation, in collaboration with Boston Scientific Corporation, launched the Boston Scientific Medical Student Innovation Fellowship Award. This award supports the education of medical students from racial and ethnic backgrounds underrepresented in urological research who would like to invest 1 year during medical school to engage in innovative research training under a mentor urologist and gain exposure to research in the field of urology.

Public Policy and Advocacy

AUA’s Prostate Cancer Impact Alliance consists of more than 25 prostate cancer patient groups and subspecialty organizations. Utilizing health inequities as a major pillar of its agenda, diversity and health equity will be a primary focus for the group’s future projects such as prostate cancer awareness month, patient physician communications and clinical trial education. In May 2021, the Prostate Cancer Impact Alliance welcomed the R. Frank Jones Urological Society into its membership.

The Annual Urology Advocacy Summit Planning Advisory Committee works with the R. Frank Jones Urological Society and various stakeholders to identify key cross-over advocacy areas to feature on the Summit agenda each year. This year’s attendees urged legislators to cosponsor the DIVERSE Trials Act (H.R.5030 and S.2706), which would require the Department of Health and Human Services to create guidance on the use of decentralized trials to increase trial diversity.

Publications

AUA News Editor-in-Chief, Dr. John Denstedt, in collaboration with Dr. Tracy M. Downs, AUA D&I Task Force Chair, invited and published articles on various D&I-related topics and focus editions in April 2021 and 2022. This year’s issue, “Celebrating Diversity with the AUA,” included 40 DEI-focused articles and expanded include a global perspective. Dr. Denstedt and his Editorial Board are focused on inviting diversity-related topics throughout the year.

Dr. Robert Siemens, The Journal of Urology® Editor-in-Chief, initiated open peer review to promote transparency and inclusivity in the peer review process. He also extended the Editorial Board to include Early Career Editors and to involve more international members.

All Editorial Committee members for Urology Practice® are selected based on diversity across subspecialty, age, gender, geographic location and race/ethnicity under leadership from its Editor-in-Chief, Dr. J. Stephen Jones.

Office of Education

The AUA and UCF created an awareness campaign and series of educational activities that addressed disparities in prostate cancer care. The AUA developed a series of educational offerings designed to increase the urologist’s engagement in shared decision making and how to implement it in their clinical practice, particularly in underserved communities.

Human Resources

Our Human Resources Department has engaged in several initiatives aimed at recruiting candidates, the selection process itself and employee retention. We have expanded our recruitment sites to target diverse candidates. Furthermore, we have initiated an ongoing and thorough review of position descriptions and job postings for biased language.

A more structured interview process free of unintentional bias, combined with additional training of hiring managers when necessary, ensures AUA’s candidate selection process meets industry expectations. For our current staff, we continue to foster an inclusive workplace culture and provide equitable access to all resources, including learning and development opportunities.

This article provides only a summation of the programmatic strides in D&I the AUA and UCF have taken. We acknowledge the significant journey ahead of us as we continue to learn about the differences among us and respond with compassion to a diverse urological community with accountability and quantifiable outcomes. We look forward to your continued involvement with and feedback on these ongoing efforts.

“The AUA developed a series of educational offerings designed to increase the urologist’s engagement in shared decision making and how to implement it in their clinical practice, particularly in underserved communities.”
Partners in Advocacy: Our Patients

Eugene Rhee, MD, MBA
Chair, AUA Public Policy Council

Connection is what drives successful advocacy. Susan McPherson once said, “Magic happens when you connect people,” and the synergy those connections create cannot be beat. We are so lucky to have many passionate, engaged advocates amongst us at the AUA and our members understand the importance of advocating for our patients and our specialty. Today, however, I’d really like to highlight another vital advocacy partner of ours: a fantastic assortment of patient advocacy organizations.

Did you know that the AUA has more than 70 patient advocacy partners and leads multiple patient advocacy initiatives that support and enhance the AUA’s advocacy priorities? Our patient advocacy initiatives include the AUA’s Prostate Cancer and Kidney Cancer Impact Alliance, the Kidney Cancer Impact Alliance, the Bladder Health Alliance and the annual Patient Advocacy Connections Program. The patient advocacy groups the AUA allies with span all kinds of urological conditions, from cancer to pelvic organ prolapse. These partners regularly engage with us to promote improved quality and access to health care. They understand the importance of sufficient funding for urological research and reducing burdensome utilization management obstacles to care. The AUA’s advocacy magic would be lessened without our connections to these people and groups.

I’d love to tell you more about some of our patient advocacy initiatives as we have many exciting events and opportunities coming up this fall. The AUA’s Prostate Cancer Impact Alliance, in collaboration with the UCF (Urology Care Foundation), is a collaborative coalition comprised of key stakeholders within the prostate cancer community including patients, caregivers, researchers, physicians and allied health professionals. The coalition framework is designed to remove barriers to patient care and improve access to life-saving treatments. This fall, the Alliance will host its first in-person meeting in Washington, DC, including a Hill day to advocate on behalf of prostate cancer legislation. Similarly, the AUA/UCF’s Kidney Cancer Impact Alliance, another coalition of kidney cancer-impacted stakeholders, will also host their first in-person meeting in Washington, DC with a Hill day.

Every October the AUA convenes the Bladder Health Alliance for a roundtable dedicated to the promotion of Bladder Health Month in November and discussion of key legislative issues impacting bladder health conditions. During the event, participants convene to network and brainstorm about key issues impacting the bladder health community. This Alliance is comprised of more than 95 patient, physician and research advocacy organizations who work collaboratively to elevate awareness about bladder conditions and remove stigma associated with these conditions.

The work these alliances do strengthens the overall voice of urology. We, as physicians, must seize opportunities to advocate alongside our patient advocacy partners and speak with 1 voice on behalf of urology.

Patient Education: Past, Present, Future

Harris Nagler, MD, FACS
President, Urology Care Foundation

Global Improvement in urological care is predicated on medical research, humanitarian efforts and patient education. The belief that education, and specifically patient education, is a critical element in the elimination of health care disparities and improving health care of patients drives me to utilize this column to share with you the evolution of the Urology Care Foundation’s efforts to provide accurate, appropriate and accessible resources for patients worldwide. As technology advances, so must we advance and adapt the resources it produces to exceed the expectations of the global audiences it serves. Let me take you from the past to the present, and into the future of our efforts.

Past

Under our original name, the American Foundation for Urologic Disease, the Foundation began developing publicly available patient education materials in 2006. In conjunction with this effort, the Foundation also launched the UrologyHealth.org website and the patient magazine, UrologyHealth extra®. Over the course of the next 5 years, the Foundation took on the role of serving as a credible source of patient information. Just as medical research improved during this period, technology significantly changed the way we all communicate as consumer behavior shifted significantly to the Internet and social media.

In 2011, we joined the social media movement by establishing Twitter and Facebook accounts. This new form of global communication allowed for real-time, 2-way engagement with patients and their caregivers.

Technology demands organizations adapt quickly. Just 3 years after the AUA Education and Research Board of Directors approved the new Urology Care Foundation name in 2012, the website experienced its first redesign to include new features such as Care Blogs. Within a year the site attracted 3.3 million views annually.

As we were able to share our mission and science electronically, our demands for educational material skyrocketed as well. In 2016 alone more than 35,000 patient education materials were downloaded and nearly 73,000 patient education pieces were ordered.

Present

Since I began my tenure as the Urology Care Foundation Board president in 2018 the Foundation has witnessed a considerable increase in productivity. With the outstanding leadership of our patient education chairs the total number of downloadable patient education materials grew 260% in that time. Today there are more than 600 pieces available.

To ensure these resources are available to all members of our community the Foundation began translating a majority of its patient education library into Spanish. Additionally, we recently launched a Spanish resource center on the website which promotes and houses

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Grassroots Effort to Form a New State Urology Society

Lorie Fleck, MD, FACS, FPMRS
University of South Alabama, Mobile

As a member of the Southeastern Section of the AUA I have enjoyed watching southeastern states gather for state society meetings. One of my first memories as a urology resident is of the Georgia Urological Association meeting at Sea Island, where I met Dr. Bill Cooner, who would lead me to my first job with his group, Mobile Urology Group, PA. And as an Alabama resident I recall the days when the Alabama State society met every summer. We typically gathered along the Gulf Coast and enjoyed educational presentations and networking opportunities. These events were scholarly but were also social opportunities to make new friends and reconnect with old friends. Over the last 5 to 10 years the meetings ended and the Alabama State society ceased to exist in any active form. Several urologists in Alabama, myself included, have been interested in reviving our state society. We have been working for the last year to make this a reality.

It is surprisingly difficult to get a small group of busy urologists together even virtually to discuss a new venture. Well maybe it’s not surprising, considering the shortage of urologists and epidemic burnout amongst urologists. We are all busy with our families and practice obligations, plus other meetings and commitments.

We started with a large virtual gathering in the spring of 2021 to gauge interest and to float ideas about what a state society should look like. We found that there was interest in creating such a society but that this large group was unwieldy in managing the details of forming a society. We used information gathered at this large meeting to help focus our mission statement. We narrowed the core group to 8 urologists spread throughout the state, and this core group was tasked with forming a state society. We have gathered virtually on a monthly basis, and outlined our goals and developed a mission statement. We have elected officers and divided duties so no one person is carrying the entire load.

Our first official board meeting was in January of 2022. Our board members include: Michael Bivens, Homewood, Alabama as chairman; Brian Richardson, Montgomery, Alabama as vice chairman; John Pirani, Gadsden, Alabama as treasurer and Lorie Fleck, Mobile, Alabama as governmental affairs liaison; as well as Rishi Rajan, Opelika, Alabama; Anne Scott, Tuscaloosa, Alabama; Keith Jiminez, Huntsville, Alabama and Jeff Nix, Birmingham, Alabama. We started our discussion with the goal of defining what exactly we wanted in our state society and outlined our priorities. We needed a name and decided to call our society the Alabama Urology Network (AUN). There are many facets to creating a new organization, and thankfully we have the assistance of a large urology group business manager. The mission statement for AUN includes supporting its members through collaboration, communication, education and advocacy in our state. We are writing our bylaws based on AUA bylaws and other states’ bylaws as a guide. We plan to incorporate as a 501(C)(6) organization. We are working on forming a website for AUN to improve the dissemination of information. We will continue to address issues such as physician recruitment, revenue streams, Advanced Practice Providers, political policy and best practices, both clinical and business.

We recently sent a letter to all the urologists invited to the original virtual meeting announcing our progress. We shared the new society’s name, the board members names and the goals of AUN. These goals include improving intergroup dialogue on issues that we all face, including coding and reimbursement, and prior authorization burdens. We are also using this new state society as a way to mobilize response for state regulatory changes.

We are still working on our future plans. We are asking ourselves questions, such as: do we want to have a state meeting, and if so, where does this fall in the midst of the AUA section meeting, AUA Annual Meeting; American Society of Clinical Urologists; Society of Urologic Oncology; Society of Urodynamics, Female Pelvic Medicine & Urogential Reconstruction; Society of Women in Urology and Advocacy meetings? A practicing urologist only has time for so many meetings, and if we choose to have a state meeting it will need to fill a specific need. Hopefully, at least, we will create a network of urologists who can respond nimbly to state regulatory issues, and who can collaborate on new technology and be available and in communication with each other more easily.

So the AUN is born, and is growing and developing into a structure to benefit both Alabama Urologists and our patients.
SECTION AND SPECIALTY MEETINGS

Young Urology Events at AUA2022

Seth A. Cohen, MD, FACS  
Chair-elect, Young Urologists’ Committee  
City of Hope, Duarte, California

Jay Simhan, MD, FACS  
Chair, Young Urologists Committee  
Fox Chase Cancer Center, Philadelphia, Pennsylvania

This year, the AUA Annual Meeting finally returned to an in-person format! The recent meeting had several fantastic events specifically tailored for young urologists within the AUA by members of the Young Urologists Committee (YUC) and its chair, Dr. Sammy Elsamra.

A key topic that has enveloped most of our lives has been the incorporation and rapid growth of social media within the fabric of societal culture over the past decade. The influence of social media, either positive or negative, is undeniable. Do you incorporate social media in your practice? How can that be done effectively? What are the “rules”? Any tips to utilizing social media to help knowledge dissemination and/or institutional/career advancement? If you have not incorporated social media platform(s), what are you missing?

All of these questions helped drive this year’s YUC to develop a comprehensive Young Urology Forum focused on the effects of social media on urological practice. Accordingly, this year’s program had 4 distinguished young urologists who were also well-recognized experts in social media. Dr. Aditya Bagrodia (@AdityaBagrodia), Dr. Justin Dubin (@justindubinmd), Dr. Rena Malik (@RenaMalikMD) and Dr. Stacy Loeb (@LoebStacy) all spoke individually on their experience using various social media programs with comprehensive presentations on Twitter®, YouTube® and podcasts. An engaged conversation with the audience took place where young urologists learned the “do’s and don’ts” of incorporating social media into their practices. They were given helpful and easy-to-follow suggestions, which, taken together, were essentially a “how-to” guide in professional utilization of these various social media platforms. From networking to patient education and research endeavors, the panelists spoke of the value social media engagement has brought to their professional developments. Importantly, all of the expert speakers reiterated the notion that social media use as a physician is most effective when there is passion and interest in doing so—and those physicians who are not interested need not feel an imperative to implement social media into their daily routine.

Another event coordinated through YUC was the Speed Mentoring program managed by one of us (JS). This program has become a long-standing annual tradition of the AUA meeting. At this event, residents and fellows sign up as “mentees” and discuss a wide range of topics with pre-selected Young Urology mentors in “speedy” 10-minute conversations. Mentees then rotate to have similar short-burst conversations with additional mentors who are subject matter experts in the topic areas of interest. No issue is off limits in this no-holds-barred conversation, and most mentees discussed fellowship/job advice, career choice, employment contract issues and career goals during the most recent Speed Mentoring event.

Additionally, the AUA Medical Student Education Committee held its annual Medical Student Forum, with a robust panel composed of Young Urologists including Dr. Marisa Clifton, Dr. Kathleen Kieran, Dr. Jennifer Yates, Dr. Adam Weiner and Dr. Taylor Kohn, and was moderated by one of us (SAC). The event was directed toward medical students present at the AUA meeting and provided a venue for them to network with and ask questions of Young Urologists who are currently in training or extensively involved in trainee education. This year’s event was very well attended, with 102 medical students present for 60 minutes of helpful, important insights to guide them on paths forward in potentially joining our specialty.

Overall, young urology was well represented in planned, coordinated events for our peers at AUA2022, a meaningful return to an in-person gathering after an extended hiatus. These high-yield events were only possible because of many team members’ efforts, and we are grateful to both AUA leadership and staff for providing the space, time and resources to allow these events to occur. YUC is already engaged in planning for Chicago, AUA2023.

Society of Urodynamics, Female Pelvic Medicine and Urogenital Reconstruction Clinical Science Update

Stephanie Gleicher, MD  
Vanderbilt University Medical Center, Nashville, Tennessee

W. Stuart Reynolds, MD, MPH  
Vanderbilt University Medical Center, Nashville, Tennessee

The annual clinical meeting of the Society of Urodynamics, Female Pelvic Medicine and Urogenital Reconstruction [SUFU] was held in person (with a remote virtual option) in San Diego from February 22 to 26, 2022. As is the case for most professional organizations, this was the first opportunity for an in-person gathering since the SUFU meeting in February 2020, just before the outbreak of COVID-19. In all, 482 persons attended the clinical meeting in person and 208 virtually, with about 170 being trainees.

The clinical program was comprised of keynote lectures, panel discussions, clinical debates, expert video theaters and break-out sessions, covering all the major topical areas inherent in the subspecialty. The scientific program included presentations of a total of 250 abstracts over 6 podium sessions, 2 video abstract sessions and 13 poster sessions by members, fellows,
residents and students. Most of the plenary sessions were recorded and are available for viewing through the SUFU website [https://sufu.org.com/meetings/past.aspx].

The clinical meeting opened with a thought-provoking session on the Social Ecology of Pelvic Floor Disorders chaired by Dr. Casey Kowalik (University of Kansas). Dr. Tamara Bavendam and Dr. James Hokanson (Marquette University and Medical College of Wisconsin) presented conceptual frameworks for how nonanatomical genitourinary conditions impose often underappreciated burdens on individuals and their interpersonal relationships, social organizations, communities and society as a whole, as well as impacts on the environment. Dr. Nitya Abraham (Montefiore Medical Center) discussed the barriers that social determinants of health and unmet social needs pose to patients with overactive bladder and incontinence.

Several sessions addressed the changing landscape of interstitial cystitis/bladder pain syndrome (IC/BPS) management. Dr. H. Henry Lai (Washington University School of Medicine in St. Louis) reviewed an approach to clinical phenotyping of IC/BPS patients to determine patient risk. Dr. Polina Reyblat (Southern California Kaiser Permanente Medical Group) reviewed that nearly a quarter of transgender/nonbinary patients do not seek medical care due to fear of being mistreated, including patients with oncologic needs. Many of these patients face urological issues, including overactive bladder, urethral strictures, pelvic floor dysfunction, vaginal atrophy, erectile dysfunction and need for prostate specific antigen screening. Dr. Reyblat emphasized the need for sensitivity with examinations, including involving the patient in the physical examination and assuming prior trauma.

The meeting included a review of the recent AUA Neurogenic Lower Urinary Tract Dysfunction Guidelines by Dr. Anne Cameron (University of Michigan). By risk stratifying patients with neurogenic bladder, providers have clear guidelines on how to best manage these patients safely. Risk categories are based on urodynamic findings, upper tract imaging and renal function. The meeting included a review of the recent AUA Neurogenic Lower Urinary Tract Dysfunction Guidelines by Dr. Anne Cameron (University of Michigan). By risk stratifying patients with neurogenic bladder, providers have clear guidelines on how to best manage these patients safely. Risk categories are based on urodynamic findings, upper tract imaging and renal function. Neurostimulation for lower urinary tract dysfunction was a major theme at the meeting. Over 20 presentations featured sacral neuromodulation products and multiple vendors exhibited emerging technologies, including advances with implantable peripheral tibial nerve stimulation devices. Dr. Kathleen Kobashi (Houston Methodist Hospital) moderated a great session titled “When Neuromodulation Stops Working,” which featured various algorithms for troubleshooting common sacral neuromodulation issues.

Many colleagues were celebrated with the award sessions: Dr. Toby C. Chai (Boston Medical Center) was awarded the Continent Care Champion Award; Dr. Kathleen C. Kobashi (Houston Methodist Hospital) was awarded the Distinguished Service Award; Dr. William Steers was posthumously awarded the Lifetime Achievement Award and Dr. Benjamin B. Brucker (NYU) the McGuire-Zimskind Award. In addition, Dr. Philip Smith was recognized for his lifetime contributions to the field with a SUFU Special Recognition Award.

Lastly and perhaps most importantly, a major emphasis of the program was recognizing the contributions of several of the “giants” who forever changed the field of what has variously been known as “Female Urology,” “Functional Urology” and, more recently, “Female Pelvic Medicine and Reconstructive Surgery.” Highlights of this included keynote lectures by Dr. Linda Cardozo (King’s College Hospital) on vaginal rejuvenation and genitourinary syndrome of the menopause, as well as Dr. Shlomo Raz (UCLA) on flaps in female pelvic medicine. In a particularly special session entitled “Where We Were, Where We Are and Where We Are Going,” 4 thought leaders sat on stage with their mentees (each a thought leader in their own right) and discussed changes to the field. This inspiring session included Dr. Victor W. Nitti (UCLA) with Dr. Shlomo Raz (UCLA), Dr. Jeffrey F. Weiss (SUNY Downstate Health Sciences University) with Dr. Jerry G. Blaivas (Mount Sinai), Dr. Ariana L. Smith (University of Pennsylvania) with Dr. Alan J. Wein (University of Pennsylvania) and Dr. Leslie M. Rickey (Yale Medicine) with Dr. Linda Cardozo (King’s College Hospital). In addition, stirring tributes were delivered to the late Dr. Edward J. McGuire by Dr. J. Quentin Clemens (University of Michigan) and to the late Dr. William D. Steers by Dr. Adam P. Klausner (Virginia Medical Center), all of whom have contributed so much to the field. For the audience, these were rare opportunities to learn from the masters and absorb wisdom from the greats. Dr. Raz probably summed it up best with 6 pearls: 1) “be humble,” 2) “study and work hard,” 3) “open your mind,” 4) “innovate,” 5) “love your patients” and 6) formulate an idea and run with it.

We look forward to the next SUFU Meeting in 2023 in Nashville, Tennessee! ■

Section and Specialty Meetings

The Research on Calculus Kinetics Society March Meeting

Andrew D. Rule, MD
The Mayo Clinic, Rochester, Minnesota

The Research on Calculus Kinetics (R.O.C.K.) Society held its first in-person meeting in 3 years in Scottsdale, Arizona on March 25–26, 2022 (Figs. 1 and 2). With more than 75 urologists, nephrologists, scientists and researchers in attendance, the meeting was a resounding success and captured the excitement and excitement of meeting in person.

The first session, “Hyperoxaluria and Antibiotics,” included 2 presentations on antibiotic and oxalate interactions, and presentations on a mouse model for endogenous oxalate production and on hyperoxaluria in kidney transplant recipients. The second session, “Searching for Determinants of Kidney Stone Disease,” focused on a human genome-wide association study, a human metabolomic study and a dog genome-wide and metabolic study on kidney stone disease. There were also presentations on lithogenic changes in the...
The third session, “Ureteral Stents and Post-Surgical Discomfort,” included 3 presentations on studies from the Urinary Stone Disease Research Network on ureteral stent discomfort and stent removal, another presentation on approaches for treating stent discomfort and a presentation on social impact of stone surgeries.

The fourth session, “Characterizing and Managing Metabolic Risk Factors for Stones,” was focused on hypocitraturia, over-the-counter sources of citrate therapy, clinical course of children with hyperoxaluria and a new data resource that links urine chemistries to clinical data in Medicare patients. The fifth session, “Characterizing and Managing Kidney Stone Events,” turned toward the economics of stone care, defining stone passage events in a clinical trial, quality of life in stone patients during the COVID-19 pandemic and geographic variation in kidney stone disease.

The sixth session, “Basic Biology of Kidney Stones,” presented Dent Disease in a fly model, oxalate effects on mitochondrial and lysosomal function, new methods for stone matrix proteomics and a multi-species study of oxalate-formate handling in the gut.

The seventh session, “Laser Lithotripsy,” compared different lasers used for lithotripsy, operator duty cycle and thermal dose and measuring utility of nephrothiasis technology. The eighth and final session, “The Asymptomatic Radiographic Kidney Stone,” discussed stone morphology to distinguish stone types, distinguishing small stones from Randall’s Plaque on computerized tomography, convolutional neural network model to segment the urinary tract system and evaluation risk of kidney stones in living kidney donor candidates.

The R.O.C.K. Society is a multidisciplinary group of investigators dedicated to unraveling the pathophysiological events of kidney stone formation, preventing the development of new stones or growth of existing stones, identifying demographic factors and diseases associated with the development of kidney stones and optimizing stone removal. The R.O.C.K. Society Annual Meeting brings together the best and brightest in the specialty to debate and discuss the latest developments and to provide an opportunity for scientific assessment and dialogue among researchers, physicians and health care providers involved in kidney stone management. The R.O.C.K. Society began in 1978 as a dedicated research society focused on kidney stone disease. Membership includes urologists, nephrologists, endocrinologists, veterinarians and PhD scientists from a variety of disciplines.
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2022 Early-Career Investigators Workshop
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