



Urolithiasis

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Urolithiasis cause, symptomology, investigative modality and management scenarios are constantly unfolding with each passing year. This represents the most exciting century for the technology chasing the disease. In this review, we have selected few frontiers that needed timely review to update the knowledge in enhancing safe and successful stone management. For mentors, Percutaneous Nephrolithotomy (PCNL) still remains the most complicated surgical technique to teach. The steepest learning curve is of obtaining renal access. The traditional method of acquiring surgical skills is by attending conferences, taking part in dry lab and wet lab sessions and also by the classical apprenticeship by the mentors. The roles of simulators need revisiting. Many urologists trained in recent years are comfortable in performing PCNL. The type of training received influences treatment recommendations, and percutaneous access is most often obtained by/in conjunction with radiologists. Average radiation exposures associated with computed tomography (CT) scanning of the urinary tract for stone are likely to reduce further. The ideal threshold required is meeting those currently encountered in plain radiography. Noncontrast CT remains the best imaging modality for the detection of urinary calculi. Low-dose CT protocols have spatial resolution limits and are not suitable for completely excluding sub millimeter calculi and small stone fragments. The knowledge of CT scan has undergone sea change and one needs to be updated of this modality. Planning patients for PCNL in endourology operating room (OR) still remains one of the challenging frontiers for end urologist in private sector. A brief knowledge and application of this into practical considerations is worth knowing. Modular ORs have reduced the technical complexity required in this field.

The increased usage rates of PCNL have also evoked interest as to redefine which position appears optimum for renal access and stone clearance in PCNL. There are a lot of data on the usage of supine position, especially in Europe. In the absence of a well designed randomized control trial, supine PCNL still remains a valid safe and efficacious technique of performing PCNL. It is advantageous

to prone PCNL in a select group such as obesity and patients with anesthesiological concerns. With the availability of limited evidence, more randomized controlled trials are needed to clearly define the status of supine PCNL approach. Newer patient populations such as transplant donors and recipients represent a fresh challenge to the urologists of today. This includes managing stone prior to transplant in donors, at the transplant [ex-ureteroscopy (URS) on bench] or managing stones after transplant (either donor gifted or de-novo synthesis). The live donor stone removal prior to transplant can be done with Extra-corporeal Shock Wave Lithotripsy (ESWL), URS, or PCNL. The disadvantage of PCNL being it is more invasive and subsequently increasing the complexity of donor nephrectomy. The issue of nephron loss at the time of PCNL also outweighs the advantage of clearing the stone intact. Flex URS is especially appealing as it is intraluminal and avoids nephron access. ESWL in donor kidney has not been studied till date.

The holy grail of managing stone removal is primum non-nocere. To achieve this end, constant update of knowledge in the ever-changing disease front remains of utmost importance. The current review is an attempt to address some of the contemporary challenges by inviting experts of the respective field.

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Conflicts of interest

There are no conflicts of interest.

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