

Advances in Endourology.

The field of Endourology has simply exploded in the past three decades, since 1979, when Smith and Flang described closed manipulation of the urinary tract as “**ENDO-UROLOGY.**” Indeed, it is interesting that more than 100 years have passed from the work of Nitze in 1877, when endoscopic light sources were coupled with instrumentation that allowed visualization of the lower urinary tract, to the break through techniques described in this special issue today. One of the more interesting concepts of endourology is that this developing speciality has been eclectic and all inclusive and therefore encompasses not only the visualization of the bladder, ureter and kidney, but also the modern management of prostate disease as well as the evolving field of Laparoscopy and Robotic Urology. In a similar fashion, all aspects of the management of stone disease, including percutaneous approaches, retrograde intrarenal surgery (RIRS), ureterorenoscopy and ESWL are included.

Dr. Pankaj Wadhwa is the opening batsman who has tried to place ESWL (Extracorporeal shockwave lithotripsy) which was once thought to be a panacea for stone disease (Since its inception in 1980 by Sir Christian G. Chaussey) as it stands today. It allowed renal and ureteral stones to be treated in a non-invasive, outpatient fashion, avoiding invasive surgical procedures. Definitely shockwave lithotripsy was hyped a lot, and as its limitations were recognized over next two decades, ureterorenoscopy (URS) with laser lithotripsy with its higher success rates and faster time to stone free status, is rapidly becoming first line therapy for ureteral calculi. we are now very selective in using this exemplary innovation of urology. Advances in ureteroscopy coupled with miniaturization of uretero-endoscopes (as small as 4.5 French) and advent of newer energy devices like pneumatic lithotripsy (Lithoclast) and holmium Laser for urinary stones, have virtually eliminated the use of ESWL for lower and mid ureteric calculi. Ureteroscopes can now reach upto any part of the urinary system and retrograde intrarenal surgery (RIRS) is a common tool in today’s endourological suite. A fine 200 micron Laser Fiber can permit stone fragmentation, using flexible scopes which could be single deflection, double deflection or even digital flexible scopes that permits a real time visualization of the kidneys endoscopically. Robotics in ureterorenoscopy compared with conventional manual flexible ureterorenoscopy includes an increased range of motion, instrument stability, and improved ergonomics. Endoscopic management of upper tract transitional cell carcinoma is nicely elaborated by Dr. Rajiv Kumar with the availability of flexible ureteroscope and holmium laser the indications are expanding from imperative to elective management of upper tract transitional carcinoma by endoscopy. Patients with low grade, small sized tumors have equal outcomes following endoscopic treatment as compared to extirpative surgery with the advantages of minimal morbidity and preservation of renal parenchyma following endoscopic management.

India and other developing countries are full of large and staghorn calculi, which are beyond ambit of RIRS and various innovative techniques, have come to make percutaneous nephrolithotomy (PCNL) less invasive and minimally morbid. We have described in detail various advances in PCNL and its puncture techniques to increase the chance of stone free rate and decrease in overall morbidity and I must say that it requires a committed endourologist

to achieve a goal of stone free status despite various innovations and advances. Needles to say that all cases of urolithiasis need a regular motivated follow up to maintain stone free status, where again advances in endourology come handy and we can save many kidneys that earlier used to culminate into end stage renal disease.

Genitourinary surgeons have long been innovators and the impetus for innovation has been to provide, for our patients, methods of diagnosis and treatment that improve upon advancements of the past. TURP has been a major advance over open surgery for BPE (Benign Prostatic Enlargement) that has currently been challenged by Lasers especially enucleation of prostate by Holmium Laser (HoLEP) which I feel is the Platinum standard of care for BPE patients who merit surgical therapy. Holmium Laser is an excellent tool in endourologist armamentarium not only for stone and prostate diseases but it also has multiple soft tissue application like urethral strictures, bladder neck obstruction, neoplasms of urinary bladder, upper tract TCC, strictures of the ureter, pelviureteric Junction obstruction as have been highlighted by Dr. Rajesh Taneja.

KTP Laser prostatectomy was once hyped to be a panacea for BPE needing surgical therapy, Laser used for prostatectomy have their exclusive wavelength and tissue interaction feature that make each of them to act in a different way when applied to prostatic tissue leading to coagulation, vaporisation, incisional, resecting, or enucleating procedures, practically collagen-free unscarred prostatic channel almost bloodlessly, with the added benefit of a day care procedure.

KTP laser is considerably more time-consuming than TURP although the haemostasis is more effective; the cost and poor results especially in large prostates is making this modality go to the back seat. However, we have some newly emerging lasers like thulium and diode laser that may hold some promise in future. Unfortunately, they are BPE only lasers and are not effective for urinary stones and thus, are not economical in an endourological setup.

A major breakthrough in endourological advances has been advent of laparoscopy in urology. Currently; the majority of operations in urologic field can be performed laparoscopically and we have highlighted various applications, advantages, limitations and complications of Laparoscopy in urology and presented its current scenario in our country.

sRobotic surgery, as it stands today in 2011, has been amply elaborated by professor Narmada Gupta. Robotic surgery is associated with ease in dissection, incision and suturing. Has less steep learning curve in comparison to laparoscopy. It provides all benefits of minimally invasive surgery. Cost of the equipment is the main limiting factor but it holds the key for future.

I take this opportunity to complement JIMSA for bringing out a dedicated issue on “Advances in Endourology” and thank the editors for giving me this opportunity.

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