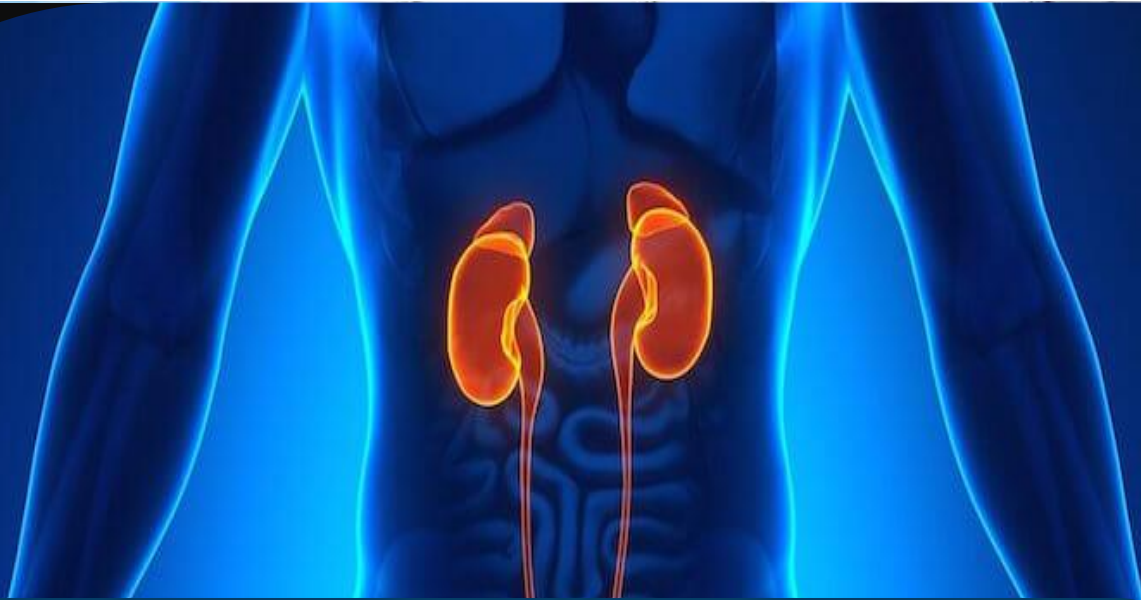




NU Rounds

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Dear Doctor,

Greetings from Micro Labs limited. We are happy to bring you **“NU Rounds”** which contains latest and interesting news in the field of Urology.

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Should you require any specific article or medical information, please feel free to contact us at medicalservices@microlabs.in

Looking forward to your valuable feedback

Best Regards,

Medical Team, Micro Labs Ltd



Updated Guidelines on Microhematuria, BPH-Related LUTS: American Urological Association

In partnership with the Society of Urodynamics, Female Pelvic Medicine & Urogenital Reconstruction (SUFU), the American Urological Association (AUA) has released a new clinical guideline for microhematuria diagnosis, evaluation and follow-up.

Around the same period, the AUA also issued evidence-based revisions to its 2018 clinical recommendation on Lower Urinary Tract Symptoms (LUTS) Surgical Treatment related to Benign Prostatic Hyperplasia (BPH).

Microscopic haematuria is diagnosed when three or more red blood cells are visible under a microscope per high-power field within a urine specimen. It may signify a variety of disorders, such as inflammation of the urinary tract, kidney stones or, more importantly, cancer of the bladder. Evaluations in as much as 1 in 5 urology include haematuria. Only 2 and 3 out of 100 people will develop cancer.

In an AUA news release, Daniel Barocas, co-chair of the panel that developed the guideline and Associate Professor of Urology at Vanderbilt University in Nashville, Tennessee, stated that the aim of the new guideline is to provide a risk-stratified approach to assessing haematuria based on patient risk factors for urinary tract cancer. Because they developed the guidance with the goal of minimizing examination severity among those at low risk of malignancy, while maintaining examination diagnostic responsiveness of those at higher risk.

Clinicians will categorize a condition with genitourinary malignancy as mild, moderate or high-risk after making a diagnosis and decide next steps together with the individual.

The guideline includes 22 new recommendations. The AUA highlighted 3:

- Clinicians should not define microhematuria by a positive dipstick test alone. Formal microscopic evaluation of the urine is necessary.
- During the initial evaluation of microhematuria, clinicians should consider such factors as genitourinary malignancy, medical renal disease, gynaecologic and non-malignant genitourinary as potential causes.
- After evaluation, clinicians should categorize patients based on risk to determine next steps, including repeating urinalysis, cystoscopy, renal ultrasound or axial imaging (eg, CT urogram).



In the AUA press release Kellogg Parsons, MD, MHS, president of the BPH Guideline Committee said BPH is highly normal. It affects approximately half of all people between the ages of 51 and 60 years, and up to 90 percent of people over the age of 80 years, and they agree that this updated recommendation would include a valuable, evidence-based clinical resource for male LUTS secondary to BPH surgical management.

The guideline was amended as follows:

- Guideline statement 1 was amended to include a physical examination for the initial evaluation of patients presenting with bothersome LUTS possibly due to BPH. Supporting text also was added for interpreting the results of urinalysis.
- In the initial evaluation of patients presenting with bothersome LUTS possibly attributed to BPH, clinicians should take a medical history, conduct a physical examination, utilize the AUA Symptom Index (AUA-SI), and perform a urinalysis. (Clinical Principle)
- Guideline statements 15, 17, 18, and 22 were amended as the retreatment and possibility of treatment failure aspects of these statements are now covered under a new statement 6 under evaluation and preoperative testing. It reads:
- Clinicians should inform patients of the possibility of treatment failure and the need for additional or secondary treatments when considering surgical and minimally-invasive treatments for LUTS secondary to BPH. (Clinical Principle)
- Statement 16 under prostatic urethral lift (PUL) was amended. This statement now supports PUL use to improve erectile and ejaculatory function and reads as follows:
- PUL may be offered to eligible patients who desire preservation of erectile and ejaculatory function. (Conditional Recommendation; Evidence Level: Grade C)
- An update to guideline statement 19 on water vapor thermal therapy was made to reflect newly published research. The new statement reads:
- Water vapour thermal therapy may be offered to eligible cases who desire preservation of erectile and ejaculatory function
(Conditional Recommendation; Evidence Level: Grade C)
- An update to guideline statement 21 pertaining to laser enucleation was made to reflect newly published research. The new statement reads:
- Clinicians should consider holmium laser enucleation of the prostate (HoLEP) or thulium laser enucleation of the prostate (ThuLEP), depending on their expertise with either technique, as prostate size-independent options for the treatment of LUTS attributed to BPH. (Moderate Recommendation; Evidence Level: Grade B)
- Guideline statement 23 on prostate artery embolization (PAE) was amended to include the following phrase: PAE for the treatment of LUTS secondary to BPH is not supported by current data and trial designs, and benefit over risk remains unclear.

Source: American Urological Association. Microhematuria: AUA/SUFU Guideline. June 2020. Available at <https://www.auanet.org/guidelines/microhematuria> as accessed on 27/06/2020



Vacuum-assisted mini-percutaneous nephrolithotomy for fragments clearance and intra-renal pressure control

INTRODUCTION

The quality of treatment for big kidney stones is percutaneous nephrolithotomy (PCNL), although problems such as fever and bleeding may be a major concern. Miniaturised PCNL systems have been developed to reduce the morbidity associated with this procedure. However, these devices have certain drawbacks such as more challenging recovery of stone pieces, a narrower field of view, longer operation times (OT) and higher intra-renal pressure (IRP). In particular, pyelovenous backflow has been shown to cause IRP greater than 30 mmHg (40.78 cmH₂O), potentially leading to infectious complications. Mini-PCNL devices supplied aspirating modules to address these limitations

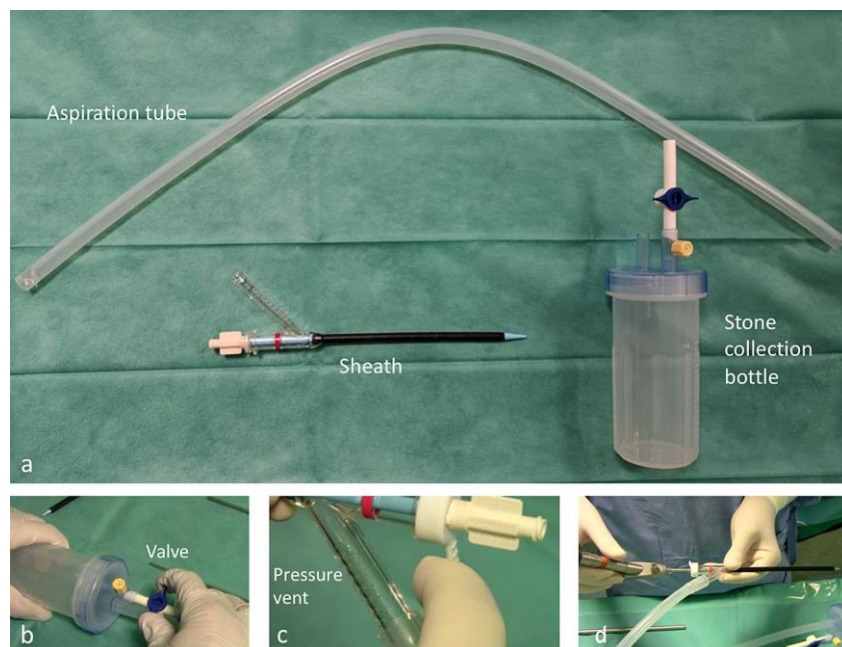
Sheaths were laid in. Irrigation fluid, stone bits, and blood suction in real time during the entire procedure can lower IRP, increase vision, and speed up the procedure. The aim of this review is to identify the vacuum-assisted mini-PCNL (vmPCNL) technique performed using the nephrostomic sheath of 16 Ch Clear Petra and to evaluate its clinical effects. In the end, the authors plan to examine the profile of IRPs during surgery and describe the procedural steps during which IRP can increase most.

METHODS

Data from all consecutive vmPCNL procedures from September 2017 to October 2019 were prospectively collected. Data included patients' and stones characteristics, intra and peri-operative items, post-operative complications and stone clearance. Patients undergoing vmPCNL from March to October 2019 were submitted to IRP measurement during surgery.

RESULTS

A total of 122 vmPCNL procedures were performed. Median stone volume was 1.92 cm³. Median operative time was 90 min and median lithotripsy and lapaxy time was 28 min. Stone clearance rate was 71.3%. Thirty-one (25.2%) patients experienced post-operative complications, seven of which were Clavien 3. Postoperative fever occurred in nine (7.4%) patients and one (0.8%) needed a transfusion. No sepsis was observed. IRPs were measured in 22 procedures. Mean IRP was 15.3 cmH₂O and median accumulative time with IRP > 40.78 cmH₂O (pyelovenous backflow threshold) was 28.52 sec. Maximum IRP peaks were reached during the surgical steps when aspiration is closed (mainly pyelograms), whereas during lithotripsy and suction-mediated lapaxy, the threshold of 40.78 cmH₂O was overcome in three procedures.



a) The ClearPetra set (Well Lead Medical Co., Ltd., China) is composed of a Y-shaped nephrostomic sheath connected, by means of an aspiration tube, to a stone collection bottle (200 ml), which is in turn linked to the central vacuum system. b) A valve on the stone collection bottle regulates the aspiration pressure. c) A vent on the lateral arm of the sheath can be closed with a finger to increase aspiration pressure during lapaxy. In the meantime, the nephroscope d) is slowly drawn back until the red stripe on the sheath, thus allowing fragments to fall in the lateral arm of the sheath and in the stone collection bottle

CONCLUSIONS

VmPCNL is characterized by a good safety profile and satisfying stone clearance rates via the 16 Ch Clear Petra sheath. The most important features of this procedure are the simple removal of suction-mediated stone particles, the low complications rate and the desirable IRP profile. In particular, the mean IRP during surgery in this series was always lower than the pyelo-venous backflow threshold and the accumulation time with IRP over this limit was very short in most procedures. During surgical steps, maximum IRP peaks were reported when aspiration is closed and often during pyelograms, whereas IRP rarely increased beyond the threshold during lithotripsy and vacuum-mediated lapaxy.

REFERENCE

Zanetti SP, Lievore E, Fontana M, et al. Vacuum-assisted mini-percutaneous nephrolithotomy: a new perspective in fragments clearance and intrarenal pressure control. World J Urol . 2020. <https://doi.org/10.1007/s00345-020-03318-5>.



Association of miR-100 Expression with Clinico-pathological Parameters in Bladder Cancer

INTRODUCTION

Bladder cancer (BC) is the world's 11th most prevalent disease, and is the 7th most common cancer among adults. The most prevalent cancer in the genitourinary tract is stated to be urothelial cancer, and the second frequent cancer leading to death. Low grade tumors are usually papillary and multifocal with rare progression and good prognosis, often recurrent. High-grade tumors, especially muscle-invasive tumors, are frequently strong, nodular, with large base and metastasizing in the initial phases, resulting in poor prognosis. Prevention, early diagnosis of recurrence, and persistence are the difficulties of treating bladder cancers.

Tumor grading and bladder cancer staging are the best indicators used to predict bladder cancer recurrence and progression. Molecular marker is also required that could predict recurrence, disease progression and survival estimate. MicroRNAs (miRNAs) are small, single-stranded, non-coding nucleotide RNAs of 22-25, which are highly preserved between species. We regulate gene expression by inhibiting translation of target mRNA. MiR-100 is one of the oldest miRNA known in plants and animals, but its meaning has not been established. MiR-100 has been shown to have dysregulated expression in different forms of cancer including bladder cancer. MiR-100 can serve as an oncogene or tumor suppressant in multiple cancers. Many experiments have shown miR 100 in many cancers like prostate cancer as a possible diagnosis, prognostic marker in body fluids, and tissue samples.

METHODS

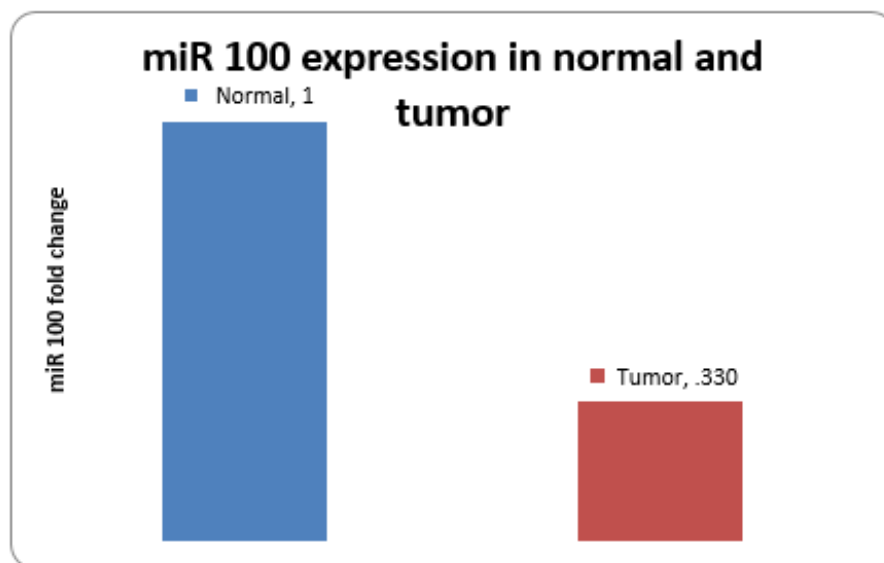
Expression of miR-100 in 26 pairs of bladder cancer and adjacent normal tissues were analysed by Sybergreen RT-PCR. The expression levels of miR 100 in tumor and normal were normalised with 18s gene. The expression levels of miR 100 expression were analysed in fold change (DDCT method). The difference between groups were analysed by student t test and Anova.

RESULTS

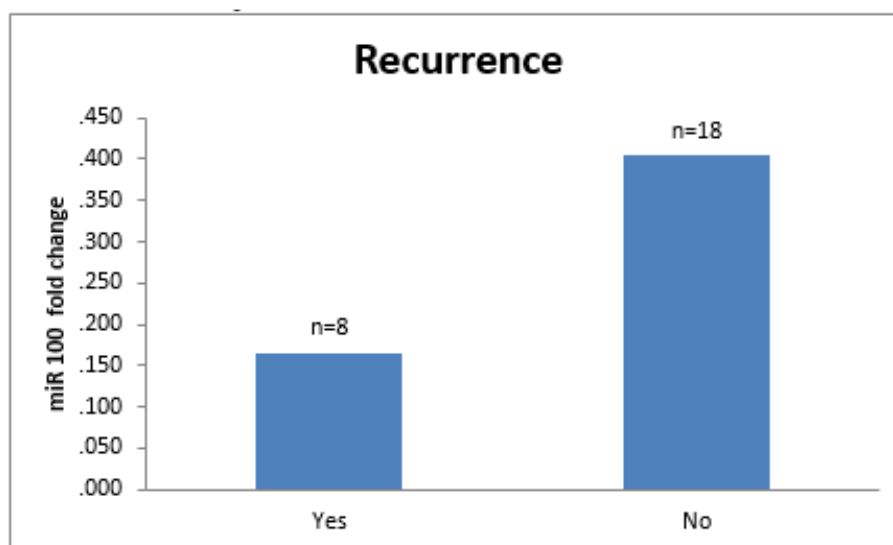
Downregulation of miR-100 expression in tumor was an important finding in our study. MiR-100 expression were decreased (n=24) in tumour tissue in comparison with normal bladder urothelium. Mean expression of miR-100(fold change) was 0.33 ± 0.35 and significantly decreased on comparison to normal ($p=0.001$). There is no correlation of miR-100 expression levels with gender and age ($p=0.583$). Mean expression of miR-100 in low grade was 0.41 ± 0.38 whereas in high grade 0.22 ± 0.26 ($p=0.182$).



Ta tumors had mean (fold change) 0.42 ± 0.39 , T1 had mean value of 0.25 ± 0.30 and T2 had mean value of 0.24 ± 0.30 . ($p=0.463$) miR-100 expression levels were decreased in MIBC(T2) more than NMIBC (Ta, T1) ($p=0.473$). Mean levels 2^{-ΔΔCT} (fold change) in recurrent tumors were 0.16 ± 0.19 whereas fold change in nonrecurrent tumors was 0.40 ± 0.38 . ($p=0.045$) 1 patient with T2 tumor underwent progression with all patients surviving till end of study.



Graph showing miR 100 expression fold change in normal and tumor tissue (One sample t test, $p=0.001$).



Graph shows miR levels (fold change) in recurrent tumors $P=0.045$.



CONCLUSION

The present research has elucidated that in Bladder cancer tissue miR-100 expression is down-regulated relative to regular urothelium bladder. The rates of expression of miR-100 in all bladder tumors have been decreased but have achieved importance in chronic, high-grade tumors. Our estimation of miR 100 association with tumor growth and survival was constrained by the smaller number of patients and brief follow-up time. This work will help us conduct extensive studies into miR 100 and other tumor markers in bladder cancer in the future.

REFERENCE

Kumar M, Kumar S, Singh SK, et al. Correlation of miR-100 Expression with Clinopathological Parameters in Bladder Cancer. Med Sur Urol 2020; 9:230.



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