

What's New – April 19, 2019

Endourology Division Update

Background

Among contemporary treatment options for upper tract stone disease, PCNL is the most invasive and carries the greatest risk of patient morbidity. Additionally, there are technical caveats related to obtaining access, as well as the need for ancillary services on-site (e.g., interventional radiology for embolization of a pseudoaneurysm), which historically have made the procedure difficult to perform in the community setting. As such, PCNL was regionalized, historically, to high-volume academic medical centers like ours. However, an increasing number of large urology groups have hired fellowship-trained endourologists, in order to provide complex stone care to their patients and limit referrals. Therefore, in order for Michigan Medicine to maintain and grow our clinical footprint it is incumbent that we offer timely access and efficient care for patients requiring PCNL. In the fall of 2017, recognizing these needs, we made a divisional decision to move a portion of PCNL cases out of interventional radiology and into OR 24. We have seen PCNL case volume grow from 124 cases in FY16 to ~200 projected in FY2019.

Current State of PCNL at UM

Since moving, we have been able to make meaningful changes that have aligned PCNL care delivery with our divisional mission. We now routinely perform three to four PCNL in a block day (I have done as many as five) which has greatly improved our access and wait times. Now unencumbered by room constraints, we routinely offer additional services at the time of PCNL that would not have been possible while we were stationed in IR. For instance, contralateral ureteroscopy for renal or ureteral stones is now performed routinely as a same-session surgery. The operating room team that we have created has been instrumental in creating a seamless transition into the operating room. Nurses and circulators quickly adapted to case needs and make for speedy procedures and turnover times.

We were fortunate to retain the services of interventional radiologist Dr. Jim Shields who provides a wealth of experience with percutaneous access. Jim is a true master technician and the division of endourology owes him a great debt for his years of service to our patients.

Resident/Fellow Education

As was noted above, the transition of a portion of our PCNL practice to the OR has many benefits, not the least of which is improved resident training experience. The OR is a comfortable space for residents, and familiarity with the surgical team and workflow allows residents to focus more on learning the technical skills involved in PCNL. Doing up to 5 PCNL in a single day allows the repetition that improves resident comfort with the case. I see more resident progress in a single 4 PCNL day than I saw in several “two-a-day” weeks in IR. Also, IR trainees do not come to the OR, which allows Dr. Shields to focus his teaching toward our residents. Although residents do occasionally obtain their own access under the guidance of myself or Dr. Shields, our hope is to grow this experience with increased exposure and potentially the development of a percutaneous access training module. Though other surgical sites such as Chelsea Hospital provide an opportunity to offload our growing PCNL volume, we plan to maintain a robust practice at the University while training our residents in this important index stone surgery.

Innovation and Future Directions

Now that we have grown comfortable in our new surroundings, we have begun to explore innovative techniques related to PCNL. Dr. Ghani and I traveled to visit Dr. Guido Giusti in Milan, Italy prior to the European Association of Urology meeting this past March. Dr. Giusti is a world-famous endourologist who has popularized supine patient positioning for PCNL. To this point, all PCNL done at UM have been done in prone (face down) position.

The perceived advantages of a supine approach include easier management of the airway for anesthesia, better ability to irrigate stone fragments from the kidney owing to the dependent location of the puncture, and possibly faster operative times. While I am not completely sold on the technique, I do see some potential benefits. By having the patient in a modified lithotomy position, there is easy access to the lower urinary tract allowing for endoscopic combined intrarenal surgery (ECIRS). This essentially means that a second surgeon can place a ureteroscope retrograde while another is working percutaneously. This allows for a more systematic inspection of the collecting system possibly increasing stone-free rates. Dr. Ambani and I did our first supine case with ECIRS 4/1/19 with excellent results in a patient where prone positioning would have been suboptimal due to body habitus. We hope to continue to explore this technique in the coming months as and begin to understand how best to employ it in our clinical practices.

Dr. Ghani and I have also begun to perform miniaturized PCNL for selected cases. Traditionally, a 30 French (1cm) tract is established through which we are able to work in the kidney. For smaller stones, a 17 French scope can be used to provide a less-invasive means to remove stone material. In these cases, the patient is often left “tubeless” (without a nephrostomy tube), though we often use a temporary ureteral stent placed antegrade. The real benefit of this technique lies in the fact that many of these patients can be offered ambulatory or “same-day” surgery as opposed to the traditional overnight hospitalization. Offering this technique has likely increased our PCNL volume as these patients were previously treated with staged ureteroscopy.

Conclusions

PCNL is an important surgical approach in our armamentarium for the treatment of urinary stone disease. Our increased capacity to care for patients with large renal stones and adoption of innovative surgical techniques has gone a long way towards achieving our divisional mission to decreasing the suffering of patients with urinary stones.



Khurshid and I with Dr. Giusti and Dr. Proietti in Milan