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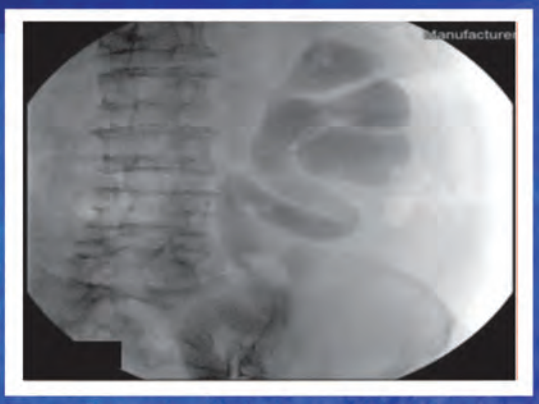
A 95% obliterated urethral lumen 3cm from the meatus



Severely dilated small bladder

ISSUE HIGHLIGHTS

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Editorial Board

ORIGINAL RESEARCH

Analysis of the Clinical Efficacy and Safety of a Single Upper Pole Access (SUPA-PCNL) for Staghorn Calculi: A Prospective Single Center Descriptive Study

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Introduction and Objective: The endoscopic management of staghorn calculi is very challenging owing to its complex anatomical configuration. The authors analyzed the clinical efficacy and safety of a single upper pole access PCNL (SUPA-PCNL) for Guy Stone Score (GSS) 3-4 staghorn calculi.
Methods: Prospective data collection was done on 56 consecutive patients who with GSS 3-4 staghorn calculi. All cases were treated with a standardized technique of a single upper pole access PCNL in the prone position. The patient demographics, stone characteristics, perioperative and postoperative outcomes were analyzed.
Results: The cohort exhibited diversity in age (51.7+12), gender (male to female ratio of 5.5:4.5) comorbidities, and stone burden (4.82+1.96 cm). SUPA-PCNL demonstrated a high median stone-free rate (99.5%, IQR 90-100) with minimal complications, low blood loss with a of 200cc (IQR 100-300), and median hospital stay of 3.5 days (IQR 3-5). Stone characteristics did not significantly influence outcomes. A subset required secondary treatments (12%, n=7), but overall morbidity was low (16%, n=9): (7% n=4) of which required blood transfusion, and (9% n=5) due to sepsis. The following factors were associated with increased odds of perioperative morbidity: preoperative creatinine >3 mg/dl (OR 4.19 95% Cl 0.59 – 29.71 p=0.152) and a history of endoscopic surgery (OR 7.33 95% Cl 1.20-44.96 p=0.031).
Conclusion: SUPA-PCNL is effective and safe for the treatment of staghorn calculi. In select patients, this approach obviates the need for a multi-tract access or an endoscopically-combined intrarenal surgery (ECIRS).

Key words: Percutaneous Nephrolithotomy, Guy Stone Score, single upper pole access, morbidity, staghorn calculus

Introduction

Staghorn calculi are large branching renal stones that occupy almost the entire renal collecting system. Percutaneous nephrolithotomy (PCNL) is considered the standard treatment for these types of stones. Following its initial introduction in the 1976, the evolution in the operative technique, vis-à-vis the development of more enhanced high-definition videoendoscopic imaging and more efficient intracorporeal lithotripters, stone clearance rates have increased up to 98.5%.[1] Compared to open stone surgery, PCNL provides comparable stone clearance rates, with reduced bleeding, less postoperative pain, and shorter convalescent period, making it the preferred treatment for staghorn calculi.

Staghorn calculi can be classified using the Guy's Stone Score (GSS) [Appendix]. The classification is defined based on the figure shown below. The authors' focused on patients with GSS 3-4 which encompasses partial and complete staghorn calculi.[3] The authors utilized a single upper pole access in the prone position in most PCNL cases unless the renal anatomy precludes access to the stone location such as a bifid renal pelvis and an acute upper-calyx to lower calyceal angle of <90 degrees.

Up to this present however, there is great variability in the approaches to PCNL and there is no single standard technique that is acceptable to the majority.[1] The choice and method of percutaneous varies from one surgeon to another and from patient to patient depending on the physical features and renal anatomical characteristics. Such variance in the techniques is related to patient position (supine vs. prone), choice and size of access (standard vs. mini-), the choice of image-guided technology (ultrasound vs. fluoroscopy), energy source for intracorporeal lithotripters (ultrasonic, pneumatic or laser), and postoperative drainage technique (tubeless, with nephrostomy tube vs. indwelling ureteral stent).

PCNL can be performed in either the supine or prone position. The prone position is advantageous as it allows for wider working space, easier access to the superior pole and greater hydrodistention of the renal collecting system, making it easier to target stones, enhancing visualization and facilitating effective stone fragmentation and removal. On the other hand, the supine approach reduces the risk of certain complications, such as positioning-related injuries, but can limit access to difficult stone locations.

The Clinical Research Office of the Endourological Society (CROES) Study was done in 2011 showing that PCNL is an effective and safe technique for the management of renal stones, especially staghorn calculus.[5] The study showed that PCNL was able to yield a stone-free rate of 90% with minimal complications. However, this included stones less than a GSS 4, and only 15% of the study population had a large stone load.

A retrospective study done in 2002 showed that patients treated with a single percutaneous access has a stone- free rate of 95% and those with residual stone were treated with flexible ureteroscopy and holmium:YAG laser or basket stone extraction.[6] To the authors' knowledge, this will be the first prospective study in clinically assessing the efficacy of single upper pole access on a staghorn calculus.

The authors determined the outcomes of surgery in patients with staghorn calculus and a GSS of 3-4 who underwent single upper pole access PCNL (SUPA-PCNL). They summarized and analyzed patient demographics, stone characteristics, assess stone-free rates, perioperative and postoperative outcomes, and 30-day surgical morbidity and mortality rates using the Clavien-Dindo Scoring system.

Methods

Subject Population

After IRB and ethics approval, the authors performed prospective data collection of patients who underwent SUPA-PCNL for staghorn calculus with GSS 3-4 in their institution. These included both service and private patients who all signed an informed consent. Enrollment to the procedure was completely voluntary.

All patients with staghorn calculus defined by GSS 3-4, underwent SUPA-PCNL, with an intention to treat all stone fragments. Whenever necessary, additional tracts were used to maximize stone clearance. The primary outcome was stone-free rate defined as absence of stone or stones <4mm postoperatively confirmed via radiologic study and a non-contrast CT on postoperative day 30.

Eligibility criteria was over 18 years old, GSS 3-4. Patients with incomplete data, <18 years of age, with congenital kidney anomalies, GSS less than 3, with spina bifida, or spinal injury were excluded. Patients requiring multiple accesses during the procedure, were still included in the study for further analysis.

Standardized Upper Pole Access Technique

All patients were operated on using a standardized technique which consisted of a preliminary insertion of a ureteral catheter to the posterior upper pole calyx in the lithotomy

position. The patient was repositioned to prone. Under fluoroscopic guidance, an air pyelogram was introduced to visualize the most upper and posterior calyx. This was followed by a "bulls-eye" (hub-over-tip) technique which was used to advance the percutaneous access needle to the target calyx. Its position was confirmed through a 20 degree oblique view away from the surgeon. Instillation of saline also noted egress of urine through the percutaneous access needle. A guidewire is introduced and advanced into the ureter until it coiled in the urinary bladder. This was duplicated using a dual lumen ureteral catheter or a co-aaxial guidewire introducer (Desilet-Hoffman). Tract dilation was typically done with graduated silicon Amplatz dilators and occasionally witb a renal dilator balloon or telescoping serial metal Alken dilators. Stones were fragmented with either an ultrasonic or pneumatic devices. Immediate postoperative stone burden was confirmed under fluoroscopy. The decision to drain with either an indwelling ureteral stent or a nephrostomy tube depended on the clinical judgment of each surgeon. (Figure 2).

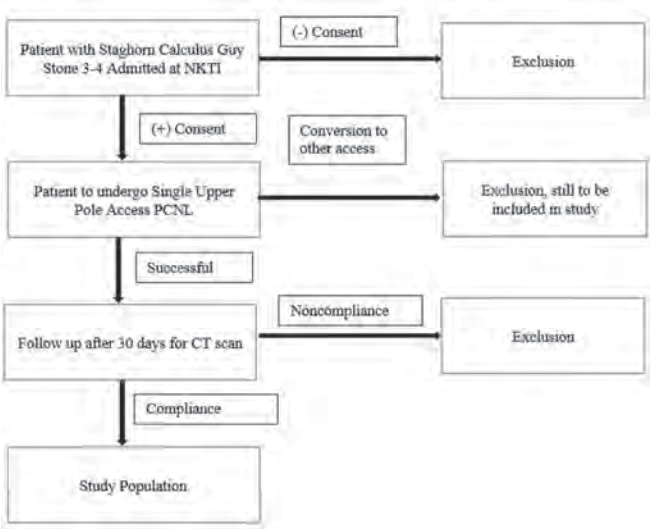

Figure 2. Process flow of patient recruitment.

Secondary outcomes included perioperative parameters such as operative time, number of percutaneous access tracts, estimated blood loss, and type of urinary drainage (ureteral stent, nephrostomy, or totally tubeless). Postoperative parameters such as length of hospital stay, transfusion requirements and change in hemoglobin and creatinine. The complications were analyzed using the modified Clavien-Dindo classification.

Unenhanced Computed Tomography (CT) of the KUB was done 30 days after PCNL to stone-free status. Whenever necessary, secondary therapies for residual stones may be done utilizing the following options: repeat PCNL, retrograde intrarenal surgery, ureteroscopy or ESWL.

Data Management

All patients signed an informed consent. Preoperative CT was done on all patients to document the stone configuration based on the Guy Stone Classification. Intraoperative data included duration of surgery and estimated blood loss. Postoperative data included stone-free rate, change in serum creatinine and hemoglobin levels, and length of hospital stay. The complications were summarized using the modified Clavien-Dindo classification.

Sample Size

Using G*Power 3.1.9.2, a minimum of 54 patients are required for this study based on desired moderate effect size before and after OR of patients with complete staghorn calculus with GSS 3-4 who will undergo SUPA-PCNL, 5% level of significance and 95% power.

Sample size is computed as follows:

$$n = \left(\frac{1+\lambda}{\lambda}\right)\frac{\left(z_{1-\alpha/2} + z_{1-\beta}\right)^2}{\Delta^2} + \frac{z^2_{1-\alpha/2}}{2(1+\lambda)}$$

$$n = \left(\frac{1+1}{1}\right)\frac{(1.96+1.645)^2}{0.7^2} + \frac{(1.96)^2}{2(1+1)}$$

$$n = 54.0054 \approx 54$$

Where:

n = sample size
λ = standard
$Z\alpha$ = 5 % of significance
$Z\beta$ = 95% of power
Δ = large size effect

Statistical Analysis

Descriptive statistics was used to summarize the demographic and clinical characteristics of the patients. Frequency and proportion were used for categorical variables, median and inter quartile range for non-normally distributed continuous variables and mean and standard deviation for normally distributed continuous variables. Odds ratio and corresponding 95% confidence intervals from binary logistic regression was computed to determine significant predictors for mortality. Shapiro-Wilk test was used to test the normality of the continuous variables. Missing values were neither replaced nor estimated. Null hypotheses were rejected at 0.05α-level of significance. STATA 13.1 was used for data analysis.

Ethical Considerations

Informed consent was secured from all patients who passed the inclusion criteria. Consent was obtained upon admission prior to the said operation by the principal investigator or his delegate. Information obtained from this study were all confidential. Materials were kept in a safe and locked storage. The recipients were assigned codes, from the start of the data collection. The names of the patient were anonymized. Only the primary investigator or his designated research assistant may had access to the records.

Results

Fifty six patients were enrolled in this study. The patients who were treated with SUPA-PCNL were predominantly below 60 years old (76.79%). Gender distribution is 55.35% male and 44.64% female. The mean height of patients is 161.38 cm, weight is 65.4 kg and the mean BMI is 25.21. The median preoperative creatinine level is 1.3 mg/dl with a median interquartile range (IQR) of 0.98-1.88. Ninety one percent of the patients have a preoperative creatinine below 3 mg/dl suggesting relatively normal kidney function in the study population. 55.36% of the population had cardiovascular disease, 33.93% had chronic kidney disease and 16.07% had diabetes mellitus. 23.21 % of the patients had previous PCNL, 10.71% had previous cystoscopy/ureteroscopy, 11% of the population had a mix of open stone surgery, ESWL and previous nephrectomy. Majority of the patients were ASA 2 patients (67.86%), followed by ASA 1 (21.43%) and ASA 3 (10.71%).

Table 1. Patient demographics (n=56).

	Frequency (%); Mean ± SD; Median (IQR)
Age in years	51.66 ± 12.02
< 60	43 (76.79)
≥ 60	13 (23.21)
Sex	
Male	31 (55.36)
Female	25 (44.64)
Height, cm	161.38 ± 7.67
Weight, kg	65.4 ± 9.61
BMI	25.21 ± 4.25
Preop Creatinine, mg/dl	1.3 (0.98 to 1.88)
< 3	51 (91.07)
≥ 3	5 (8.93)
Comorbidities	
Cardiovascular Disease	31 (55.36)
Chronic Kidney Disease	19 (33.93)
Diabetes Mellitus	9 (16.07)
History of Anticoagulant use	6 (10.71)
Previous PCNL	13 (23.21)
Previous ESWL	1 (1.79)
Previous Open Stone Surgery	4 (7.14)
Previous URS	6 (10.71)
Previous nephrectomy	2 (3.57)
ASA Class	
ASA 1	12 (21.43)
ASA 2	38 (67.86)
ASA 3	6 (10.71)
ASA 4	0

The mean HU of the patients was 1234, with a range from 653-1415. 39.29% had HU <1000, while 60.71% had HU >1000. The mean stone burden was 4.82 with an SD of 1.96. Sixty four percent of patients had stones less than 5 cm and 35.71 had stone burden from 5-10 cm. (Table 2)

Table 3 shows the periopereative outcomes. while Table 4 shows the postoperative outcome.

Table 5 shows patients with morbidities are grouped together to make an analysis of which of the factors may predispose them to have intraoperative morbidities. Age, sex, BMI, comorbidities and ASA Class did not show any statistical significance for perioperative morbidity. There is a trend towards an increase Odds ratio for higher preoperative creatinine levels but was not statistically significant. It should be noted that patients with cystoscopy, ureteroscopy are 7.3333 times more likely to have morbidity based on Clavien-Dindo morbidity scoring.

Preoperative and post-operative hemoglobin levels do not show statistically significant associations with patient morbidity. A longer hospital stay is significantly associated with increased odds of morbidity. Patients with secondary PCNL treatment are 13.143 times more likely to have morbidity based on Clavien-Dindo morbidity scoring (Table 6).

Discussion

SUPA-PCNL provides the following advantages: 1) shortest skin to calyceal distance, 2) a panoramic view of the entire renal collecting system, 3) a straight line to the ureteropelvic junction and the lower pole resulting to 4) less torquing of the nephoscope for navigation of all the major and minor calyces, and 5) easier antegrade insertion of an indwelling ureteral stent.

Table 2. Stone demographics (n=56)

	Frequency (%); Mean ± SD; Median (IQR)
Hounsfield Units	1234 (653 to 1415)
< 1000	22 (39.29)
≥ 1000	34 (60.71)
Stone burden, cm	4.82 ± 1.96
< 5 cm	36 (64.29)
5 to 10 cm	20 (35.71)
> 10 cm	0

Table 3. Perioperative outcomes (n=56).

	Frequency (%); Median (IQR)
Intraoperative time, minutes	100 (60 to 130)
< 60	8 (14.29)
60 to 120	32 (57.14)
> 120	16 (28.57)
Intraoperative blood loss, ml	200 (100 to 300)
< 100	5 (8.93)
100 to 500	46 (82.14)
> 500 to 1000	5 (8.93)
> 1000	0
Conversion to Multi-access PCNL	
1 access	50 (89.29)
> 1 access	6 (10.71)
Location	
Upper	50 (89.29)
Upper + Middle	4 (7.14)
Upper + Inferior	2 (3.57)
Need for intraoperative Blood Transfusion	
1 unit given	3 (5.36)
No blood given	53 (94.64)
Post-operative Stenting	53 (94.64)
Post-operative Nephrostomy Tube	51 (91.07)

Table 4. Postoperative outcomes (n=56).

	Frequency (%); Mean ± SD; Median (IQR)
Stone Free Rate, %	99.5 (90 to 100)
100%	28 (50)
90% to 99%	24 (42.86)
50% to 89%	4 (7.14)
< 49%	0
Preoperative hemoglobin	12.66 ± 2.01
Post-operative hemoglobin	11.59 ± 1.90
Post-operative Hemoglobin Decrease, mg/dl	0.95 (0.3 to 1.75)
< 1	28 (50)
≥ 1	28 (50)
Length of Hospital Stay, days	3.5 (3 to 5)
< 4	28 (50)
≥ 4	28 (50)
Secondary ESWL treatment	11 (19.64)
Secondary Ureteroscopy treatment	4 (7.14)
Secondary PCNL treatment	3 (5.36)
Clavien Dindo morbidity scoring	
None	47 (83.93)
II	4 (7.14)
IVB	5 (8.93)

Table 5. Association of demographic profile to patient's morbidity.

	Crude odds ratio	95% CI	P-value
Age in years			
< 60	(reference)	-	-
≥ 60	0.3646	0.0412 to 3.2246	0.364
Sex			
Male	0.5926	0.1409 to 2.4920	0.475
Female	(reference)	-	-
Height, cm	1.0150	0.9255 to 1.1133	0.751
Weight, kg	0.8931	0.8092 to 0.9857	**0.025**
BMI	0.6897	0.5073 to 0.9376	**0.018**
Preop Creatinine, mg/dl			
< 3	(reference)	-	-
≥ 3	4.1905	0.5909 to 29.717	0.152
Comorbidities			
Cardiovascular disease	1.7600	0.3928 to 7.8851	0.460
Chronic kidney disease	0.9688	0.2137 to 4.3920	0.967
Diabetes mellitus	-	-	-
History of Anticoagulant use	1.0500	0.1078 to 10.227	0.966
Previous PCNL	3.3778	0.7520 to 15.171	0.112
Previous ESWL	-	-	-
Previous Open Stone Surgery	-	-	-
Previous URS	7.3333	1.1960 to 44.964	**0.031**
Previous nephrectomy	-	-	-
ASA Class			
ASA 1	(reference)	-	-
ASA 2	2.0625	0.2228 to 19.087	0.524
ASA 3	5.5000	0.3850 to 78.573	0.209
ASA 4	-	-	-

Table 6. Association of postoperative outcomes to patient's morbidit.

	Crude odds ratio	95% CI	P-value
Preoperative hemoglobin	1.1058	0.7728 to 1.5823	0.582
Post-operative hemoglobin	0.8003	0.5212 to 1.2288	0.309
Post-operative Hemoglobin Decrease, mg/dl			
< 1	(reference)	-	-
≥ 1	2.2727	0.5073 to 10.182	0.283
Length of Hospital Stay, days			
< 4	(reference)	-	-
≥ 4	10.800	1.2483 to 93.440	0.031
Secondary ESWL treatment	1.2063	0.2136 to 6.8135	0.832
Secondary Ureteroscopy treatment	-	-	-
Secondary PCNL treatment	13.143	1.0483 to 164.77	**0.046**

A multi-tract puncture may typically be avoided even for complex large volume stones. However, this upper pole access is avoided by many due to the increased propensity for pleural injury and pulmonary complications. The authors still prefer to use the upper posterior calyx as a preferential approach unless there are contraindicatios. They recently published their experience which showed that the incidence of serious pulmonary complications resulting from this approach was rare.[2]

The study population was diverse, reflecting the complexities often encountered in managing staghorn calculi. The presence of various comorbidities, such as cardiovascular disease chronic kidney disease and diabetes mellitus, highlights the importance of careful patient selection and pre-operative optimization. While the prevalence of these comorbidities might suggest a higher risk profile, this study's overall success aligns with the established safety of PCNL when performed in appropriately selected and managed patients.[7-9] The varied history of prior stone interventions further underscores the recurrent nature of stone disease and the challenges in achieving long-term stone-free status in this population

The observation that a substantial proportion of patients presented with high Hounsfield Units suggests a predominance of certain stone compositions, potentially impacting the effectiveness of lithotripsy and overall operative time. Further analysis correlating stone composition with HU and surgical outcomes could provide valuable insights for pre-operative planning.

Current study demonstrates the potential of SUPA-PCNL to achieve favorable outcomes in the management of complex staghorn calculi, particularly when considering the trifecta goals of PCNL. The high stone-free rate achieved with SUPA-PCNL in this series is particularly encouraging. While a stone-free rate of 99.5% was achieved, it is important to acknowledge that 50% of the population had stone clearance of 100%, while 42.86% had a stone-free rate of 90-99%. This is higher compared to a study which reported as high as 92.18% but the majority of patients dealt with solitary stones[11] and another study with a stone clearance of 56% dealing with staghorn calculi.[10] This suggests that SUPA-PCNL can be a highly effective approach for achieving complete or near-complete stone removal in this challenging patient population.

The low transfusion rate observed in the current study is another important indicator of the safety and efficacy of SUPA-PCNL. This compares favorably to other studies in which transfusion rates was 11.5%[10] when it comes to tackling PCNL on full staghorn calculi, suggesting that the single upper pole access may minimize blood loss by possible potential mechanisms, e.g., avoiding multiple punctures and strategic access to vascularly less dense areas.

Furthermore, the minimal post-operative complications observed, as reflected in the Clavien-Dindo morbidity scoring, underscore the potential of SUPA-PCNL to facilitate rapid recovery. The absence of pulmonary complications in this series is particularly noteworthy, given concerns about pleural injury with upper pole access. This finding supports the growing evidence that, with careful technique and appropriate patient selection, upper pole access can be performed safely without increasing the risk of pulmonary complications.[2,4]

The need for secondary treatments in a subset of patients highlights the inherent challenges in achieving complete stone clearance in all cases of complex staghorn calculi. These patients often presented with a larger stone burden, suggesting that stone size and complexity may be predictors of the need for additional interventions.

The association between previous endoscopic surgery (cystoscopy, ureteroscopy) and increased morbidity warrants further investigation. It is possible that these patients had pre-existing conditions, such as AKI secondary to obstructing lithiasis, that predisposed them to complications. Similarly, the association between secondary PCNL and higher morbidity may reflect the challenges encountered during the initial procedure, such as sepsis or increased blood loss, necessitating a staged approach.

The current study acknowledges limitations, including the impact of the pandemic on patient recruitment and follow-up, which may have affected the generalizability of current findings. The expanded inclusion criteria to GSS 3-4, instead of solely GSS 4, may have introduced variability.

Future studies with larger sample sizes and longer follow-up periods are needed to validate our findings and identify predictive factors for success with SUPA-PCNL

Conclusion

SUPA-PCNL demonstrated favorable outcomes, with a median Stone Free Rate of 99.5% and minimal postoperative complications. The patient's comorbidities, stone demographics, did not significantly correlate with outcomes, emphasizing the efficacy of the single upper pole access approach. Urologists may consider this approach as a primary choice for patients with staghorn calculi GSS 3-4. While the majority of patients underwent SUPA-PCNL with a single upper pole access, a subset required additional access. Urologists should be prepared for potential variations in stone complexity, considering additional access points as needed. Patients requiring secondary treatments, such as ESWL, ureteroscopy, or PCNL, should be closely monitored. Future research may delve into predictive factors for the need for secondary interventions.

Given the challenges posed by the pandemic leading to dropouts, future studies should aim for longer timelines and robust follow-up strategies to enhance the reliability of the findings and provide a more comprehensive understanding of outcomes over time.

Appendix. Guy's Stone Score Classification[3]

(i) Guy's stone score 1 (GSS1): a solitary stone in the mid/and or lower pole or in the renal pelvis with a normal anatomy and simple collecting system

(ii) Guy's stone score 2 (GSS2): a solitary stone in the upper pole; multiple stones in patients with simple anatomy; or a solitary stone in a patient with abnormal anatomy

(iii) Guy's stone score 3 (GSS3): multiple stones in a patient with abnormal anatomy or in a calyceal diverticulum or partial staghorn calculus

(iv) Guy's stone score 4 (GSS4): a complete staghorn calculus or any stone in a patient with spinal bifida or a spinal injury, calculus in patients with clinical neurological alternations (spinal cord injury, myelomeningocele)

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ORIGINAL RESEARCH

Prevalence of Prostate Cancer Following an Initial Negative MRI-Fusion Biopsy of the Prostate from 2018-2022: A Single-Center Retrospective Descriptive Cohort

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Objectives: To determine the incidence of prostate cancer on follow up after an initial negative MRI-fusion biopsy of the prostate, and to determine the change in PSA and MRI results on follow-up.
Methods: MRI-fusion prostate biopsy registry from 2018 to 2022 was obtained then histopathology, MRI results, and PSA results were obtained. Repeat PSA and MRI results at extracted at <1 year, 1-2 years, 2-3 years, and >3 years. PSA mean, range, and change were then determined. MRI results were extracted to determine progression, regression, or persistence.
Results: A total of 670 prostate biopsies were done in the study period, of which 70 were included. PSA on biopsy 9.93 (3.35 – 55.0) with corresponding PIRADS lesions 3, 4, and 5 (n=55, n=19, and n=6). No patient was subsequently diagnosed with prostate cancer on follow-up. PSA mean 7.03, 6.44, 5.27, and 6.07 at <1year, 1-2years, 2-3years, and >3years interval from biopsy. Repeat prostate MRI showed persistence in 1 and regression in 6 patients.
Conclusion: After a negative MRI-fusion biopsy of the prostate no patient developed prostate cancer with a general decrease in trend in PSA and MRI on follow-up. These patients may have longer interval follow-up periods given the clinical scenario but would be best to test this method in prospective trials first.

Key words: negative prostate biopsy, multiparametric prostate imaging, prostate cancer

Introduction

Prostate cancer screening involves a shared decision making guided by clinical factors such as PSA levels, digital rectal examination (DRE), and personal risk of prostate cancer with definitive diagnosis deferred until with histopathologic confirmation. These clinical factors, when combined, increase the possibility of advanced prostate cancer.[1] However, the standard random biopsy is prone to sampling error and has a high false negative result.[2,3,4,5] To address this issue, adjuncts like MRI of the prostate have been developed.

Multiparametric MRI (mpMRI) of the prostate is an imaging tool used to detect clinically significant prostate cancer (csPCa). The interpretation of the mpMRI follows the Prostate Imaging Reporting and Data System (PI-RADS Version 2.1).[6] Results stratify the likelihood of detecting csPCa into categories PIRADS 1-5 with an increasing positive predictive value on results with higher PIRADS categories.[2-5] MRI of the prostate has a pooled sensitivity of 0.91 and a pooled specificity of 0.37 for detecting csPCa.[1]

Clinically significant prostate cancer refers to a prostate cancer that poses risk of morbidity

and mortality to patients compared to those that do not.[1] This distinction was made to avoid overtreatment to patients with prostate cancer as the treatment itself may expose additional risks.[1]

MRI-Fusion biopsy is an outpatient procedure done under local or general anesthesia. MRI images are pre-loaded into the in-house KOELIS Trinity® MRI/US Prostate Biopsy System. A transrectal ultrasound is positioned to capture real-time ultrasound images and then contoured with the pre-loaded MRI images to indicate the area of concern (PIRADS lesion). Biopsy samples are then acquired using a Max Core TM Disposable Core Biopsy Instrument (G18 x 25 cm) from the targeted lesion followed by systematic sampling. Final histopathology determines the subsequent management of patients with prostate cancer, however, there are no established guidelines on patients with negative results.

Multiple heterogenous studies were previously done to follow-up patients with initial negative biopsy results but with high suspicion of prostate cancer. A large prospective trial by Pepe, et al looked at 256 cases of patients with a PIRADS 3 or 4 with an initial negative biopsy and then were subjected to a repeat biopsy. The overall cancer detection rate was 14% with a csPCa detection rate of 10.1%.[7] Another large trial by Barletta, et al looked at 308 patients with PIRADS score of 3 or more and negative biopsy results for cancer. Patients were monitored with PSA and MRI, and 118 men underwent subsequent biopsy revealed a csPCa incidence of 4.9%.[8] Other smaller trials reported a wide range of overall cancer detection rate, from 7.5-87.5% and a csPCa detection rate ranging from 0-48%. These findings were summarized in a recent mini-systematic review by Grivas, et al which recommended that all initial biopsy-negatives with MRI results of PIRADS 3 or higher should be re-read for confirmation since there are concerns whether prostate cancers are missed on initial biopsies. For patients with persistent concerns, clinical follow-up with PSA, repeat MRI, and possible biopsy is advised.[9]

As of this writing, there is no local report on the follow-up and monitoring of these patients.

This study aimed to determine the incidence of overall prostate cancer and csPCa on follow up after an initial negative result on MRI-fusion biopsy.

Methods

The records from the Stone and Prostate Center for all MRI-fusion prostate biopsies conducted between 2018 to 2022 were retrieved including their follow-up data from the hospital and outpatient clinic archives following the IERB ethical clearance. Inclusion criteria comprised patients who underwent MRI-fusion biopsy of the prostate, were negative for cancer on histopathology, and had mpMRI results of PIRADS 3-5. Exclusion criteria were as follows: Incomplete data on repeat PSA or MRI within 1 year, 2-3 years, or >3 years post-biopsy. The computed sample size was 247, based on the overall incidence of csPCa of 35% with a confidence interval of 90%. Follow-up data on PSA, MRI and histopathology were tabulated. Changes in PSA and MRI findings were compared to baseline at <1 year, 1-2 years, 2-3 years, and >3 years intervals.

Results

After reviewing the records of 670 prostate biopsies performed between 2018 to 2022, six hundred eighteen (618) biopsies were done via MRI Fusion guidance. After applying the inclusion and exclusion criteria, a total of 70 cases were included as shown in Figure 1. Baseline characteristics are listed in Table 1. Mean PSA, prostate size, and PSAD were 9.93 ng/dL, 622.95 mL and 0.2, respectively. Out of the 70 patients included in the study, none was diagnosed with prostate cancer on follow-up.

Repeat PSA measurements on follow-up, were requested from 53 patients within the first year after the biopsy with a mean PSA of 7.03 ng/dL and a mean PSAD of 0.13. At 1-2 years, 36 patients had a mean PSA of 6.44 ng/dL and a mean PSAD of 0.13. At 2-3 years, 25 patients had a mean PSA of 5.27 ng/dL and mean PSAD of 0.10. In 14 patients followed for more than 3 years, the mean PSA was 6.07 ng/dL and the mean PSAD was 0.10.

Repeat MRI was done 7 times in 5 patients. Change in prostate size ranged from -4 ml to +36mL. PIRADS lesion remained stable in 1 patient and downgraded in 6. Among patients with an initial PIRADS lesion of 3, there were 2 with lesions downgraded to PIRADS 2, one showed no PIRADS, and another one remained stable at 3. On

2 patients with an initial PIRADS 4 lesion, one was downgraded to PIRADS 2 and another one showed no PIRADS. No patient with an initial PIRADS 5 lesion had a repeat MRI.

Discussion

The advent of multiparametric MRI (mpMRI) has improved the detection of clinically significant

Table 1 – Descriptive characteristics of patient cohort at initial MRI-Fusion prostate biopsy.

Baseline Characteristics		
65.08 (50 – 83)		
9.93 (3.35 – 55.0)		
0.2 (0.04 - 1.76)		
62.95 (30 -129)		
PIRADS 3 n = 55 (68.8%)	*PIRADS 4* n = 19 (24.8%)	*PIRADS 5* n = 6 (7.5%)

Table 2. Mean and range of PSA, PSAD and change in PSA at select time intervals.

		PSA	PSAD	Change in PSA
<1 year	n = 53	7.03 (1.47 – 42)	0.13 (0.03 – 0.84)	-2.31 (-52.44 – 33.71)
1-2 years	n = 36	6.44 (1.42 – 17.7)	0.13 (0.03 – 0.43)	-1.90 (-53.39 – 12.8)
2-3 years	n = 25	5.27 (1.48 – 11.2)	0.10 (0.03 – 0.29)	-2.21 (-8.92 – 4.63)
>3 years	n = 14	6.07 (0.08 – 14.94)	0.10 (0.002 – 0.3)	-2.54 (-19.28 – 2.32)

Table 3 – Repeat multiparametric MRI with prostate size and PIRADS at different time intervals.

Repeat Multiparametric MRI of the Prostate		
	Prostate Size (previous)	PIRADS (previous)
<1 year	64 (71)	3 (3)
	77 (77)	2 (4)
1-2 years	46 (50)	2 (3)
	86 (77)	3 (4)
	53 (39)	2 (3)
2-3	74 (77)	No PIRADS (4)
>3 years	131 (95)	No PIRADS (3)

prostate cancer (csPCa). However, there is a subset of patients negative for cancer on subsequent prostate biopsies even with the sensitivity and specificity of prostate mpMRI for prostate cancer at 0.91 and 0.37, respectively.[1] There is currently no high-quality data on the optimal timing and protocol for following up these patients with PIRADS 3 or higher lesions on mpMRI and without cancer on biopsies. The decision to repeat the MRI or biopsy is left to the discretion of the physician.

In a study by Barletta, et al, 308 patients were followed-up after negative biopsies.[8] The overall incidence of csPCa was 4% within 24 months. Additionally, 66% of patients showed downgraded PIRADS Score on repeat MRI and with 56% of those results read as negative. Among patients with persistent positive MRI findings, 35% had csPCa compared to 3% in those with negative MRI findings. The study showed that a small number of patients may miss the diagnosis of cancer on initial biopsies and repeat MRI on follow-ups help determine the need to do repeat biopsies.

St. Luke's Medical Center is one of the first institutions in the country to utilize MRI-fusion biopsies of the prostate for early cancer detection with the longest follow-up available locally. Among patients of the current study who initially had a positive MRI and subsequent negative biopsy, none was diagnosed with prostate cancer on follow-up. The PSA and PSAD decreased from the initial compared to subsequent determinations up to 3 years post-biopsy. Among the few patients that underwent repeat MRI of the prostate, 86% showed a downgraded PIRADS score with 33% of which had no PIRADS lesion, compared to 66% and 56%, respectively in the study by Barletta, et al[8]. Current data support the current standard of detection of csPCa and patients with negative-biopsies can be followed-up with PSA and MRI. The limitation of this study is the sample size, broad follow up time intervals, and number of repeat MRI done. Nonetheless, this is the first locally available dataset in this population. The authors recommend future prospective studies and randomized studies with regular PSA monitoring and prostate MRI to guide follow-up of these patients.

Conclusion

The data indicate that no patient with a PIRADS 3 or higher lesion with a negative biopsy developed suspicion of prostate cancer on follow-up. PSA decreased slightly but remained relatively stable and imaging studies further supported this trend. For this subset of patients, it may be safe to extend follow-up intervals based on the clinical scenarios but would need additional data and prospective studies to confirm these findings.

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ORIGINAL RESEARCH

Testicular Salvage After Testicular Torsion Using Tunica Albuginea Fasciotomy with Tunica Vaginalis Flap: A Single Institution Preliminary Experience

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Introduction: Testicular torsion is a true urologic emergency. It occurs when the blood supply to the testis is compromised as the vessels twist along the spermatic cord. Early diagnosis and prompt treatment are critical to prevent prolonged ischemia time which is crucial to its prognosis. This paper aimed to present cases of testicular torsion who underwent testis sparing surgery for torsion.
Methods: Cases of testicular torsion admitted at the institution from January 2023 to July 2024 were reviewed. Demographic data, scrotal ultrasound findings, intraoperative findings and ischemia time were documented. Patients who underwent tunica albuginea fasciotomy with tunica vaginalis flap were monitored post-surgery via scrotal ultrasound, documenting testicular size.
Results: Twenty seven (27) cases of testicular torsion were reviewed. Of these cases, 4 improved after detorsion and orchidopexy, 12 cases with > 72 hours ischemia time and failed detorsion underwent orchiectomy, 11 cases with < 72 hours of ischemia time, tunica albuginea fasciotomy were performed. Five (5) of these 11 cases showed no improvement in appearance and no bleeding was observed and subsequent orchiectomy was performed. Six cases demonstrated improvement in appearance and bleeding after tunica albuginea fasciotomy, tunica vaginalis flap used to cover the resulting defect. Of these 6 cases, 2 cases showed intact testicular size, 1 case had testicular atrophy on monitoring and 3 cases were lost to follow-up.
Conclusion: Testicular torsion remains to be a critical urologic emergency. Prompt diagnosis and immediate surgery required to improve salvage rates. Tunica albuginea incision, with subsequent tunica vaginalis flap may be an option for the urologist to improve salvage, although not consistently prevent testicular atrophy.

Key words: Testicular torsion, tunica albuginea fasciotomy, testicular salvage

Introduction

Testicular torsion is a true urologic emergency. It occurs as the blood supply to the testis is compromised as the vessels twist along the spermatic cord. Early diagnosis and prompt treatment are critical as prolonged ischemia time is crucial since the outcome is time-sensitive. Due to high loss of the testis, testicular torsion carries significant impact among patients.

Younger males, ages 12-17 years old are usually involved. Several factors leading to prolonged diagnosis and subsequent treatment failure are lack of awareness of this disease among the general population as well as embarrassment on the part of the child could lead in a delay in consultation. Rates of testicular salvage with testicular torsion decline as the longer the waiting and ischemia time. A study by Chu, et al noted that orchiectomy rates rise up to 80-90% when ischemia time exceeds 24 hours.

Visser, et al also noted that a prolonged ischemia time exceeding 24 hours has a higher orchiectomy rates. Thus, it is imperative to perform surgical exploration in these cases as soon as a diagnosis is arrived at.

A concept of management of testicular torsion has been proposed, where it is likened to a compartment syndrome. The blockage of the blood supply from the twisting of the spermatic cord causes ischemia as well as congestion from compromising venous drainage. This results in progressive testicular venous occlusion, creating a "closed compartment syndrome" within the tunica albuginea. It has been proposed that release of intra-compartmental pressure by a fasciotomy of the tunica albuginea be done to relieve the pressure and thus reperfusion. Several studies have demonstrated the success of this approach.

Thus, the authors aimed to report their initial experience among patients with testicular torsion who underwent tunica albuginea fasciotomy with tunica albuginea flap as well as their intra-operative and post-operative outcomes.

Methods

This is a descriptive study on the outcomes of patients who underwent tunica albuginea fasciotomy with tunica vaginalis flap. Ethical approval was obtained. From January 2023 to July 2024, Twenty seven (27) cases of testicular torsion were admitted in the institution. Inclusion criteria included: 1) Patients less than 21 years of age, 2) Symptom of acute scrotal pain seen at the ER, and 3) Confirmation of testicular torsion by scrotal doppler ultrasound. Exclusion criteria were: 1) Cases of a testicular torsion on solitary testis, 2) Torsion on an undescended testis and 3) Torsion with symptoms more than 72 hours wherein orchiectomy was performed. The researchers documented demographic data, ischemia time, intraoperative findings and operation performed. Informed consent was obtained and emergency scrotal exploration was performed.

Intra-operatively, detorsion and wrapping with gauze soaked in warm saline were performed. The contralateral testis was assessed and fixed. The affected testis was then reassessed and the change in color of the testis was noted. Orchidopexy was performed on the testis with noted improvement in color and appearance after manual detorsion. For those without improvement, a tunica albuginea fasciotomy was performed noting reperfusion by parenchymal bleeding. The resulting defect was then covered by a tunica vaginalis flap. Post-operative outcomes and scrotal ultrasound with doppler studies 1 – 3 days post-op were then noted and patients were followed up after 1 and 6 months with repeat ultrasound and Doppler studies.

Results

Twenty-seven cases of testicular torsion were seen in the emergency department and eventually admitted for surgery. In 27 cases of testicular torsion, symptoms appeared 72 hours after onset. Twelve cases required orchiectomy after failed detorsion. Four (4) cases had improvement in color after intra-operative manual detorsion. These cases underwent straightforward orchiopexy. Eleven (11) out of 27 cases presented with symptoms within 72 hours of onset. In 5 cases, detorsion did not improve testicular color and no brisk bleeding was noted upon incision of the tunica albuginea. These cases prompted immediate orchiectomy (Figure 1). Six (6) cases showed improvement in color and brisk bleeding was noted upon tunica albuginea fasciotomy (Figure 2). Tunica vaginalis flaps were then used to cover the resultant defect (Figure 3).

The researchers included these 6 cases in the study. Demographic data, ischemia time and intraoperative findings were recorded (Table 1).

Table 1. Demographic data.

Age	11- 18 years of age
Duration of symptoms	
Less than 6 hrs	2 (33%)
More than 6 hours	4 (67%)
Laterality	
Right	3 (50%)
Left	3 (50%)
Degree of torsion	
Less than 180 degress	4 (67%)
More than 180 degress	2 (33%)

The ages of the patients in this study were within the specific age range when testicular

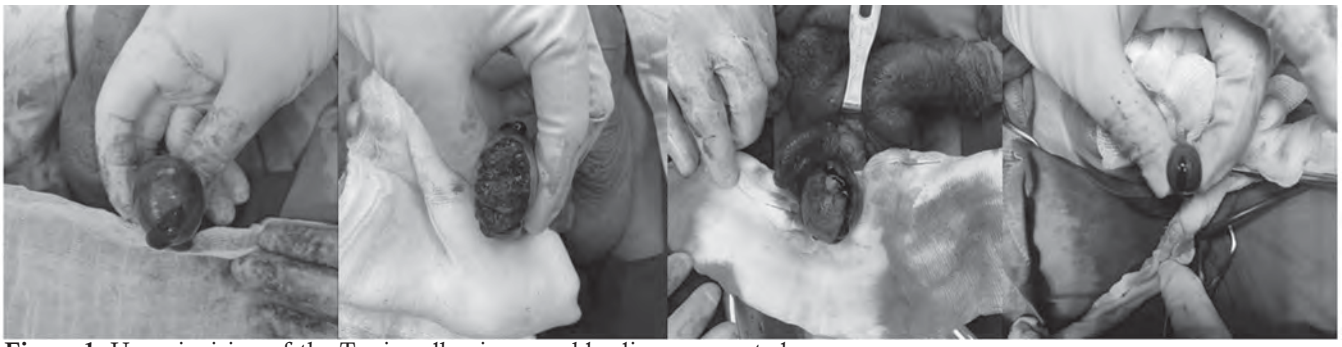

Figure 1. Upon incision of the Tunica albuginea, no bleeding were noted.

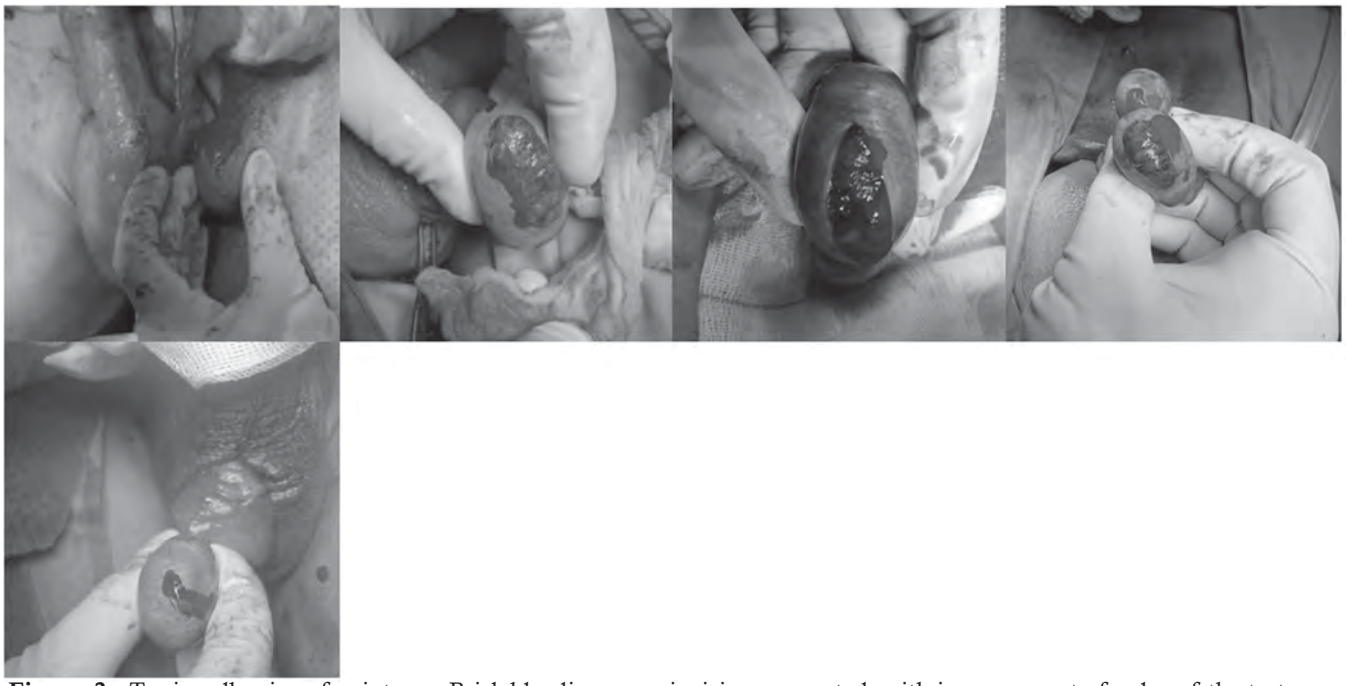

Figure 2. Tunica albuginea fasciotomy. Brisk bleeding upon incision was noted, with improvement of color of the testes.

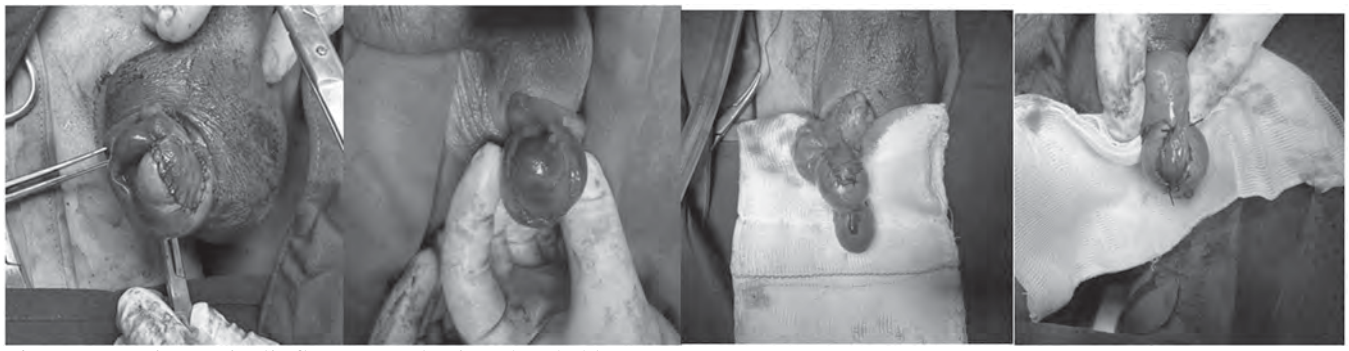

Figure 3. Tunica vaginalis flap, sutured using absorbable sutures.

torsion is most common. Two of the cases in which testicular sparing was performed came in within 6 hours, regarded as the 'golden period'. Most cases came in after 6 hours. This may be due to the patients' reluctance to seek consult due to embarrassment or lack of knowledge of their disease. Torsion may occur in either testicle which means it can occur in both testicles. Most of the cases had less than 180º torsion.

A bedside scrotal ultrasound was done 1-3 days post-operatively, prior to discharge. In all cases, Doppler flow was observed in the affected testis immediately after surgery. Within 1 – 6 months post-operative, the patients underwent repeat clinical reassessment and scrotal ultrasound. However, only 3 patients returned and 3 patients were lost to long term follow-up after surgery. Of these 3 patients, 1 patient showed decrease in testicular size clinically at 1.3 cm x 0,5 cm and 2 cases showed intact testicular size in comparison with their normal contralateral testis.

Discussion

Testicular torsion is a serious urological emergency that requires immediate action. Prompt diagnosis and surgical intervention are crucial for testicular salvage. Several factors contribute to delayed surgical management including patient-related issues, such as limited access to health care

Table 2. Ultrasound and clinical findings.

	Ischemia Time (hours)	Laterality	Degree of Torsion:	Scrotal ultrasound 1-3 days post-op	Scrotal ultrasound with doppler 1-6 Months Post-op	Testicular sizes 1-6 Months post- op
Patient A	18 hours	Right testis	180 degrees	(+) doppler flow	Lost to follow-up	Lost to Follow-up
Patient B	24 hours	Left testis	360 degrees	(+) doppler flow	Lost to follow-up	Lost to follow-up
Patient C	60 hours	Left testis	180 degrees	(+) doppler flow	Left sided epididymo-orchitis, with ipsilateral scrotal wall thickening..	Right testis: 3.6 cm x 3.3 cm x 2.7 cm (16.7 gm) Left testis: 2.9 cm x 2.2 cm x 1.9 cm (6.6 gm)
Patient D	17 hours	Right testis	180 degrees	(+) doppler flow	Small sized right testes color doppler study shows minimal vascular flow significantly lesser than the contralateral side.	Left testis: 3.4 x 2.5 x 2.1 cm (9.2 gm) Right testis: 3.5 cm x 2.3 cm x 2.0 cm (8.2 gm)
Patient E	6 hours	Right testis	90 degrees	(+) doppler flow	Atrophied right testes, with hydrocele in the right hemiscrotum, thickening of the overlying scrotum notes.	Left testis: 3.2 x 2.1 x 1.3 cm (4.5 gm) Right testis: 1.3 x 0.5 cm
Patient F	7 hours	Left testis	270 degrees	(+) doppler flow	Lost to follow-up	Lost to follow-up

and lack of general awareness. These delays impact patient outcomes, and even increase the need for orchiectomy. The population's poor health seeking behavior may also be a factor.

Only four out of 27 (15%) showed improvement in testicular appearance after detorsion. All 4 cases who underwent detorsion and orchidopexy had onset of symptoms within 24 hours upon arrival at the emergency department (Mean: 11 hours). Twelve of 27 cases (44%) presented at the emergency department with onset of symptoms at more than 72 hours. Orchiectomy was performed in these cases after detorsion failed to improve the appearance of the testis.

A study by Chu, et al revealed that viability was 95% using tunica vaginalis flap for patients with ischemia time of 24 hours. Patients with ischemia time greater than 24 hours had viability of 67%. Sixty seven percent (67%) of patients with ischemia times of 24 hours or less experienced atrophy, compared to 83 percent of cases in which ischemia times were greater than 24 hours.

Eleven of the 27 cases with ischemia times less than 72 hours underwent tunica albuginea incision. The concept of releasing intratesticular pressure via tunica albuginea fasciotomy leads to reperfusion of the testis. This could potentially increase testicular salvage rates in torsion. Five of the 11 cases in whom tunica albuginea fasciotomy was performed showed no improvement in appearance. No bleeding was noted in the affected testis, hence orchiectomy was performed (Figure 2). In six out of 11 cases of testicular torsion, the affected testis showed improvement in appearance and bleeding after tunica albuginea fasciotomy indicating potential salvage. In these cases, tunica vaginalis flap was used to cover the defect created during the fasciotomy.

In a study by Figueroa, et al salvage rate was defined by testicular volume greater than 50% as compared to the normal contralateral testis. The study reported that salvage rates were 54.6% for the tunica albuginea incision with tunica vaginalis flap group, as compared to 62.5% for the detorsion and orchidopexy group. In this current series, of 2 cases had testicular atrophy with testicular volume less than 50% as compared to the contralateral testis and 3 cases were lost to follow-up.

Conclusion

Testicular torsion remains to be one of the common urological emergencies encountered by urologists. Prompt recognition and immediate surgical intervention are crucial for testicular salvage. Delays in management leads to prolonged ischemia time, which increases risks for orchiectomy. Tunica albuginea incision with a tunica vaginalis flap offers an option for improved testicular salvage rates. Although testicular atrophy occurs invariably among patients in short term follow-up.

Limitation of the Study

The study's limitation is that it only involves data from a single institution and cases were managed by different surgeons. Moreover, the limited number of study participants may restrict the generalizability of the findings in the study. High rates of non-compliance to follow-up among the cases also limits the study, which may also be reflective of poor health seeking habits of the population. Causal inferences cannot be drawn from the study.

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ORIGINAL RESEARCH

Microsurgical Vasectomy Reversal in the Philippines – A Single Surgeon Experience

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Introduction: Vasectomy is a simple and reliable method of permanent contraception in men causing obstructive azoospermia. As many as 50 million men worldwide have relied on vasectomy for family planning. However, it is estimated that around 6% of these men who underwent vasectomy will ultimately seek vasectomy reversal for various reasons.
Vasectomy reversal is the most cost effective option for couples desiring children after vasectomy and is the most challenging microsurgical procedures.
This study presents local experience, outcomes and complications of microsurgical reconstruction of the male ductal system in the Philippines setting.
Methods: This is a retrospective study of 157 post-vasectomy patients who underwent microsurgical vasectomy reversal by a single surgeon from January 2001 to March 2024. Outcomes such as patency and pregnancy rates were documented and analyzed.
Results: One hundred and fifty seven (157) underwent microsurgical vasectomy reversal. One hundred five (105) patients underwent bilateral microsurgical vasovasostomy. Forty eight (48) patients underwent combined microsurgical vasovasostomy and vasoepididymostomy. Three patients underwent bilateral vasoepididymostomy and one crossed microsurgical vasoepididymostomy (left to right). Four patients had no child, 87 patients had 1 child, 34 patients had 2 children, 29 had 3 children and 3 patients had 4 children prior to vasectomy. Age of wife was between 20 to 32 years old. Mean interval from vasectomy was 9 years. Vas deferens was patent in 120 (76%) of patients. Clinical pregnancy with successful delivery was achieved in 99 (63%) patients. There were only three who had postoperative hematoma (0.02%) and one developed surgical site infection (0.001%).
Conclusion: Microsurgical vasectomy reversal is an excellent option in men post vasectomy to achieve natural clinical pregnancy with minimal complications. The study confirms the effectiveness of male infertility microsurgery for vasectomized men who wish to father children.

Key words: Microsurgical vasectomy reversal, vasectomy, vasoepididymostomy

Introduction

Vasectomy is globally recognized as a permanent form of male contraception, commonly used for family planning. Nonetheless, approximately 6% of men later opt to reverse the procedure, often due to changes in personal circumstances or specific medical considerations. For couples aiming to have children post-vasectomy, reversing the surgery is considered the most cost-effective approach. Despite being one of the more challenging microsurgical procedures, especially in areas where trained microsurgeons are limited, vasectomy reversal is critical. In the Philippines, data regarding

the outcomes of this procedure is lacking, which this study intends to address by documenting experiences with microsurgical vasectomy reversals within the local context. In addition, other Asian countries where fertility treatments are becoming increasingly common, vasectomy reversals are gaining attention as an option for couples wishing to restore fertility. However, detailed regional statistics are sparse.

Obstructive azoospermia is defined as the absence of spermatozoa in the ejaculate despite normal spermatogenesis.[1] It is a common urologic condition and accounts for 6 to 13% of patients with fertility problems. Vasectomy is an easy and reliable method of permanent contraception causing obstructive azoospermia. As many as 50 million men worldwide have relied on vasectomy for family planning.[2] However, It is estimated that around 6% of these men who underwent vasectomy will ultimately seek vasectomy reversal for various reasons.[2] Indications for a vasectomy reversal include desire to have more children in case of remarriage or after death of a child, treatment of post vasectomy pain or treatment of obstructive azoospermia due to iatrogenic injury.[3]

In the modern era of assisted reproductive technology, infertile male patients with obstructive azoospermia (OA) have 2 options: vasal repair or testicular sperm extraction with intracytoplasmic sperm injection (ICSI). Vasal repair, either vasovasostomy (VV) and vasoepididymostomy (VE), is the only option that leads to natural pregnancy. Microsurgical vasovasostomy and vaso-epididymostomy are techniques that have undergone numerous advances during the last centuries, which includes use of microsurgical equipment and principles to construct a meticulous anastomosis.[3] Vasal repair may obviate the need for ICSI and thereby eliminate the risk and costs associated with assisted reproductive techniques.[1] Cost analysis reveals that vasectomy reversal is less expensive than ICSI.[4] ICSI also subjects the spouse to risk such as ovarian hyperstimulation syndrome with multiple gestation rates of 30%.[1] This carry risks to the mother and children such as prematurity and low birth weight. Advances in surgical techniques have improved outcomes of microsurgical vasal repair. There are studies demonstrating acceptable patency and pregnancy rates of vasovasostomy without optical magnification and improved success rates with optical loupes.[5] However, modern microsurgical techniques remain the gold standard with which all other methods of vasectomy reversal are compared.[5] Little data on long-term outcomes for vasectomy reversal exist.[3] Therefore, the objective of this study was to evaluate the outcomes and complications of microsurgical reconstruction of the male ductal system in the Philippines setting.

Methods

Patients

This is a retrospective study of 157 post-vasectomy patients who underwent Microsurgical vasectomy reversal from 2001–2024. Complete history, prior inguino- scrotal surgery, age of female partner, physical examination, duration of vasectomy, presence of varicocele, vasal patency rate, clinical pregnancy rate and post vasectomy complications were recorded. Preoperative semen analysis was also done. If patient had either one of the following: has not fathered a child, a small testis, history of abnormal semen analysis or impaired sexual function, serum follicle-stimulating hormone (FSH), luteinizing hormone (LH) and total testosterone levels were requested.

The criteria for inclusion in the study were a minimum of 1 month and 6 months of follow-up with semen analysis performed according to World Health Organization methods. Patients were excluded if they did not provide a semen analysis.

Inclusion Criteria:

- Male patients who underwent vasectomy reversal surgery performed by the single surgeon between January 2001 and March 2024.
- Patients who have adequate medical records, including operative reports, follow-up visits, and documented semen analysis results.
- Patients with at least one documented follow-up visit after surgery to assess outcomes such as patency and complications.

Exclusion Criteria:

- o Patients whose medical records lack sufficient follow-up data to assess outcomes.
- o Patients with incomplete documentation regarding their vasectomy reversal surgery or pre-operative vasectomy history.
- o Patients who had secondary infertility factors that could impact outcomes (e.g., testicular trauma, infections unrelated to the vasectomy).

Surgery and Intervention

Patients underwent microsurgical vasectomy reversal. A vertical incision was done in each scrotum. A healthy portion of the vas deferens was isolated about 4 to 5 mm away from the vasectomy site. Meticulous dissection with liberal use of bipolar micro- coagulator for bleeding was performed. A Microspike™ approximator clamp was used to hold and stabilize the vas deferens and complete transection of the vas was done at a 90-degree perpendicular cut angle. Fluid was squeezed out from testicular portion of the vas deferens and examined for spermatozoa using light microscope at 40x magnification. (Figure 1). Abdominal portion of the vas was flushed with 5 to 10 mL saline to confirm patency. Modified 3-layer anastomosis was done in all patients. Using microdot technique, 6 interrupted sutures were placed in each layer: mucosal (10-0 monofilament nylon), muscular (9-0 monofilament nylon), and adventitial (8-0 monofilament nylon). Tunica vaginalis, dartos and skin were closed with continuous 4-0 V the vicryl suture.

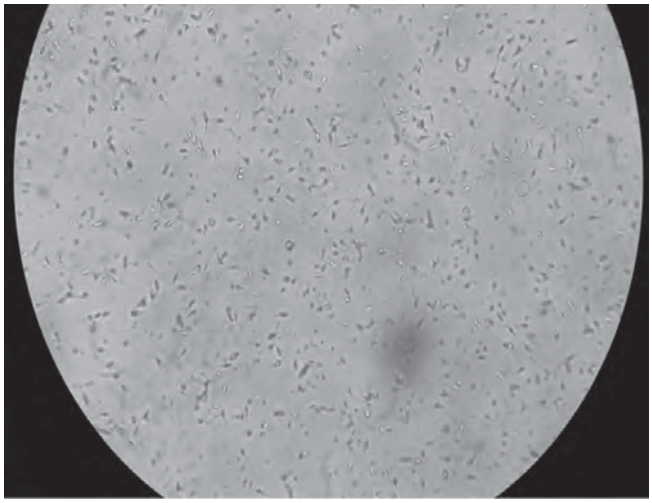


Figure 1. Intraoperative examination of vasal fluid (testicular end)

Vasoepididymostomy is performed if the fluid on the testicular end of the vas is devoid of sperms, dry and toothpaste like. The authors' preference is the two suture technique known as the longitudinal intussusception vasoepididymostomy. In this technique, two double-armed 10-0 nylon sutures were used, and the needles were placed along the length of the tubule. A longitudinal incision is then made on the tubule and the fluid was examined for sperms under the microscope. Once confirmed, the needles were pulled through and passed through the corresponding location in the vas.

Statistical Analysis

Descriptive Statistics

Post Vasectomy (Obstructive Azoospermia) (N=157)

For patients who had no known surgery like vasectomy, have not fathered a child: azoospermia, with normal hormones, FSH, testosterone, normal volume alkaline pH semen and a palpable dilated epididymis, all patients with obstructive azoospermia had a bilateral testicular biopsy confirming normal spermatogenesis

A. Demographic data of patients by nationality

Nationality	No.
American	108
British	27
Canadian	6
Australian	12
New Zealand	2
Filipino	2
Norwegian	1
African (Bostwana)	1
Total	157

B. Baseline characteristic and summary of results

Number , n	
Male age, mean (SD)	58.2 (± 5.9)
Female age, mean (SD) years	29.5 (± 4.1)
Time since vasectomy, mean (SD) years	14.5 (± 5.3)
Operative time, mean (SD) minutes	210 (± 31)
Complications	3 (2%)
Overall Patency	120 (76%)
Pregnancy Rate	99 (63%)
Total Sperm Count, mean (SD) millions	55 (±10.3)

C. Number of children prior to vasectomy

None	4
1	87
2	34
3	29
4 or more	3
Total	157

D. Type of microsurgical vasectomy reversal

Type of Reversal	No.
Vasovasostomy (bilateral)	105
Vasovasostomy and Vasoepididymostomy	48
Vasoepididymostomy (bilateral)	3
Crossed Microsurgical Vasoepididymostomy (Left to Right)	1
Total	157

E. Duration of obstructive interval

No. of years post-vasectomy (known obstruction)	No.
0-5 yrs	5
5-10 yrs	78
10-15 yrs	45
15- 20 yrs	18
20 yrs or more	11
Total	157

F. Clinical outcome on the type of microsurgical reversal:

Type of Reversal	No.	Vasal Patency Rate (%)	Clinical Pregnancy Rate (%)
Vasovasostomy (bilateral)	105	85 (80%)	66 (63%)
Vasovas & Vasoepididymostomy	48	33 (68%)	32 (66%)
Vasoepididymostomy (bilateral)	3	2 (67%)	1 (33%)
Crossed Vaso epididymostomy	1	0	0
Total	157	120 (76%)	99 (63%)

G. Intraoperative examination of vasal fluid:

No. of years post- vasectomy		Intraop Sperms (+)	Intraop Sperms (-)
0-5	5	2	0
5-10	78	70	5
10-15	45	29	16
15- 20	18	5	15
20 yrs or more	11	0	6

Preoperative Evaluation

A complete history and physical examination was performed prior to proceeding with surgical intervention. Attention should be paid to the duration of time since the vasectomy, any prior inguinal (hernia repair) or scrotal surgery, any post vasectomy complication, the age of the female partner, and any potential female factor that is contributing to infertility. Along with routine preoperative tests, a careful genital examination should be performed. The physical examination includes the size and volume of the testicles (measured with a Prader orchidometer) , a palpable vasal defect, the presence of a sperm granuloma, and if possible, the length of the testicular vasal segment. In addition, determining the presence of a varicocele is important because a varicocelectomy can be performed alongside the vasal reconstruction in selected cases. Formal vasography rarely is necessary. In laboratory investigations, the measurement of the gonadotropin (FSH and LH) and testosterone levels should be considered for patients with small testis, a history of abnormal semen analysis, or impaired sexual function.

Operative Steps

Anesthesia: Either General LMA or Regional Epidural (continuous) majority of the cases

Technical Description:

1. Placement of the Incision

2. Preparation of the Vas (Figure 2)

3. Decision or choice weather to perform vasovasostomy or vasoepididymostomy

4. Method of Anastomosis

   For Vasovasostomy (Figures 3 & 4)

   - Modified Microdot, 6 interrupted 10-0 monofilament nylon (mucosal)
   - 6 interrupted 9-0 monofilament nylon (muscular)
   - 6 interrupted 8-0 monofilament nylon (adventitial)

   For Epididymovasostomy (Figures 5-6):

   - Longitudinal or transverse Intussusception
   - technique, End to side
   - 10-0 double arm nylon suture (2)
   - 8-10 interrupted 9-0 suture to secure vassal adventitia to tunica of the epididymis

Closure of Tunica Vaginalis, Dartos, and skin continuous 4-0 vicryl suture

Patency and Pregnancy

One hundred and thirty-six (136) patients underwent microsurgical vasectomy reversal.

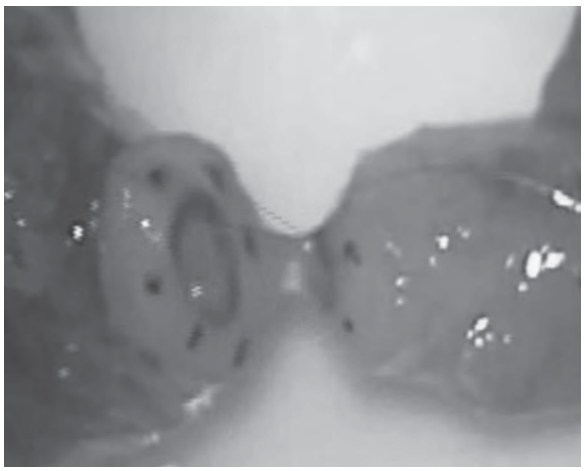


Figure 2. Modified microdot technique.

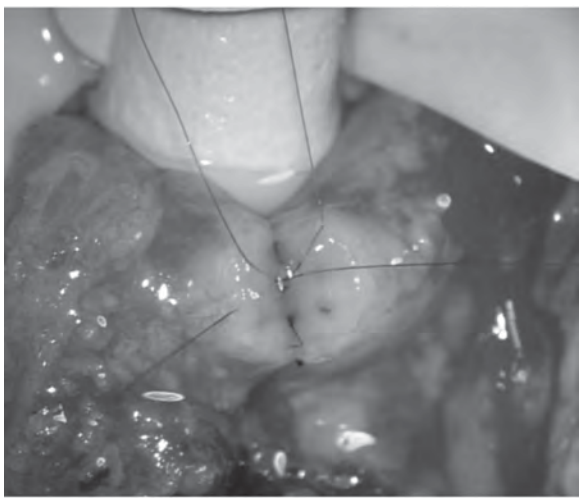


Figure 3. Vasovasostomy: Modified Microdot, 6 interrupted 10-0 monofilament nylon (mucosal)

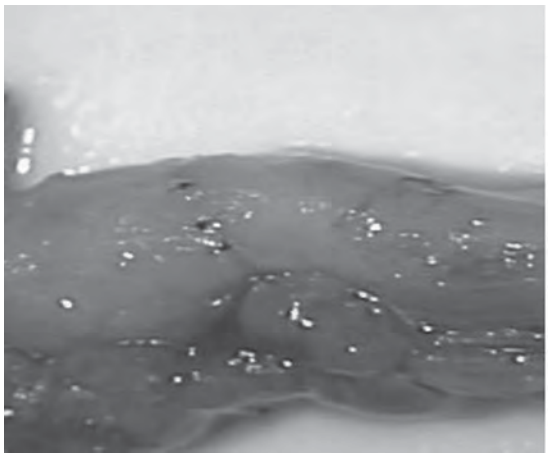


Figure 4. Vasovasostomy

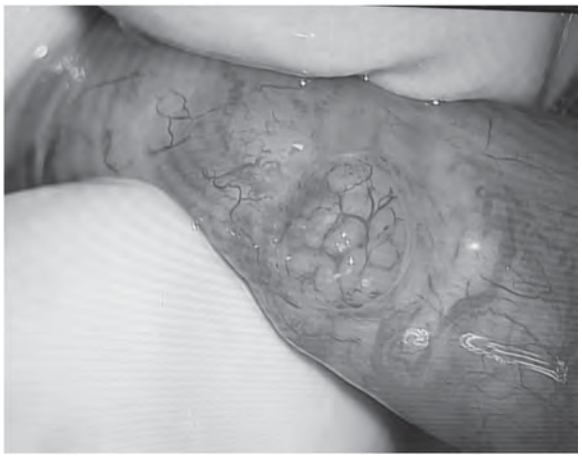
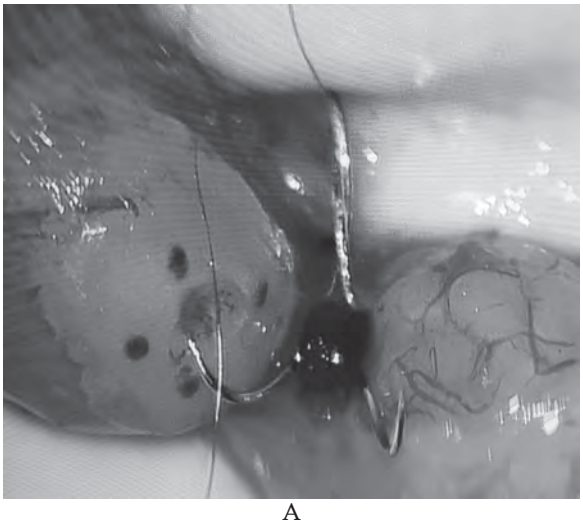


Figure 5. Preparation of Epididymis for Epididymovasostomy



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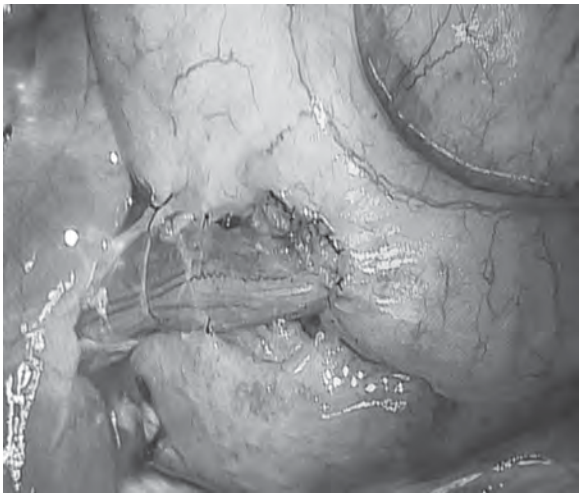

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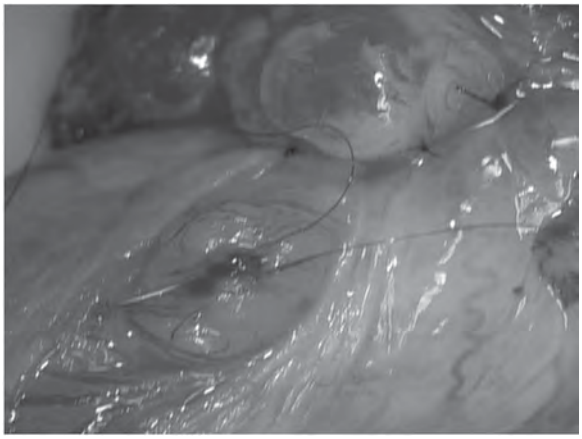

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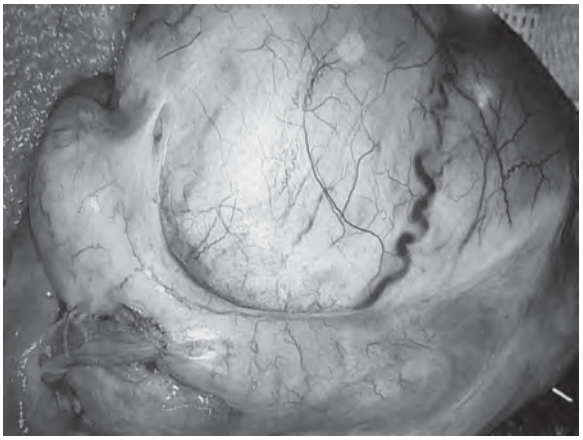

D

Figure 6. Epididymovasostomy: Longitudinal or transverse Instussusception technique, End to side

Preoperative semen analysis and preoperative testicular biopsy were done in all patients.

Ninety-one (91) patients underwent bilateral microsurgical vasovasostomy. Eighty-two (82) patients underwent combined microsurgical vasovasostomy and vasoepididymostomy. Three (3) patients underwent bilateral vasoepididymostomy and one crossed microsurgical vasoepididymostomy (left to right). The Intraoperative microscopic fluid examination of the testicular vasal end in 42 patients showed no sperms hence vasoepididymostomy was performed. Four patients had no child, 66 patients had 1 child, 34 patients had 2 children, 29 had 3 children and 3 patients had 4 children prior to vasectomy. Age of wife was between 20 to 32 years old. Mean interval from vasectomy was 9 years. Vas deferens were patent in 103 (76%) of patients. Clinical pregnancy with successful delivery was achieved in 87 patients (64%). There were only three who had postoperative hematoma (2%) and one developed surgical site infection (0.7%).

Discussion

Patency, which is defined as return of sperm to ejaculate, has been the primary outcome measure for vasovasostomy.[5] With this criterion, results using microsurgical techniques are consistently superior with non-microsurgical anastomotic technique.[5] Patency rate is around 80% in most case series.[5] In the current study, the authors found that microsurgical vasovasostomy results in return of sperm in 76% of men following microsurgical vasovasostomy and spontaneous pregnancy rate of 63%. Microsurgical vasovasostomy is the preferred technique for vasectomy reversal for most Urologists. If there is no sperm granuloma and the vas is absolutely dry and spermless after multiple samples have been examined, vasoepididymostomy is indicated. It is performed when testis biopsy reveals complete spermatogenesis and scrotal exploration reveals the absence of sperm in the vasal lumen without vasal or ejaculatory duct obstruction.[11] Microsurgical vasoepididymostomy is the most technically demanding procedure in all microsurgeries and should be attempted only by microsurgeons who perform the procedure frequency. As the obstructive interval increases, the likelihood of needing vasoepididymostomy increases in several studies. According to Mui, et al, the rate of vasoepididymostomy increased linearly with vasectomy intervals of 1.22 years at 3% per year but plateaued at 72% with vasectomy intervals of 24-38 years. The sperm counts were maintained with increasing time after the vasectomy, but the motile sperm counts decreased significantly.[12] It is performed by accurate approximation of the vasal mucosa to that of a single epididymal tubule, resulting in marked improvement in the patency and pregnancy rates.

Modified 3-layer vasovasostomy with microdot technique was used to provide precise mucosal approximation of vasal layers and leak proof anastomosis. Goldstein et al described the microdot technique in 1998 at Weill Cornell Medical College.[6] This technique allows vas lumen to be brought together more precisely. Precise suture placement mapping prevents dog-ears, and subsequent leaks can be avoided. Total of six microdots are placed on cut ends of vas. The first mucosal layer is placed utilizing the microdots and 10-0 monofilament suture. Use of double-armed suture prevents back walling of vas lumen. Second layer approximates the deep muscularis layer with a 9-0 monofilament suture. Then the third layer closes the adventitial layer in a watertight fashion with a 8-0 monofilament suture. All sutures are placed in an interrupted fashion.[6] The principles of vasovasostomy include accurate and leak-proof mucosal approximation, a tension-free, healthy tissue with good blood supply and atraumatic anastomosis technique.[5] These principles, when followed, maximize the chance of success. Although assisted reproductive technologies have significantly impacted the treatment of male infertility, microsurgical reconstruction remains the most successful and cost-effective method of treatment in patients with obstructive azoospermia. The success of it in establishing pregnancy makes this procedure a treatment of choice in men wishing to father children after vasectomy.

The outcome of vasectomy reversal is influenced by several factors such as duration of obstruction. A large study conducted by the Vasovasostomy Study Group observed that both patency and pregnancy rates after vasovasostomy decreased as the time since vasectomy increased.[2] Current data are consistent with previous studies demonstrating

that patency rate is inversely related to the duration of vasal obstruction. Vasectomy has adverse effects on reproductive system and is time-dependent.[5] Studies demonstrate role of immunologic factor related to vasectomy that may affect sperm production and activity. The inverse relationship between success rates and interval of obstruction may reflect progressive testicular damage.[2]

Patients are generally operated as outpatient and discharged postoperatively. After microscopic vasectomy reversal, instruction to place ice pack over the scrotum for 48 hours to wear scrotal support for 4 weeks, light activity starting 3 days postoperatively and avoidance of sexual activity, strenuous activity for 4 to 6 weeks are advised.[3] Oral with analgesic and anti-inflammatory agents are given for 7 days. Semen analyses should be obtained approximately every 2 months until sperm concentration and motility return to normal or until pregnancy occurs.[2] Follow up consist of clinic visits, phone calls, SMS and regular update on email.

In the age of in vitro fertilization or Intracytoplasmic sperm injection, patients now have a choice between surgical sperm retrieval coupled with IVF/ICSI versus vasectomy reversal. While surgery may be challenging, microsurgical vasectomy reversal results in excellent patency and pregnancy outcomes.

Conclusion

Microsurgical reconstruction of the male ductal system is an excellent option in fertility in male with obstructive azoospermia to achieve clinical pregnancy post vasectomy with minimal complications. The study confirms the effectiveness of male infertility microsurgery for vasectomized men who wish to father children. Adherence to good microsurgical techniques will result in excellent outcomes for couples electing vasectomy reversal.

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CASE REPORT

Transvesical Subtrigonal Buccal Mucosa Graft Inlay for an Almost Completely Obliterated Bladder Neck Contracture: A First in the Philippines

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Presented here is a cases of a 12-year old female patient who was ran over by a reaper. After a comprehensive evaluation, she was advised to undergo transvesical subtrigonal buccal mucosa graft inlay for her almost completely obliterated bladder neck contracture. Such a procedure proved to be a viable option for the patient's bladder neck reconstruction.

Key words: Bladder neck contracture, uretheral stricture, transvesical subtrigonal buccal mucosa graft

Introduction

The true incidence of urethral strictures is unknown but some authors[1,2] put it at 4-20%. In the Philippines, there is no national database that keeps track of the number of strictures in the country, but a paper presented by Galut M., Abalajon M, et al described 547 strictures from 2020-2023.[3] Of these, only 11 were strictures in females. The causes of urethral strictures in women have been a topic of discussion for a considerable period.[2] Pelvic fracture resulting from blunt trauma to the lower abdomen can lead to posterior urethral disruption in males, which has been observed in male patients who were car passengers or fell from a height. While such injuries in males have been reported previously, they are considered to be rare in females.[4]

There are various treatment options available for urethral strictures, from conservative therapy to definitive procedures. However, studies[5] have shown that conservative techniques such as urethral dilation have a low success rate overall. Male urethral strictures are commonly treated with urethrotomy, with success rates for the first or subsequent urethrotomy were no higher than 9% in this series. With longer follow-ups, most of the patients in this series are expected to fail, and the expected long-term success rate from any urethrotomy approach is 0%.[6] On the other hand, augmented urethroplasty, which involves the use of flaps or grafts, has been established as the most effective and reliable definitive therapy for urethral strictures.[7]

The authors of this report aimed to present a case involving a 12-year-old female patient who

underwent a transvesical subtrigonal buccal mucosa graft inlay to repair an almost completely obliterated bladder neck. As to the authors' knowledge, this is the first reported case in the Philippines to utilize this technique.

The Case

This is a case of a 12-year-old female who came in to the emergency room department 7 hours post-injury, after being run over by a reaper (truck). She arrived at the emergency room tachycardic and tachypneic. Physical examination revealed a flat, non-distended, soft, and non-tender abdomen but there was note of blood per meatus. Internal Examination (I.E.) revealed an anterior vaginal laceration 2 cm from the introitus. A pelvic x-ray revealed pelvic diastasis with an inferior rami fracture, left. A cystogram revealed extravasation of dye from the bladder to the vagina (Figure 1). Catheter insertion was done, which drained 200cc of clear urine output. There were no surgical plans, orthopedic-wise. With the patient's improved condition, she was sent home with an indwelling catheter which was replaced every two weeks. One-month post-catheterization, the previously noted urethrovaginal fistula on IE has healed. Unfortunately, the patient was lost to follow-up until one month prior to admission when she presented with acute urinary retention at the emergency room. An indwelling catheter was inserted with noted resistance 2 cm from the urethral meatus and the patient was directed to the OR for an emergency suprapubic cystostomy. Initial output was 800cc of urine. A repeat cystogram was done, revealing a completely obliterated bladder neck (Figure 2). Hence, the patient was scheduled for an elective urethral stricture repair.

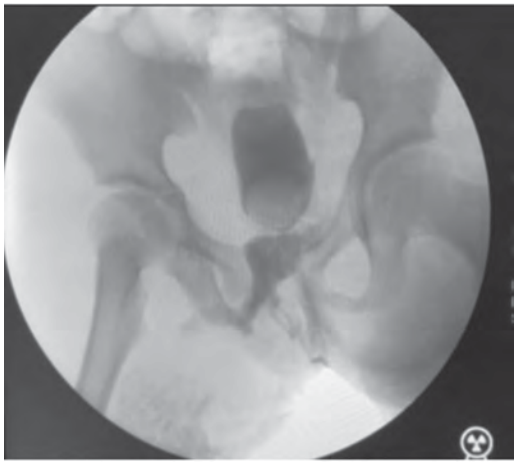

Figure 1. A cystogram showing extravasation of dye from the bladdert to the vagina.

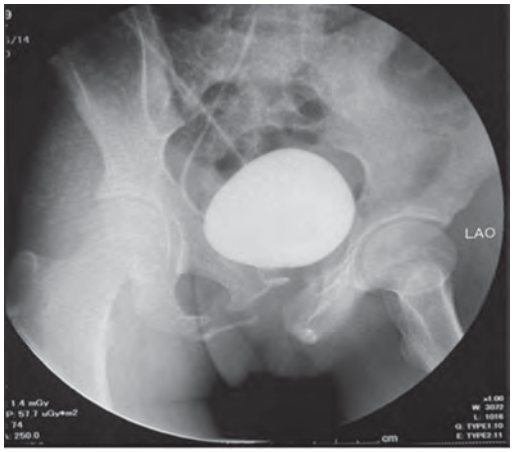

Figure 2. A cystogram revealing a completely obliterated bladder neck.

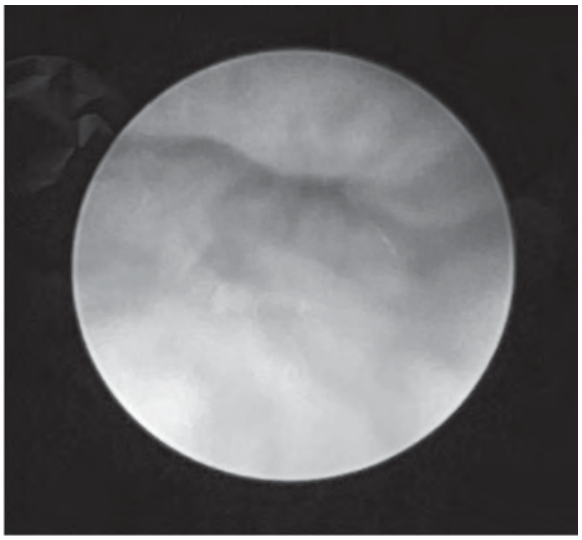

Figure 3. A 95% obliterated urethral lumen was noted 3cm from the meatus.

Conduct of Operation

After placing the patient in a lithotomy position, urethroscopy was performed where there was note of a 95% obliterated urethral lumen, 3cm from the meatus (Figure 3). Antegrade flexible cystoscopy through the suprapubic tract was performed, confirming the findings of an almost completely obliterated bladder neck.

An infraumbilical incision was made down to the retropubic area, exposing the bladder. The bladder was incised vertically along its anterior wall. Upon opening the bladder, both ureteral orifices were identified and cannulated with open-ended stents (Figure 4). A Fr16 Van Buren dilator wash then inserted into the meatus up to the level of the bladder neck. Under direct vision, mucosal incisions were made at the bladder neck from the 4 to 8 o' clock positions (Figure 5).

Using standard technique, a 2 cm x 1 cm mucosal graft was harvested from the buccal cavity (Figure 6). The buccal mucosa graft was then spread-fixed and quilted to the denuded subtrigonal area with placement of Vicryl 4-0 sutures at the 4 to 8 o'clock positions (Figure 7).

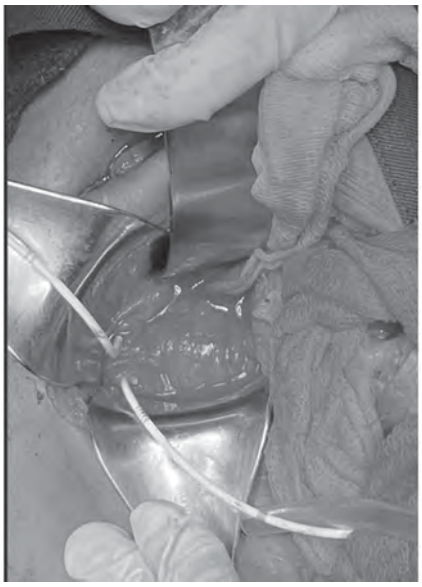

Figure 4. Uretheral orifices canmulated with open-ended skets.

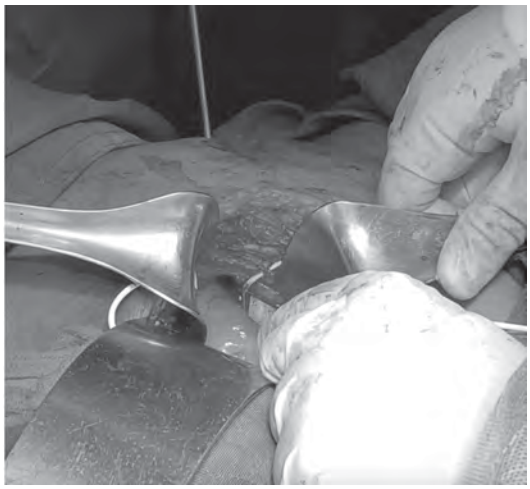

Figure 5. Mucosal incisions at the bladder neck from the 4 to 8 o'clock positions.

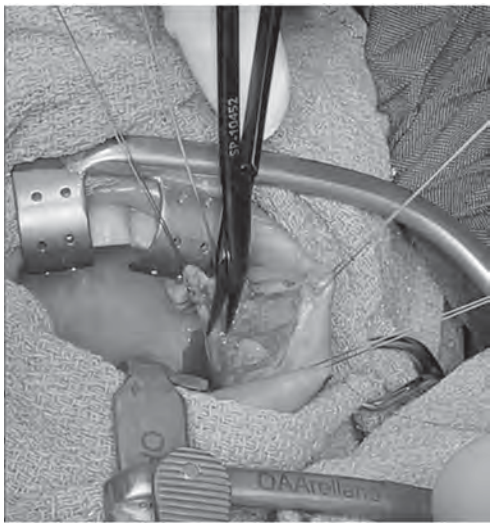

Figure 6. A 2 cm x 1 cm mucosal graft was harvested from the buccal cavity.

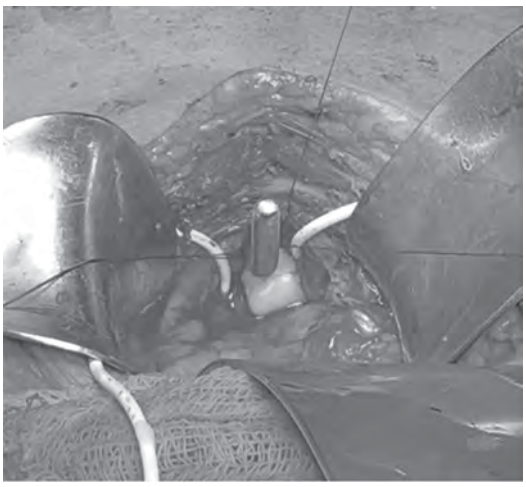

Figure 7. Vicryl 4-0 sutures were placed at the 4 to 8' oclock positions.

A Fr14 urethral catheter was inserted and a Fr16 suprapubic tube was replaced. The bladder was irrigated with sterile normal saline prior to closure. Cystorrhaphy was performed using a 2-layer technique, with Vicryl 4-0 for the mucosal layer and 2-0 for the seromuscular layer. A leak test was done by instilling 200cc of sterile water, and a Penrose drain was placed for drainage. Hemostasis was ensured before the procedure was completed.

The patient was discharged on the 3rd postoperative day. The urethral catheter was removed after 4 weeks, and the suprapubic tube was removed two weeks thereafter.

Discussion

In men, blunt trauma to the lower abdomen with pelvic fracture may result in posterior urethral disruption, while in women, urethral and vaginal injury is less common. Urethral injury caused by pelvic ring disruption is usually observed in cases of rotationally unstable injuries, especially lateral compression injuries.[8]

Antoci and Schiff reported 125 female and 109 male patients with pelvic fracture, which included 11 girls and 15 boys below the age of 16. Out of these, 23 males experienced a ruptured urethra, while no cases of female urethral injury were reported.[2] In the literature, most urethral strictures are caused by iatrogenic injury, which is mostly attributed to traumatic instrumentation or urethral catheterization.[4] The same is true in the Philippines wherein the report by Galut and Abalajon, et al noted that 36.25% of urethral strictures resulted from iatrogenic injury.[3]

The incidence of female urethral strictures is much less common compared to that of males. Female pelvic fracture urethral injuries are rare with a worldwide incidence of 0.15%.[9] The treatment options for female urethral stricture (FUS) include endoscopic procedures or open urethral reconstruction.[10] While endoscopic treatment is less invasive, open urethral reconstruction is a more complex and invasive procedure. Nevertheless, open urethral reconstruction has a higher success rate.[11]

Migliari, et al conducted a study in which they performed urethral reconstruction using a dorsal buccal mucosa graft on three women between the ages of 45 and 65 who were suffering from urethral stricture disease. The results of the study showed that this approach, combined with buccal mucosa graft reconstruction, provided sufficient urethra in females, thereby reducing the risk of incontinence and fistula. Additionally, there was no residual urine, and the cosmetic outcomes were satisfactory.[12]

A systematic review by Osman, et al described 32 patients reported across seven studies, with buccal mucosa being used almost as frequently as lingual mucosa. The average success rate for buccal mucosa grafts was 94%, which was higher than the success rate for vaginal flaps (91%) and vaginal grafts (80%).[7] Richard, et al retrospectively reviewed charts of all female patients who underwent dorsal onlay oral (buccal or lingual) mucosa urethroplasty for urethral stricture between 2011 and 2020 showed a clinical success rate of 94.7% at 1-3 months and 90.9% at one year.[11] Joshi published a paper on a double-faced buccal graft inlay for near obliterative female urethral strictures and reported a good success rate.[13]

The problem with all of the above references, is that all of them dealt with strictures located in the mid to distal urethra. Performing a buccal graft inlay or onlay in the mid to distal urethra is relatively easy to perform but the patient in this case report had a stricture at the bladder neck where graft placement via a perineal approach would prove to be very difficult, if not impossible. In the past, female patients with strictures in the bladder neck either underwent repeated internal urethrotomies or urinary diversions such as a Mitrofanoff catheterizable channel. Flynn, et al, 2019 reported a novel technique wherein a buccal mucosal graft was placed as a subtrigonal inlay BMG in a 70-year-old male for treatment of refractory BNC. They were able to perform the technique using a transvesical approach with the aid of Da Vinci robot. There was no evidence of obstruction and recurrence on follow-up.[14] Using the principles described by Flynn, et al the authors were able to reproduce the same steps for this patient albeit an open approach.

Conclusion

There are various treatment options available for the management of female urethral stricture, including conservative management with dilatation, endoscopic treatment, or open repair with different tissue flaps or grafts. But in cases where the location of the stricture is at the bladder neck, a subtrigonal buccal mucosal graft inlay might prove to be a very viable option for bladder neck reconstruction. This

is especially useful if the patient is not amenable to urinary diversion using bowel segments.

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CASE REPORT

Laparoscopically Assisted Ureterocystoplasty on a Solitary Functioning Kidney: A Novel Technique for Urinary Bladder Augmentation

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Augmentation intestinal cystoplasty is usually the preferred method. However, this is complicated by mucus production, recurrent infection and cystolithiasis. In this report, the authors present a unique case of laparoscopically-assisted ureterocystoplasty and describe the operative technique and its advantages.

A 68-year-old female with a contracted urinary bladder and a solitary functioning kidney was diverted with a percutaneous nephrostomy tube for the past ten years. She consulted for a possible reconstructive procedure.

After a comprehensive preoperative evaluation, she underwent laparoscopically-assisted ureterocystoplasty. The operative time was 265 minutes with minimal blood loss. She had an unremarkable postoperative course. On follow-up, a voiding diary revealed urine volume of around 300 milliliters at 3 hour intervals, preservation of renal function, and no evidence of urinary infection.

Ureterocystoplasty was done using a combination of minimally invasive and open techniques. This procedure spared the patient a lifelong diversion with a nephrostomy tube and provided a better quality of life.

Key words: Ureterocystoplasty, percutaneous nephrostomy, vesical augmentation

Introduction

Genitourinary tuberculosis (GUTB) remains as a common form of extrapulmonary tuberculosis, particularly in a country like the Philippines. Despite the effective antibiotic therapy, the aftermath of the infection is associated with complications related to gross distortion and dysfunctional anatomy of the urinary system.

Changes associated to urinary bladder tuberculosis results from the granulomatous inflammation, caseation necrosis and contracture formation from final healing of the urothelium from the *Mycobacterium tuberculosis* infection.[1] In severe cases, the urinary bladder contracts significantly diminishing its capacity as a compliant, low-pressure reservoir.

Multiple techniques can be performed for vesical augmentation. Established techniques are associated with a variety of potential complications such as decline in renal function, urinary tract infections, nephrolithiasis formation and metabolic disturbances. The nature and severity of complications are due to the constant contact of urine to the utilized bowel segments.

An ideal surgical procedure is goaled towards enlarging the volume of the bladder, restoring low bladder filling pressures, and preventing infections

and reflux uropathy that may jeopardize renal function.

The Case

Patient Information

The patient is a 68-year old female diagnosed with genitourinary tuberculosis via urinary bladder biopsy in 2011 who initially presented as recurrent urinary tract infection, hematuria, urinary frequency and urgency, and intermittent left flank pain. Imaging at the time of GUTB diagnosis showed atrophic right kidney, normal sized left kidney with moderate hydronephrosis, dilated and tortuous left ureter up to its insertion into the small, thick-walled urinary bladder.

Patient completed the 6-month anti-tuberculosis medications while being maintained on an indwelling foley catheter to relieve the reflux uropathy arising from the increased intravesical pressure within the contracted urinary bladder. Despite maximal drainage, the patient still reported recurrent episodes of pyelonephritis. An acute episode of sepsis and acute kidney injury from pyohydronephrosis in 2012 prompted insertion of a percutaneous tube into her left kidney for source control.

For the succeeding 10 years, the patient opted to maintain her nephrostomy tube despite its detrimental effects on her quality of life. Ileocystoplasty had been offered by several urologists but she did not consent for the procedure due to the foreseen metabolic and infectious complications of the procedure. Nonetheless, the patient was highly motivated and did not want to live with the nephrostomy tube permanently.

An antegrade pyelogram (Figure 1A) was done to assess for potential reconstructive procedures. It showed a severely dilated left upper collecting system and tortuous redundant ureter draining to a small contracted urinary bladder. This finding prompted the inquest if the ureter can be used to augment the urinary bladder capacity of the patient.

Clinical Findings

Patient is a case of solitary left kidney with reflux uropathy from contracted urinary bladder secondary to GUTB. She reported a nephrostomy drain of 1-2 liters and minimal urine output per urethra in 24 hours. Urine culture showed growth of *Klebsiella spp*. that was treated adequately with appropriate antibiotics prior to the surgery. She was classified preoperatively as ASA Physical Status II.

Diagnostic Assessment

Non-contrast Computed Tomography of the abdomen of the patient showed a small right kidney and a normal sized left kidney (10.7cm in length) with normal parenchymal thickness. Left collecting system was severely hydronephrotic up to its ureteral insertion to the contracted urinary bladder. The patient's nuclear renal function on admission was measured at 0 and 35.4 ml/min/1.73m^2 for her right and left kidney, respectively.

Therapeutic Intervention

The procedure can be divided into three parts: 1) Intraoperative imaging, 2) Laparoscopic renal decensus with ureteral mobilization, and 3) Augmentation cystoureteroplasty.

1. Intraoperative Imaging

   Patient was placed on a lithotomy position under general endotracheal anesthesia. Cystoscopy was performed that documented a small contracted bladder, golf hole-like left ureteral ureteral orifice, and smooth urinary bladder mucosa. The right ureteral opening was not identified. Subsequent cystogram showed a noncompliant urinary bladder with a volume of 30mL. Retrograde Pyelography showed a dilated and redundant tortuous left ureter with severe dilatation of the left collecting system (Figure 1B).

   Serving as a baseline reference, intraoperative imaging of the collecting system also enabled the surgeon to visualize the length and assess the adequacy of the ureteral segment to be used for augmentation.

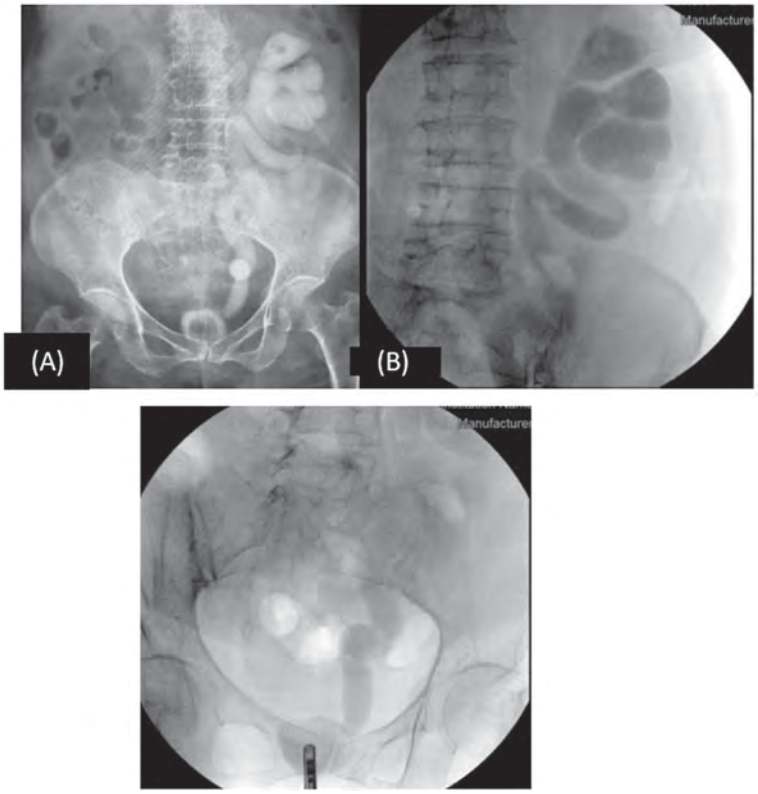

Figure 1. (A) Preoperative Antegrade Nephrostogram (B) Cystogram and Retrograde Pyelography of the left kidney showing a small bladder (~30mL:); severely dilated, redundant, and tortuous left ureter, and severely hydronephrotic left kidney.

2. Laparoscopic Renal Decensus with Ureteral Mobilization

The patient was repositioned to a right flank position for the Laparoscopic renal decensus to approximate the kidney closer to the urinary bladder, thereby extending the length of the ureteral segment available for ureterocystoplasty. A three-port laparoscopic technique as illustrated in Figure 2 was used to the detach the left kidney from all of its attachments. The entire length of the ureter was dissected to completely tubularize the redudant ureter from its proximal to distal ends.

3. Augmentation Ureterocystoplasty

The patient was again repositioned to supine position. A midline infraumbilical incision was done to identify the urinary bladder. The anterior bladder was opened transversely up to level of the left ureteral orifice (Figure 3). Approximately 12cm of the distal ureter was detubularized by cutting it medially (Figure 4). Edges of the detubularized ureters were then opposed via continuous suturing using absorbable braided sutures (Figure 5). A JJ stent was inserted intraoperatively before connecting the created ureteral flap to the edges of the urinary bladder.

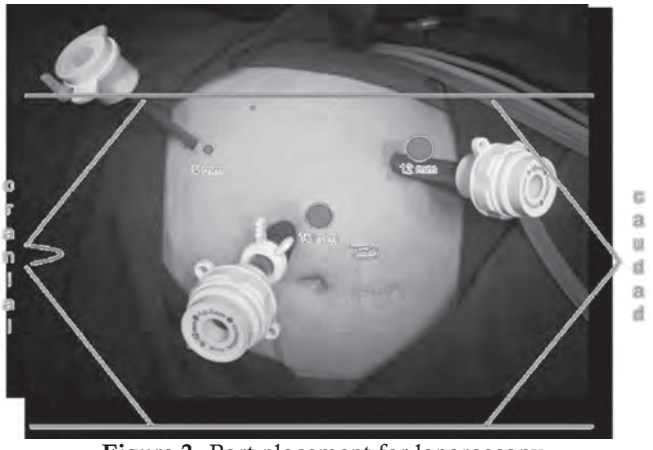

Figure 2. Port placement for laparoscopy.

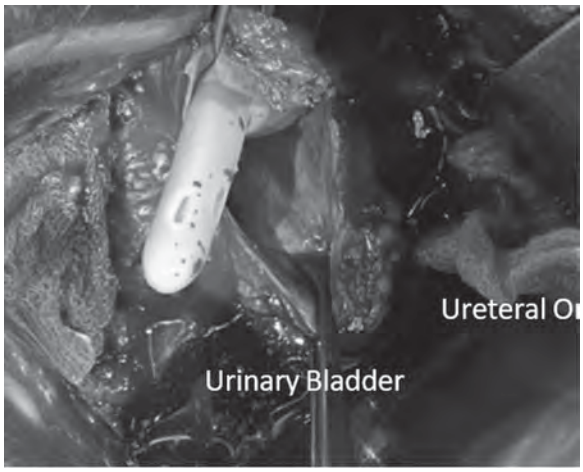

Figure 3. Intraoperative assessment of the contracted urinary bladder.

Intraoperative instillation of saline via a large bore foley catheter showed leak-free suture lines, and an approximated volume of 100mL. The entire operation was concluded after 4 hours and 15 minutes incurring an estimated blood loss of 800 mL. The patient was hemodynamically stable throughout the procedure. She was discharged with a foley catheter on her 5th postoperative day with no reported complications. Her eGFR was computed at 26.27 ml/min/1.73m^2.

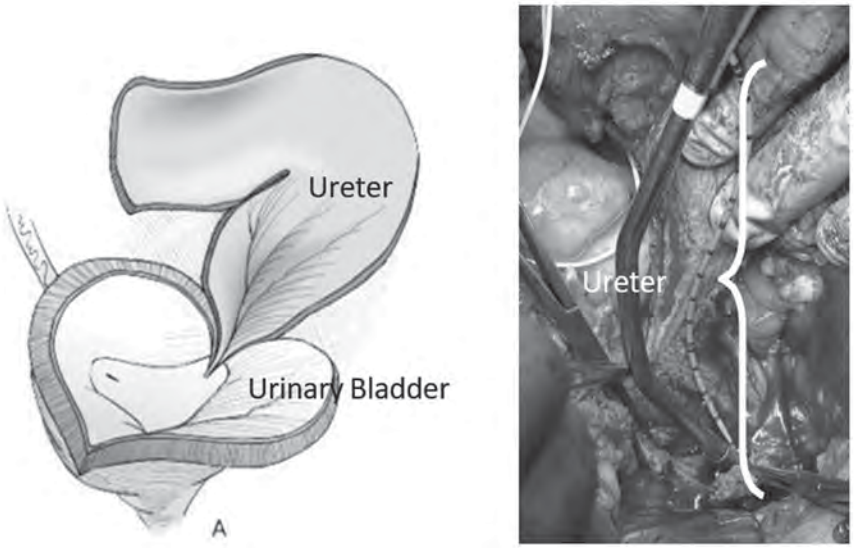

Figure 4. Urinary Bladder opened transversely. Ureter detubulartized.

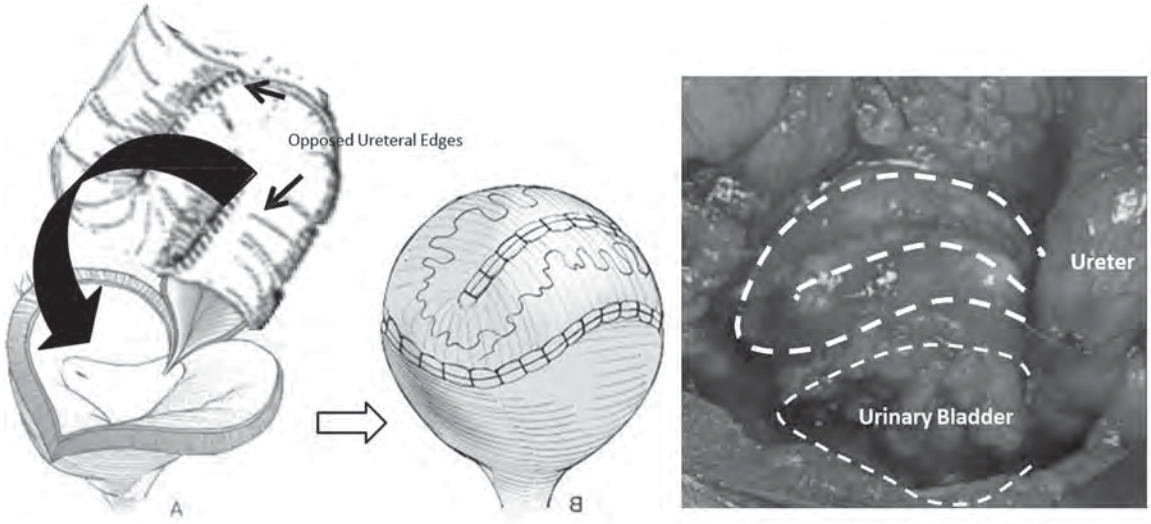

Figure 5. Opposing the detubularized edges of the ureter. The created flap was then connescted to the urinary bladder.

Follow-up and Outcomes

Three months after the operation, the patient's Frequency-Volume Charts revealed voided volumes of 100-200milliliters at 2-3 hour intervals. She reported urinary continence with no associated lower urinary tract storage-related symptom and urinary tract infection. Her computed eGFR was maintained at 27.01 ml/min/1.73m^2 six-months postoperatively. Overall, the patient was satisfied with the intervention for the removal of her nephrostomy tube positively affected her quality of life. She was advised to undergo serial urodynamic and radiologic evaluations to monitor her urinary bladder status, but she opted to do active surveillance instead should pertinent signs and symptoms occur.

Discussion

A material deemed ideal for urinary bladder augmentation should be easily shaped, capable of distention at low pressure, not absorbing urinary constituents, not secreting mucus, and poses no risk for malignant transformation. Although deemed as the gold standard technique for bladder augmentation, these parameters are sparingly fulfilled by conventional enterocystoplasty that employs the use of detubularized segments of small or large bowel.[2]

The advantages of using urothelium lined flaps of the ureter are already demonstrated in pediatric patients with a low-capacity, poorly compliant bladder.[3] The histologic layers of the urothelium are metabolically neutral making it as a rational alternative to bowel segments.[4]

Adequacy of ureteral segments can be a limiting factor for adult patients for a bigger bladder volume may be necessary to achieve the goals of reconstruction. This concern was addressed by performing Laparoscopic Renal Decensus that lengthens the ureter procurable for ureterocystoplasty.

Conclusion

The described sugery is a viable option for vesical augmentation of adult patients. This procedure offers increase in bladder volume capacity without the anticipated metabolic and infective complications observed in other techniques.

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SPECIAL ARTICLE

Clinical Practice Guideline for the Diagnosis and Management of Urolithiasis in Adults (Protocol)

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Executive Summary

Urolithiasis, or urinary stone disease, is a significant health burden both globally and in the Philippines. It affects quality of life, causes substantial healthcare costs, and often leads to recurrent clinic and emergency department visits.

In response to the growing need for standardized, evidence-based, and locally relevant guidance, the Philippine Urological Association (PUA) initiated the development of the Philippine Clinical Practice Guideline (CPG) for the Diagnosis and Management of Urolithiasis.

Using the GRADE Adolopment methodology, this CPG aims to provide recommendations for the diagnosis and management of urinary stone disease.

A multidisciplinary team will be convened, and recommendations will be based on systematic reviews, best available evidence, clinical expertise, in the Philippine healthcare context. It will serve urologists, nephrologists, primary care providers, emergency physicians and policy-makers involved in urinary stone disease care.

This CPG intends to improve clinical decision-making, reduce variations in practice, optimize resource use and ultimately enhance patient outcomes nationwide.

Background

Global Burden of Urolithiasis

Urolithiasis, commonly known as urinary stone disease, is the formation of stones in the urinary tract. This disease entity remains a significant global health concern. It has exerted a significant burden of disability, morbidity, mortality and medical costs worldwide. In the Global Burden of Disease study in 2021, there were 106 million incident cases of urolithiasis, accounting for 17,700 deaths in both sexes. Urinary stone disease is also responsible for 694,000 disability adjusted life years (DALYs).[1]

A concurrence of multiple epidemiologic studies show that despite an increased global incidence, there has been a decreased age-standardized rate. These studies suggest that demographic shifts have occurred alongside advances in prevention and risk reduction.[1–3] Curiously, over the last two decades, there has been no markedly novel preventive intervention for urolithiasis worldwide, multiple studies posit that the decline may be related to a high influx of health advocates and associations providing evidence-based recommendations on preventive strategies for urolithiasis[1], as well as an increased access to information, education and

awareness initiatives of disseminating information and guidance to both patients and the general public.[4,5]

National Burden of Urolithiasis in the Philippines

In 2021, the Philippines accounted for 2,560,000 cases of urolithiasis, a number amounting to 20% of the total cases in Southeast Asia, second only to Indonesia in the region. Moreover, the Philippines recorded 22,600 age-standardized DALYs per 100,000, third highest in the world, and is also ranked fourth globally in age-standardized death rates at 0.7 per 100,000 cases, following Armenia, Kazakhstan and Trinidad and Tobago.[1] This especially underscores the need for standardization and a multidisciplinary initiative to improve disease outcomes.

Various local studies show that stone disease is largely under-reported and undisclosed[6,7] and detection efforts need to be streamlined to address morbidity and mortality outcomes. National efforts include House resolutions urging legislation to facilitate comprehensive programs for the prevention and treatment of urinary stone disease.[8] This guideline put forth by the Philippine Urological Association, in collaboration with stakeholders, is one such effort.

Necessity for Guidelines in Urolithiasis Management

The development and implementation of clinical guidelines for urolithiasis are essential due to several factors:

1. Standardizing Care Amidst Practice Variations: Variations in clinical practice can lead to inconsistent patient outcomes. Evidence-based guidelines provide a standardized approach to diagnosis, treatment and follow-up, ensuring uniform care of the highest quality.
2. Incorporating New Evidence into Practice: The field of urology is continually evolving, with new research introducing more effective diagnostic tools and treatment modalities. Regularly updated guidelines ensure that the latest evidence is integrated into clinical practice, optimizing patient outcomes.
3. Supporting Cost-Effective Interventions: Certain interventions for urolithiasis can have significant cost implications. Guidelines help in making informed decisions about the most efficient use of resources, balancing efficacy and cost-effectiveness.
4. Addressing Gaps in Existing Guidance: Emerging interventions or those not previously covered necessitate the development of new guidelines to provide clear recommendations for clinicians.

In the Philippine context, the absence of local guidelines tailored to the specific epidemiological and socio-economic landscape warrants an endeavor to factor in this context in patient management. Streamlined, appropriate and accessible recommendations would address local practice variations, incorporate region-specific evidence, and provide direction on cost-effective interventions suitable for the country's healthcare system and patient demographic.

Scope

This Clinical Practice Guideline (CPG) addresses the diagnosis and management of patients with urolithiasis, encompassing renal (nephrolithiasis) and ureteral stones (ureterolithiasis), irrespective of stone composition, unless otherwise specified within particular recommendations.

Specifically, the scope of this CPG includes:

- Patient Population:
  The recommendations apply to adult patients (aged 18 years and older) diagnosed with urolithiasis. Management of pediatric patients (under 18 years of age) is outside the scope of this guideline.

- Healthcare Setting:
  The CPG is intended for use across primary care and specialty care settings in the Philippines, including general practice, internal medicine and its subspecialties, emergency medicine and surgery. It is applicable to outpatient care, inpatient care and emergency department management.

- Disease Aspects Covered:

    - Diagnosis:
      Identification of clinical signs and symptoms suggestive of urolithiasis, and appropriate use of diagnostic modalities such as imaging and laboratory investigations to identify patients with urinary tract stones who will benefit from either further testing or from management.

    - Management:
        - General Therapy: Non-surgical and supportive interventions including pharmacologic therapies for symptom relief (e.g., pain management, medical expulsive therapy, medical chemolysis or stone dissolution) and non-pharmacologic, non-surgical strategies (e.g., hydration, dietary counseling).
        - Specialist Therapy: Criteria for types of sub-specialty care and guidance on surgical and procedural interventions such as extracorporeal shock wave lithotripsy (ESWL), ureteroscopy and percutaneous nephrolithotomy (PCNL).

Objectives

The objective of this project is to develop clinical practice guidelines (CPGs) in the Philippines for the management of adult patients with urolithiasis across primary and specialty care settings, utilizing the best available scientific evidence and considering the economic implications of diagnostic tests and pharmacologic therapies.

Specifically, this guideline aims:

1. To address key clinical questions—prioritized for their relevance to Philippine practice and variability in care—concerning the diagnosis and management of adult patients with urolithiasis.
2. To determine the utility, effectiveness and safety of diagnostic tests and treatment interventions used in the management of urolithiasis.
3. To assess the certainty of the evidence supporting the use of each selected diagnostic and therapeutic intervention, using systematic and transparent appraisal methods.
4. To formulate evidence-based recommendations to guide clinicians in the appropriate diagnosis and management of patients with urolithiasis, taking into account both clinical benefit and resource considerations.

These guidelines are intended to standardize the care of patients with urolithiasis, reduce practice variability, integrate new and emerging evidence into clinical practice, and promote the rational use of healthcare resources.

Expected Target Users and Institutions

The primary target users of this Clinical Practice Guideline (CPG) are healthcare professionals involved in the diagnosis, management, and follow-up of patients with urolithiasis in the Philippines. These include, but are not limited to, primary care physicians, general practitioners, family medicine specialists, internists, nephrologists, emergency medicine physicians, urologists and general surgeons.

In addition to individual healthcare providers, the guideline is also intended for use by training institutions, as well as primary, secondary, and tertiary-level healthcare facilities. Furthermore, public and private health insurance providers such as PhilHealth and Health Maintenance Organizations (HMOs) may reference this CPG in the formulation of reimbursement policies and benefit packages.

This guideline may also serve as a resource for policy-makers, payors, hospital administrators and employers.

Related Guidelines

This is the first Philippine clinical practice guideline on urinary stone disease.

Working Groups

1. Conflict of Interest Review Committee (COIRC)
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b. Noemi Buensuceso, MD
c. Vincent Tanseco, III, MD
d. Joseph Adrian Buensalido, MD

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   b. Jason Arboleda, MD - Philippine College of Emergency Medicine
   c. Daniel Guevara, MD - Philippine Society of Nephrology
   d. Rowena Plumo, MD - Philippine Academy of Family Physicians

3. Nominated Guideline Panel Stakeholder groups (GP)
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   b. Philippine College of Emergency Medicine
   c. Philippine Society of Nephrology
   d. Philippine Academy of Family Physicians
   e. Philippine College of Physicians
   f. Philippine Society of General Internal Medicine
   g. Philippine Association of Patient Organizations
   h. Department of Health
   i. Philippine Association of Nutriritionists

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   b. Evidence Reviewers
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      ii. Dr. Karl Murillo
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      iv. Dr. Hannah Almenario
      v. Dr. Darwin Del Rosario
      vi. Dr. Mayo Viray
   c. Guideline Panel Facilitator : to be determined
   d. Technical Writer : to be determined

Conflict of Interest Management

To ensure transparency and safeguard the integrity of the Philippine Urolithiasis Clinical Practice Guideline (PUA CPG) development process, the PUA-CPG Committee convened an independent Conflict of Interest Review Committee (COIRC). This committee is composed of four healthcare professionals who are independent of the field of urology and not involved in the CPG development.

All nominated members of the CPG Task Force—including the Steering Committee (SC), Guideline Panelists (GP), Technical Working Group (TWG) and Administrative Support Staff—will be required to submit their curriculum vitae and complete the PUA-CPG Conflict of Interest Declaration Form prior to their participation. The form requires full disclosure of any financial or intellectual conflicts of interest within the past four years.

The COIRC will independently review all submitted documents to determine the nature and extent of any disclosed conflicts. Based on the PUA-CPG COI policy (see Appendix 1), the committee will classify each individual's conflict of interest and provide recommendations on eligibility and the extent of participation, aligned with the individual's assigned role in the CPG process.

The following COI classifications and corresponding management strategies will be applied:

1. Allowed / Acceptable – No relevant financial or intellectual conflicts of interest. Full participation in all activities, including evidence appraisal and voting, will be permitted.
2. Manageable B (Broadcast) – Typically applied to intellectual conflicts of interest (e.g., affiliations with related organizations, authorship of relevant studies, or leadership roles). These members will be allowed to participate fully and vote, but will be required to verbally declare their COIs during guideline meetings and in the final manuscript.
3. Manageable C – Applies to individuals with both intellectual and limited financial conflicts of interest. These members may contribute as resource persons but will not be allowed to vote on recommendations in which they may have potential conflict. This includes representatives from implementing government agencies or the funding organization. Specific terms of participation will be determined by the COIRC on a per-question basis.
4. Disqualified – Applied when an individual has significant financial and intellectual conflicts that may compromise objectivity. These individuals will not be permitted to participate in the guideline development process.

Following the COIRC's recommendations:

- The Steering Committee will finalize the composition of its own members, and subsequently approve the membership of the Technical Working Group, Guideline Panelists, and other CPG working groups.
- Appropriate COI management strategies—including restrictions on voting, authorship, or participation in evidence appraisal—will be implemented and documented accordingly.

All COI declarations will be reviewed and updated prior to the Guideline Panel Consensus Meeting. All declarations of potential conflicts of interests will be presented during the meeting.

Identification and Prioritization of Clinical Questions

A preliminary list of clinical questions on the diagnosis and management of urolithiasis was compiled during a CPG workshop attended by PUA and PURA (Philippine Urology Resident Association) members on May 25, 2024. The SC members representing non-PUA organizations also nominated clinical questions for possible inclusion in the CPG. The SC had a prioritization meetings on March 20 and March 30 to short list the questions to 10, taking the following into consideration:

1. Uncertainty in practice / common question in practice
2. Variation in practice
3. New evidence for consideration
4. Cost considerations / significant resource use
5. Question not previously or sufficiently addressed

A virtual discussion between the SC and the technical lead to finalize the list of questions. The proposed guideline questions are in the table below.

Guideline Question 1.	Should ultrasonography be used versus non-contrast computed tomography (NCCT or CT stonogram) in patients consulting for flank pain or acute renal colic?
Review Question 1.	In individuals suspected of having urolithiasis (i.e., patients consulting for flank pain or acute renal colic), how accurate is ultrasonography compared to non-contrast computed tomography (NCCT or CT stonogram) in diagnosing urolithiasis?
P (Population)	Patients consulting for flank pain or acute renal colic
I (Index Test)	Ultrasonography
R (Reference Standard)	Non-contrast computed tomography (NCCT or CT stonogram)
T (Outcomes) Anticipated outcomes	Efficacy outcomes: ● Time-to-diagnosis ● Sensitivity, Specificity ● Likelihood ratios ● Missed diagnosis (False negative) ● Overtreatment/overdiagnosis (False positive) Safety outcomes: Adverse events
Subgroups (If necessary)	Subgroup Analyses: ● Outpatient Department (OPD) settings ● Emergency Department (ED) settings ● Age and Sex

Guideline Question 2.	Should NSAIDs be used in patients consulting for acute renal colic?
Review Question 2.	In people consulting for acute renal colic, how effective and safe are NSAIDs compared with opioids or combination therapy on pain relief, time to pain relief, length of hospital stay, and adverse events?
P (Population)	Patients consulting for acute renal colic
I (Intervention)	NSAIDs (Oral or intravenous or IM)
C (Comparator)	Opioids monotherapy
O (Outcomes) Anticipated outcomes	Efficacy outcomes: ● Pain relief ● Time-to-pain relief ● Length of hospital stay (stay in the ED until discharge) Safety outcomes: ● Adverse events (e.g., gastrointestinal upset, sedation, respiratory depression)
Subgroups (If necessary)	Subgroup by setting: ED setting vs outpatient clinic Subgroup by comparator (i.e., different opioids) Subgroup by route of giving NSAIDs (IV, IM); Subgroup different types of NSAIDs, if applicable

Guideline Question 3.	Should tamsulosin be used in patients consulting for acute renal colic or for flank pain?
Review Question 3.	In people consulting for acute renal colic or for flank pain, how effective is tamsulosin as add-on therapy to standard of care compared with standard of care on pain relief, time to pain relief, length of hospital stay, and adverse events?
P (Population)	Patients consulting for acute renal colic or for flank pain (i.e., with suspicion of stone disease)
I (Intervention)	Tamsulosin added to standard of care/usual care
C (Comparator)	Standard of care/usual care (e.g., NSAIDs, none/increased oral fluid intake, etc.)
O (Outcomes) Anticipated outcomes	Efficacy outcomes: ● Pain relief ● Time to pain relief ● Length of hospital stay ● Stone passage Safety outcome: ● Adverse events (e.g., hypotension, dizziness, gastrointestinal upset)
Subgroups (If necessary)	Subgroup by setting: ED setting, outpatient clinic Subgroup by SoC used

Guideline Question 4.	Should anti-spasmodics (e.g., hyoscine-N-butylbromide, otilonium bromide, pinaverium) be used in patients consulting for acute renal colic or for flank pain?
Review Question 4.	In people consulting for acute renal colic or for flank pain, how effective and safe are anti-spasmodics (e.g., hyoscine-N-butylbromide, otilonium bromide, pinaverium) as an add-on therapy to other treatments (e.g., NSAIDs, opioids, propulsives) on pain relief, time to pain relief, stone passage, and adverse events?
P (Population)	Patients consulting for acute renal colic or for flank pain
I (Intervention)	Anti-spasmodics (e.g., hyoscine-N-butylbromide, otilonium bromide, pinaverium) as add-on therapy to other treatments ((e.g., NSAIDs, opioids, propulsives)
C (Comparator)	Standard of care (e.g., NSAIDs, opioids, propulsives)
O (Outcomes) Anticipated outcomes	Efficacy outcomes: ● Pain relief ● Time to pain relief ● Length of hospital stay (stay at the ED before discharge when pain-free) Safety outcome: ● Adverse events (e.g., hypotension, dizziness, gastrointestinal upset)
Subgroups (If necessary)	Subgroup by setting: ED setting, outpatient setting Subgroup by SoC used Subroup by anti-spasmodic used

Guideline Question 5.	Should propulsives (e.g., metoclopramide) be used in patients consulting for acute renal colic or for flank pain?
Review Question 5.	In people consulting for acute renal colic or for flank pain, how effective and safe are propulsives (e.g., metoclopramide) as an add-on therapy to SoC/other treatments (e.g., NSAIDs, opioids, anti-spasmodics) on pain relief, time to pain relief, resolution of nausea and adverse events?
P (Population)	Patients consulting for acute renal colic or for flank pain
I (Intervention)	Propulsives (e.g., metoclopramide) as add-on combination with other treatments (e.g., NSAIDs, opioids, anti-spasmodics)
C (Comparator)	SoC/Other treatments (e.g., NSAIDs, opioids, anti-spasmodics)
O (Outcomes) **Anticipated outcomes**	Efficacy outcomes ● Resolution of nausea and vomiting ● Prevention of nausea and vomiting ● Length of hospital (ED stay) ● Pain relief ● Time-to-pain relief Safety outcomes ● Adverse events
Subgroups (If necessary)	Subgroup by setting: ED setting, outpatient setting Subgroup by SoC used Subgroup by type of propulsive used

Guideline Question 6.	Should coconut water (i.e., buko juice) be used in patients consulting at the outpatient clinic for urolithiasis?
Review Question 6.	In people consulting at the outpatient clinic for urolithiasis, how effective and safe is coconut water (buko juice) compared with increased fluid intake alone (>2 liters, >3 liters) on stone-free rate (by ≤7 days, 8 to 15 days, and 16 to 30 days), time-to-stone-free status, adverse events, and re-treatment rate?
P (Population)	Patients consulting for urolithiasis
I (Intervention)	Coconut water (e.g., from buko juice)
C (Comparator)	Increased fluid intake alone (>2 liters or >3 liters per day) or no treatment
O (Outcomes) **Anticipated outcomes**	Efficacy outcomes: ● Stone-free rate (≤7 days, 8 to 15 days, 16 to 30 days); by dissolution, expulsion ● Time-to-stone-free status ● Re-treatment rate (need for second intervention) ● Pain relief Safety outcome: ● Adverse events (e.g., hyperkalemia, GI upset in susceptible individuals, hyperglycemia) ● Development of new stones
Subgroups (If necessary)	By stone composition By stone burden (size of the stone) By stone location (nephrolithiasis, ureteral stone)

Guideline Question 7.	Should Rowatinex be used in patients consulting for urolithiasis with a total stone burden less than 1 cm?
Review Question 7.	In people consulting for urolithiasis with a total stone burden <1 cm, how effective and safe is Rowatinex compared with no treatment on stone-free rate (by ≤7 days, 8 to 15 days, and 16 to 30 days), time to stone dissolution, adverse events, and re-treatment rate?
P (Population)	In people consulting for urolithiasis
I (Intervention)	Pinene (α + β), 15 mg of Camphene, 3 mg of Cineol, 4 mg of Fenchone, 10 mg of Borneol, 4 mg of Anethol and 33 mg of Olive Oil alone or as add-on to usual care
C (Comparator)	Usual care
O (Outcomes) **Anticipated outcomes**	Efficacy outcomes: ● Stone-free rate (≤7 days, 8–15 days, 16–30 days) ● Time to stone free status ● Re-treatment rate (need for second intervention) ● Episodes of renal colic / acute flank pain / ER consult due to pain Safety outcome: ● Adverse events (e.g., GI symptoms, allergic reactions)
Subgroups (If necessary)	By stone burden By stone location (Nephrolithiasis; Include ureteral stones in search)

Guideline Question 8. **Should A* be used in patients with <insert here>?**	Should Sambong be used in patients consulting for urolithiasis with a total stone burden less than 1 cm?
Review Question 8.	In people consulting for urolithiasis with a total stone burden <1 cm, how effective is Sambong alone or as add-on to usual care compared with usual care or no treatment on stone-free rate (by ≤7 days, 8 to 15 days and 16 to 30 days), time to stone dissolution, adverse events and re-treatment rate?
P (Population)	Patients consulting for urolithiaisis with a total stone burden <1 cm
I (Intervention)	Sambong alone or as add-on to usual care
C (Comparator)	Usual care
O (Outcomes) **Anticipated outcomes**	Efficacy outcomes: ● Stone-free rate (e.g., ≤7 days, 8 to 15 days, 16 to 30 days) ● Time-to-stone-free status ● Re-treatment rate (need for second intervention) ● Change in stone burden ● Pain relief Safety outcome: ● Adverse events (e.g., allergic reactions, gastrointestinal symptoms, hepatotoxicity)
Subgroups (If necessary)	By stone burden By stone location (Include ureteral stones in search; nephrolithiasis)

Guideline Question 9.	Should sodium citrate be used instead of potassium citrate in patients consulting for urolithiasis?
Review Question 9.	In people consulting for urolithiasis, how effective is sodium citrate compared with potassium citrate on stone-free rate (by ≤7 days, 8 to 15 days, and 16 to 30 days), time to stone dissolution, adverse events and re-treatment rate?
P (Population)	Patients consulting for urolithiasis
I (Intervention)	Sodium citrate
C (Comparator)	Potassium citrate
O (Outcomes) **Anticipated outcomes**	Efficacy outcomes: ● Stone-free rate (≤7 days, 8 to 15 days, 16 to 30 days) ● Time-to-stone-free status ● Re-treatment rate (need for second intervention) ● Change in stone size ● Pain relief Safety outcome: ● Adverse events (e.g., gastrointestinal discomfort, electrolyte disturbances) ● Lack of efficacy due to discontinuation/drop-out for any reason
Subgroups (If necessary)	Stone burden Stone location

Guideline Question 10.	Should extracorporeal shockwave lithotripsy (ESWL) be used in patients with nephrolithiasis with a total stone burden between 1 to 2 cm?
Review Question 10.	In patients with nephrolithiasis with a total stone burden between 1 to 2 cm, how effective is extracorporeal shockwave lithotripsy (ESWL) compared with other minimally invasive stone treatments (retrograde intrarenal surgery, percutaneous nephrolithotripsy, mini-percutaneous nephrolithotripsy, or laparoscopy) on stone-free rate (by ≤7 days, 8 to 15 days, and 16 to 30 days), time to stone dissolution, adverse events and re-treatment rate?
P (Population)	Patients with nephrolithiasis with a total stone burden between 1 to 2 cm
I (Intervention)	Extracorporeal shockwave lithotripsy (ESWL)
C (Comparator)	Other minimally invasive treatments: ● Retrograde intrarenal surgery (RIRS) ● Percutaneous nephrolithotripsy (PCNL) ● Mini-percutaneous nephrolithotripsy (Mini-PCNL) ● Laparoscopy
O (Outcomes) **Anticipated outcomes**	Efficacy outcomes: ● Stone-free rate (≤7 days, 8 to 15 days, 16 to 30 days) ● Time-to-stone-free status ● Re-treatment rate (need for second intervention) Safety outcome: ● Adverse events (e.g., bleeding, infection, renal trauma, anesthesia-related risks)
Subgroups (If necessary)	● Stone location (inferior pole versus non-inferior pole) ● Stone composition (HU) ● Comparison MIS modality

Evidence Review Questions Formulation

Once the clinical questions to be addressed by the guidelines are finalized, the Technical Lead, in coordination with the Steering Committee (SC), will develop the corresponding evidence review questions using the PICO (Population, Intervention, Comparator, Outcome) or PIRT (Population, Index Test, Reference Standard, Target Outcome) format, depending on whether the question pertains to therapy or diagnosis.

Each PICO/PIRT question will specify:

- The patient population
- The intervention or diagnostic test under consideration
- The comparator or alternative strategy
- The outcomes of interest

Following the development of these structured questions, a comprehensive list of outcomes across all clinical questions will be generated.

All proposed outcomes will then be rated for their importance to decision-making by the Guideline Panel members, using a 9-point GRADE scale:

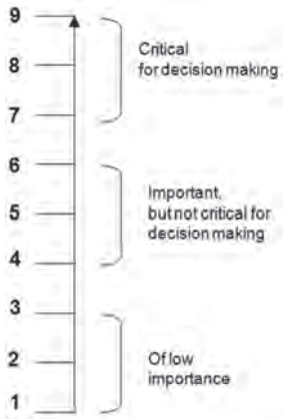

Figure 2. Interpretation of the numerical ranking for critical outcomes.

Guideline panelists will be asked to independently rate each outcome through an online or paper-based survey. The ratings will be averaged, and the critical outcomes with the highest mean scores will be prioritized.

For each guideline question, the top seven outcomes (ranked as most critical/important) will be retained for the evidence synthesis, certainty assessment and recommendation development, in accordance with the GRADE approach.

Evidence Review and Synthesis

Mode of CPG Development

The guideline will be developed through the GRADE Adolopment approach, allowing the CPG Task Force to adopt, adapt, or create de novo recommendations based on a systematic evaluation of existing guidelines and evidence bases.

Selection of Reference CPGs for Adoption/ Adaption

An extensive search for existing high-quality clinical practice guidelines was undertaken in June 2024 using MEDLINE via PubMed, Google Scholar, and the websites of major urological societies including the American Urological Association (AUA), European Association of Urology (EAU), Urological Association of Asia (UAA), Federation of ASEAN Urological Associations (FAUA), and national societies prioritizing those from Asian and LMIC (low- and middle-income country) contexts.

Candidate CPGs were appraised using the AGREE II tool[9] by at least two independent reviewers who are members of the PUA and Philippine Urological Residents Association (PURA), and the PUA-CPG Committee Chair Guidelines were considered eligible if they demonstrate good quality (≥75% score) in at least five AGREE II domains, without any failing scores (≤40%) in the Scope and Purpose and Rigor of Development domains. The average scores for each domain will be computed. The following quality assessment thresholds will be applied as per Table 1.

For CPGs assessed to be of good quality, the recommendations that address the proposed guideline questions will be identified. The quality and recency of the evidence review underpinning each recommendation will be assessed. The evidence-to-decision framework parameters considered in each recommendation will also be evaluated if these are similar and applicable to the local context.

The adaptation pathway will depend on the appraisal results:

- When both the evidence base and the evidence-to-decision framework parameters are found to be satisfactory, the recommendations will be adapted.
- If the evidence base is of sufficient quality but the evidence-to-decision framework elements are found to be unsatisfactory, new recommendations will be formulated by the guideline panel, using the evidenced base from the CPG.
- When both the evidenced base and evidence-to-decision framework parameters are deemed insufficient, a systematic review will be performed and new recommendations will be developed de novo.

The results of the guideline assessments will be presented as a separate publication.

Systematic Search Strategy

When existing high-quality clinical practice guidelines or systematic reviews do not provide direct

Table 1. Quality assessment thresholds for AGREE-II for CPGs

Domain	Good Quality Score	Failing Score
Scope and Purpose	≥ 75%	≤ 40%
Stakeholder Involvement	≥ 75%	≤ 40%
Rigor of Development	≥ 80%	≤ 40%
Clarity of Presentation	≥ 75%	≤ 40%
Applicability	≥ 75%	≤ 40%
Editorial Independence	≥ 75%	≤ 40%
Overall Quality Assessment	≥ 75%	≤ 40%

or applicable evidence for a specific clinical question, de novo systematic reviews and meta-analyses will be conducted. Literature searches will be performed in major international databases including MEDLINE (via PubMed), CENTRAL (Cochrane Central Register of Controlled Trials), and Google Scholar. Local databases such as HERDIN and the PCEDM registry of research outputs will also be consulted to identify relevant Philippine-based studies.

Search strategies will be designed around the structured PICO (Population, Intervention, Comparator, Outcome) or PIRT (for diagnostic questions) framework of each guideline question. Search terms will include both Medical Subject Headings (MeSH) and free-text keywords. Where needed, authors of relevant articles, particularly local research, will be contacted for full texts or clarifications. A separate strategy will be used to locate cost-effectiveness or economic evaluations where applicable.

Inclusion and Exclusion Criteria

Studies will be included if they are aligned with the structured PICO or PIRT questions and report patient-important outcomes identified as critical or important by the Guideline Panel. Studies that do not directly address the clinical question or that report surrogate or irrelevant outcomes will be excluded to maintain consistency and relevance.

Risk of Bias (Quality) Assessment of Included Studies

Quality and risk of bias assessments will be conducted using validated tools appropriate to the study design:

- AMSTAR-2 for systematic reviews[10]
- Cochrane RoB 2.0 tool for randomized controlled trials [11]
- ROBINS-I for non-randomized studies of interventions[12]
- QUADAS-2 for diagnostic accuracy studies[13]
- Newcastle-Ottawa Scale (NOS) for observational cohort and case-control studies[14]

Two reviewers will independently assess the risk of bias for each included study. Discrepancies will be resolved through consensus or by a third reviewer.

Data Extraction and Evidence Retrieval

A customized data extraction form will be used to systematically collect information on study characteristics and findings. The extracted data will include the study design and setting, sample size and population characteristics, details of the intervention and comparator, and the type of randomized controlled trial (e.g., superiority or non-inferiority). Key outcomes such as stone-free rates, recurrence, and adverse events will also be recorded, along with the results, effect estimates, and corresponding confidence intervals. Two reviewers will extract data independently, and any discrepancies will be resolved through discussion or, if necessary, adjudication by a third reviewer.

Synthesis of the Evidence

Where appropriate, meta-analyses will be performed using Review Manager (RevMan 5.0). Effect measures will include risk ratios (RR), odds ratios (OR), mean differences (MD), and 95% confidence intervals (CI), depending on the outcome type.

For diagnostic accuracy reviews, meta-analysis will be performed using MetaDisc 2.0. Pooled sensitivity and specificity using bivariate analysis (or univariate analysis when less than 4 studies are included).

In cases where meta-analysis is not appropriate due to heterogeneity in study design, populations, interventions, or outcome measurement, a narrative synthesis will be conducted. All synthesized evidence will be presented in GRADE Summary of Findings (SoF) tables.

Evidence Synthesis Using the GRADE Approach

The Evidence Review Experts (EREs) will evaluate the certainty of the evidence for each outcome individually. An overall certainty rating for the body of evidence will then be determined, anchored to the outcome with the lowest certainty among those rated as critical to decision-making. This rating reflects the confidence in the estimated effect and whether it is sufficient to support a recommendation.

GRADE categorizes evidence into four levels of certainty: High, Moderate, Low and Very

Low. Evidence from randomized controlled trials (RCTs) begins as high certainty, while evidence from observational studies starts at low certainty due to the possibility of residual confounding. The interpretation of each certainty level is summarized below:

Once the initial certainty is established (e.g., high for RCTs), the rating may be downgraded or upgraded based on specific domains. The certainty can be lowered due to: (1) risk of bias from individual study limitations, (2) imprecision of the effect estimate (e.g., wide confidence intervals), (3) inconsistency in results across studies, (4) indirectness of evidence relative to the population or interventions of interest, and (5) publication bias, especially when evidence may be missing or selectively reported. On the other hand, certainty may be upgraded (only for observational studies) if there is a large effect size, a dose-response gradient, or if it is unlikely that confounding influenced the observed outcome.

Since GRADE assesses the body of evidence at the outcome level, the EREs will determine whether any substantial bias in individual studies diminishes confidence in the pooled estimate of effect. Imprecision will be a concern when the 95% confidence interval spans a range that might change clinical decisions depending on the actual effect. Certainty may also be downgraded when only a few small studies contribute to the evidence or when the number of events is limited.

To assess inconsistency, the variation in point estimates and the overlap of their confidence intervals will be reviewed, using heterogeneity statistics such as I^2 and the chi-square test. Indirectness will be considered when the studies do not align with the population, intervention, or outcomes relevant to the Philippine context—for example, if the population studied differs significantly from Filipino patients or if surrogate outcomes are reported instead of direct clinical outcomes.

Publication bias will be assessed by examining potential missing studies, using visual tools such as funnel plots and statistical indicators. Factors such as study size (small vs. large), study design (experimental vs. observational), time-to-publication (lag bias), and comprehensiveness of the search strategy will also be considered in evaluating the risk of bias due to selective publication.

Use of the Core GRADE Framework

In addition to the standard GRADE domains, assessments will incorporate Core GRADE principles as outlined in the updated 2025 BMJ series[15–18]. Core GRADE emphasizes explicitly defining the target of certainty rating—whether the goal is to determine the presence of any true effect (using the null threshold) or to assess whether the effect is important from the patient's perspective (using the minimal important difference, MID). This distinction guides how imprecision and inconsistency are interpreted. For imprecision, Core GRADE recommends downgrading if the confidence interval crosses the relevant threshold and provides structured rules for assessing the optimal information size (OIS)[17]. For inconsistency, Core GRADE users assess the variation in point estimates and CI overlap in relation to the chosen threshold and explore potential sources of heterogeneity using a priori subgroup

Table 2. GRADE categories of certainty of evidence.

Certainty of Evidence	Interpretation
Very low ⊕◯◯◯	The true effect is probably markedly different from the estimated effect [the estimate of the effect is very uncertain].
Low ⊕⊕◯◯	The true effect might be markedly different from the estimated effect [further research is very likely to have an important impact].
Moderate ⊕⊕⊕◯	The true effect is probably close to the estimated effect [further research is likely to have an important impact].
High ⊕⊕⊕⊕	The authors have a lot of confidence that the true effect is similar to the estimated effect [further research is unlikely to change our confidence in the estimate of the effect].

hypotheses. This structured and patient-centered approach ensures the certainty rating is meaningful for decision-making, especially within the Philippine clinical context.

Core GRADE also provides updated guidance on assessing risk of bias, publication bias and reasons for rating up certainty. For risk of bias, it emphasizes evaluating the proportion of evidence from studies at high risk and considering the impact on the overall effect estimate. Publication bias assessment includes examining the likelihood of missing studies and their potential influence on the results. Additionally, Core GRADE outlines criteria for upgrading certainty in observational studies, such as the presence of a large effect size, a dose-response gradient, or if all plausible confounding would reduce a demonstrated effect[18].

Evidence to Recommendation

For each clinical question, recommendations will be developed using the GRADE Evidence-to-Decision (EtD) framework, supported by the GRADEpro online software (https://www.gradepro.org). The Evidence Review Experts (EREs) will generate a Summary of Findings (SoF) table for each outcome, summarizing the best available evidence and assigning an overall certainty rating. These SoF tables will be presented to the expert panel during the recommendation formulation phase.

The EtD framework will guide the panel in translating evidence into actionable recommendations, taking into account several key domains (See Appendix 3 and 4), including:

- Importance and rationale of the question
- Evidence of test accuracy (for diagnostic questions)
- Evidence of benefit versus harm, including net benefit or harm
- Certainty of the evidence for benefit and harm
- Resource use, costs, and cost-effectiveness
- Availability and accessibility of the intervention
- Values and preferences of patients and providers

The Evidence Reviewers will supply relevant research evidence for each of these domains, as applicable to the clinical question at hand.

Determining the Direction and Strength of Recommendations

During consensus meetings, the wording and strength of each recommendation will be decided by the panel through deliberation and voting. The panel will consider the domains listed in Table 7 to guide their judgments:

Basic Policy for Formulating Recommendations

The Guideline Panelists will be provided with the evidence summaries at least two weeks

Table 3. Domains that contribute to the strength of a recommendation.

Domain	Comment
Balance between desirable and undesirable outcomes (trade-offs) e.g. prevention of complications of diabetes versus adverse effects of drugs, taking into account: - Best estimates of the magnitude of effects on desirable & undesirable outcomes - Importance of outcomes (estimated typical values and preferences).	The larger the differences between desirable and undesirable outcomes, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely is a weak recommendation warranted.
Confidence in the magnitude of estimates of effect of the interventions on important outcomes (overall quality of evidence for outcomes)	The higher the quality of evidence, the more likely a strong recommendation is warranted.
Confidence in values and preferences, and their variability	The greater the variability in values and references, or uncertainty about typical values and preferences, the more likely a weak recommendation is made.
Resource use.	The higher the cost of an intervention (the more resources consumed), the less likely a strong recommendation is warranted.

Source: Schünemann H, Brożek J, Guyatt G, and OxmanA (eds). GRADE Handbook. October 2013.

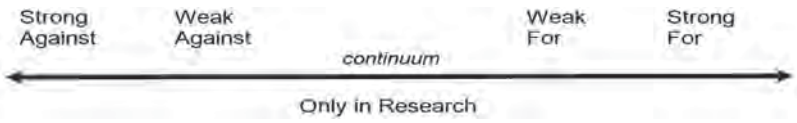

Figure 3. Strength of recommendation: a continuum divided into categories.

before the scheduled consensus panel meeting. In addition, the GRADE EtD worksheets for each of the guideline question will also be provided and Panelists will provide their insights and judgements for each parameter. Their completed worksheets will be consolidated and presented during the Guideline Panel Consensus meeting to serve as discussion take off points.

The recommendation for each question and its strength will be determined through voting. A consensus decision is considered reached if 75% of all voting Guideline Panel members agree, in accordance with the Department of Health Philippines Manual for Clinical Practice Guideline Development (2018)[19]. If consensus is not achieved in the first round of voting, further discussion and clarification will be encouraged. Up to two additional rounds of voting will be conducted to try to reach consensus. If consensus still cannot be reached after three rounds, a Delphi method of anonymous voting will be implemented as outlined in the manual.

A strong recommendation means that the panel is "confident that the desirable effects of adherence to a recommendation outweigh the undesirable effects" while a weak recommendation means that the "desirable effects of adherence to a recommendation probably outweigh the undesirable effect but is not confident."

Barriers and Facilitators

As part of the CPG development process, the Task Force will proactively identify and document potential facilitators and barriers to the future implementation of the Philippine Urolithiasis Clinical Practice Guideline (PUA CPG). Information on these factors will be gathered through structured discussions with the Guideline Development Group (GDG), as well as targeted engagements with other key stakeholders, including practicing urologists, primary care providers, hospital administrators and representatives from government agencies and patient groups.

Feedback will be obtained through online surveys, key informant interviews, and consensus panel deliberations. These activities will explore real-world enablers and challenges related to diagnostic capacity, referral pathways, surgical services, preventive care and reimbursement.

Anticipated facilitators may include:

- Strong support and leadership from the Philippine Urological Association (PUA)
- Availability of trained specialists and increasing interest in guideline-concordant care
- Government programs that provide financial assistance for diagnostics and procedures (e.g., MAIP, PhilHealth coverage)
- Integration of guideline content into residency training programs and institutional protocols

Potential barriers may include:

- Limited availability of imaging modalities (e.g., non-contrast CT scan) and metabolic evaluation in primary or secondary-level hospitals
- Out-of-pocket payment for diagnostics, surgery and maintenance therapy
- Variability in clinician familiarity with current evidence and management approaches, especially in remote areas
- Lack of standardized referral systems for complex cases or post-surgical follow-up
- Limited access to dietary counseling and stone analysis laboratories

Insights gathered on these facilitators and barriers will inform the value judgments of the consensus panel during the formulation of recommendation statements. They will be considered within the Evidence-to-Decision (EtD) framework, particularly for judgments on feasibility, acceptability and equity. These contextual factors will also guide implementation planning and help identify areas for future system strengthening and support.

Finalization of the CPG Manuscript

Writing the CPG Manuscript

The Clinical Practice Guideline (CPG) manuscript will be developed in accordance with the Department of Health Manual for Clinical Practice Guideline Development (2025 version). The Technical Writer will be responsible for drafting the manuscript by consolidating all finalized evidence summaries, consensus panel proceedings and other relevant documentation.

Throughout the writing process, the Technical Writer will work in close coordination with the Technical Lead and members of the Steering Committee (SC) to ensure that the content is accurate, complete and reflective of the discussions and decisions made during the guideline development process. This includes ensuring consistency in structure, appropriate use of GRADE terminology, and clear articulation of recommendations and justifications.

Once the initial draft of the CPG manuscript is completed, it will undergo internal review and be submitted to the SC Chair for approval. Upon endorsement, the manuscript will then proceed to external review in accordance with established procedures.

External Review

The draft Philippine Urolithiasis Clinical Practice Guideline (PUA CPG) will undergo a structured external review prior to its finalization and submission to the Department of Health (DOH) for inclusion in the national Compendium of Clinical Practice Guidelines. This review aims to enhance the overall quality and relevance of the guideline by incorporating expert feedback on the clarity, acceptability and implementability of the draft recommendations, as well as to ensure that the evidence is appropriately contextualized to urologic practice in the Philippines.

Methods of External Review

At least two independent external reviewers will be invited by the Steering Committee to evaluate the draft CPG using the AGREE-REX (Appraisal of Guidelines Research and Evaluation–Recommendation Excellence) tool and/or AGREE-II tool. One external reviewer will be a urologist who was not involved in the guideline development process. The other will be a non-urologist, to provide perspectives from a broader clinical or health systems lens.

External reviewers will be selected based on their professional expertise, independence from the CPG Task Force, and familiarity with clinical practice or health policy in the Philippine context. Their input will reflect both content-specific and methodological considerations, ensuring that the recommendations are sound, implementable, and responsive to local health system needs.

If the timing of the draft CPG's completion coincides with the Philippine Urological Association (PUA) Annual Convention, the draft recommendations will be presented to convention attendees. Feedback from participants will be documented and considered as part of the external review process. In addition, the draft manuscript will be submitted to the University of the Philippines Manila – Institute of Clinical Epidemiology for an independent review focused on methodological rigor, evidence synthesis, and adherence to national CPG development standards.

Use of Feedback in Finalization of the CPG

All feedback from external reviewers will be consolidated by the Technical Working Group and reviewed by the Steering Committee. Suggestions that improve the clarity, contextual relevance, or applicability of the recommendations will be integrated into the final guideline. For conflicting inputs, the Steering Committee will deliberate and make consensus-based decisions grounded in evidence, clinical judgment and methodological standards.

Implementation

Dissemination

The final version of the Urolithiasis Clinical Practice Guideline will be submitted to the Department of Health – Disease Prevention and Control Bureau (DOH-DPCB) for official review and

inclusion in the national Compendium of Clinical Practice Guidelines. Upon acceptance, it will also be made available for public access through the DOH website.

Digital copies of the full CPG will be disseminated to all institutions, professional societies and stakeholders that participated in the development of the guideline, including PhilHealth and selected health maintenance organizations (HMOs). These partner organizations will be encouraged to cascade the guideline to their respective networks and memberships to facilitate broader reach and implementation.

An abbreviated version of the CPG, including selected recommendations and supporting evidence summaries, will be submitted for publication in the Philippine Journal of Urology. The complete CPG manuscript will also be uploaded on the official website and social media platforms of the Philippine Urological Association (PUA) to ensure open public access.

Additional dissemination strategies may include media releases, online webinars, social media campaigns and dedicated presentations during annual scientific conferences of the PUA and other relevant medical societies.

Updating of the Guidelines

The Philippine Urolithiasis Clinical Practice Guideline will be reviewed and updated every three (3) years following its publication (i.e., next update by 2028), or earlier if warranted by new, high-certainty evidence from large-scale clinical trials, changes in the standard of care, the introduction of new technologies or interventions, revisions in national policies or clinical resources, or shifts in the values placed on patient outcomes. The Steering Committee will initiate the update process and oversee its implementation in coordination with the Department of Health (DOH), which may also recommend interim updates based on ongoing guideline relevance assessments.

The update process will follow the Department of Health Manual for Clinical Practice Guideline Development (2025 version), employing the GRADE approach for assessing the certainty of evidence and determining the strength of recommendations. If applicable, the GRADE-Adolopment approach and the Evidence-to-Decision (EtD) framework will be utilized to efficiently adapt and finalize revised recommendations.

Logistics and Resources

Funding Sources and Other Support

The PUA Urolithiaisis CPG development project is funded by the Philippine Urological Association. Logistical support to the CPG Task Force will be provided by the PUA Secretariat and the PUA CPG Committee. Technical assistance from the Institute of Clinical Epidemiology of the National Institutes of Health - University of the Philippines Manila will be sought through a critical review of the CPG protocol, the evidence summaries and the final CPG manuscript.

The PUA Executive Committee will not have any influence in the prioritization of the guideline questions and in the formulation of the recommendations of the CPG.

Budget

The PUA Urolithiasis CPG development project will work on a budget amounting to Php 1,200,000.00

Timelines / gantt chart

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Organization of working groups												
Selection of questions												
Completion of CPG protocol												
Evidence review												
SC review of evidence summaries												
Guideline panel meeting												
CPG manuscript draft and review												
Submission to CPG to DOH												

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Appendices

Appendix 1 PUA-CPG COI Policy

PUA-CPG Committee Conflict of Interest Management Policy May 2024

This document details how the conflict of interests of the members of the Philippine Urological Association - Clinical Practice Guideline (PUA CPG) Task Force will be reviewed and managed. The policies within will be implemented by the Conflict of Interest (COI) Review Committee convened for each PUA-CPG Task Force.

Definition of Terms

1. Commercial entity – any group that manufactures, distributes, markets or sells, for profit, drugs, devices, equipment and services related to the condiGon of interest
2. CPG task force member nominee – an individual considered to take on a role in a PUA-CPG development project

COI Declaration, Review and Management Policies
The COI Review Committee

1. A COI Review Committee will be convened for each CPG development project.
2. The Committee will be composed of at least three members who are not PUA or Philippine Urological Residents Association (PURA) members.
3. The Committee will review the curriculum vitae and the declaratIon of conflict-of- interest forms of all the CPG task force member nominees and provide recommendations on the management of the COIs in the context of the role of the nominee in the project.

Declaration of COIs

1. All CPG task force member nominees shall fill up the PUA-CPG Conflict-of-Interest Form completely (see accompanying form).
2. Which COIs to declare
    a. Direct Financial Interests:
        i. employment in commercial entities
        ii. consulting services including, but not limited to, payment of honorarium for speakership, advisory board membership, technical consultancy by any commercial entity
        iii. ownership and investment including, but not limited to, proprietorship, board membership, holder of stocks of a commercial entity
        iv. research support including the provision of commissioned research grants by a commercial entity or receipt of solicited research grant from a commercial entity; this excludes research grants received as a result of winning a competition organized by a non-commercial entity which received an unrestricted grant from a commercial entity supporting the competition
        v. other academic and non-academic grants such as sponsorship for attendance to conferences, meetings (registration and/or travel and/or accommodation), sponsorship for sports events, etc
    b. Indirect / Non-financial Interests
        i. Intellectual property including any patent, copyright, trademark of products, processes, tools and other materials related to the topic of the CPG
        ii. Public statements and positions related to the topic of the CPG
3. Who should be covered by the declaration: The COI declaration should include the CPG task force nominee himself/herself and his/her immediate family relations (i.e. spouse, children and parents)
4. When is the covered period: All potential COIs in the recent one (1) year should be declared. Any new potential COIs that may arise during the guideline development process must be declared.
5. When is the declaration period: The declaration should be made at the beginning of the CPG development project and updated before the consensus panel meeting, if necessary.

COI Management Policies

1. The COI Review Committee will make its recommendations regarding the management of COI as follows:
    a. Allowed – the nominee can participate in all activities attendant to the assigned CPG task force role
    b. Broadcast – the nominee must disclose relevant COIs prior to CPG activities attendant to the role, particularly at the beginning of the consensus panel meetings
    c. Restricted – the nominee can participate in all the discussions but is not allowed to vote on recommendations on the specific topic of interest of the relevant COI
    d. Disallowed – the nominee cannot take on the assigned role due to significant COI
2. The PUA-CPG Guidelines Committee, as the CPG convenor, will appoint the members of the CPG task force, in consideration of the assessment and recommendations of the COI Review Committee and the provisions of the PUA-CPG Committee Management Policy.
3. The Steering Committee chair should have no financial COI, as much as possible. If no other person is identified to take on this role, he/she may have a financial COI but must have a co-chair with no financial COI.
4. Majority (>50%) of the Steering Committee should have no financial COI.
5. Members of the technical working group should have no major financial COI but may have non-financial COI for the specific topic they are involved in
6. Consensus panel members who have financial COIs on a specific topic cannot vote on such. Non-financial COIs are allowed but need to be broadcasted.
7. When a new potential COI is declared by a CPG Development Group member, the COI Review Committee will reevaluate the member and provide recommendations regarding the continued participation of the member.

Appeals Process

Decisions by the COI Review Committee may be appealed through a written request. The submitting nominee or the

PUA-Guidelines Committee should include any additional information and the potential justification for the appeal which will be re-evaluated by the COI Review Committee.

Appendix 2 - AGREE-II Assessments of CPGs

Domain	EAU	AUA	CUA Kidney	CUA Ureter	UAA
Scope and Purpose	93.70	85.71	85.00	74.57	80.95
Stakeholder Involvement	91.48	66.67	71.00	91.48	78.57
Rigor of Development	96.40	64.28	63.33	61.73	81.25
Clarity of Presentation	100.00	76.19	77.62	93.66	100.00
Applicability	61.90	35.71	54.14	35.07	78.57
Editorial Independence	50.00	78.57	71.43	52.35	85.71

Appendix Table 1. Summary of Agree-II CPG Domain Scores (in %)

Guideline: Medical Management of Kidney Stones: AUA Guideline

Guideline Developer: American Urological Association
Guideline Date: Published 2014; Reviewed and Confirmed Validity 2019
Assessors: Tagra JB, Alip SL
References / Source Documents Reviewed:

1. Pearle MS, Goldfarb DS, Assimos DG, Curhan G, Denu-Ciocca CJ, Matlaga BR, Monga M, Penniston KL, Preminger GM, Turk TMT & White JR. Medical management of kidney stones: AUA guideline. J Urol 2014; 192(2): 316–24. https://doi.org/10.1016/j.juro.2014.05.006
2. Unabridged guideline available online at https://www.auanet.org/documents/education/clinical-guidance/Medical-Management-of-Kidney-Stones.pdf
3. Guideline information available online at https://www.auanet.org/guidelines-and-quality/guidelines/kidney-stones-medical-mangement-guideline

Domain 1. Scope and Purpose
Over-all Domain Score: 85.71%

1. The overall objective(s) of the guideline is(are)specifically described.
   Average Score: 6
   References: Ref 1, Ref 2
   Comment:
   - The guideline clearly describes its objectives, focusing on the medical management of kidney stones, including evaluation, prevention, treatment and follow up
2. The health question(s) covered by the guideline is(are) specifically described.
   Average Score: 7
   References: Ref 1, Ref 2
   Comment:
   - The guideline has listed various recommendations for the medical management of kidney stones organized into evaluation, diet therapy, pharmacologic therapy and follow up
3. The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described.
   Average Score: 5
   References: Ref 1, Ref 2
   Comment:
   - The guideline has listed detailed recommendations for each target population of specific condition but could be further improved to include other characteristics.

Domain 2 : Stakeholder Involvement
Over-all Domain Score: 66.67%

1. The guideline development group includes individuals from all relevant professional groups.
   Average Score: 5
   References: Ref 1, Ref 2, Ref 3 under Section Panel Members
   Comments:
   - The guideline has included the process of panel selection and peer review process. However, it does not directly state the member's field of expertise but have stated that they included subject matter experts and reviewers of varying background in the development of the guideline
   - No details on CPG Working Group members save for affiliation
2. The views and preferences of the target population (patients, public, etc.) have been sought.
   Average Score: 3
   References: Ref 1, Ref 2
   Comment:
   - The guideline did not mention patient involvement in the development of the guideline.
3. Target users of the guideline are clearly defined.
   Average Score: 6
   References: Ref 1, Ref 2
   Comment:
   - Each guideline statement states the specific target population for each recommendation but could be further improved

Domain 3 : Rigour of Development
Over-all Domain Score: 64.28%

1. Systematic methods were used to search for evidence.
   Average Score: 6
   References: Ref 1, Ref 2
   Comment:
   - The guideline has stated in the methodology the steps and source of collecting evidence used for review and data extraction
2. The criteria for selecting the evidence are clearly described.
   Average Score: 6
   References: Ref 1, Ref 2
   Comment:
   - The guideline has specified in their methodology the process of evidence selection including the inclusion and exclusion criteria
3. The strengths and limitations of the body of evidence are clearly described.
   Average Score: 6
   References: Ref 1, Ref 2
   Comment:
   - The guideline discussed in the methodology the strength and limitation of the body of evidence as well

as stated specific tools used in classifying the quality of the studies and determination of evidence strength.

4. The methods for formulating the recommendations are clearly described.
   Average Score: 3
   References: Ref 1, Ref 2
   Comments:
   - The guideline discussed the method of classifying their recommendations vaguely depending on the risk to benefit ratio but has not thoroughly run through its development process
   - No evidence to decision tables, no publicly-accessible protocol available for review
5. The health benefits, side effects and risks have been considered in formulating the recommendations.
   Average Score: 4
   References: Ref 1, Ref 2
   Comment:
   - The guideline has discussed the benefits, side effects and risks of each particular recommendation on the discussion part. All of which are considered to reflect on the AUA Nomenclature System but was not thoroughly discussed
6. There is an explicit link between the recommendations and the supporting evidence.
   Average Score: 5
   References: Ref 1, Ref 2
   Comments:
   - Each recommendation is followed by supporting reference to the evidence that forms the basis of the recommendation as superscripted in the statement
   - No evidence to decision tables, no publicly-accessible protocol available for review
7. The guideline has been externally reviewed by experts prior to its publication.
   Average Score: 4
   References: Ref 1, Ref 2
   Comments:
   - The guideline stated that the AUA underwent an extensive peer review process but has not stated the details in the selection of the reviewers and their expertise. Although, they have vaguely discussed that the panel reviewed and discussed all submitted comments and revised the draft as needed.
   - No methodology for specific external review.
8. A procedure for updating the guideline is provided.
   Average Score: 2
   References: Ref 1, Ref 2
   Comment:
   - There was no mention regarding the methodology or timing of the update of the guideline. Although, this particular guideline has been published last 2014 and has been again reviewed and validated last 2019.

Domain 4 : Clarity of Presentation
Over-all Domain Score: 76.19%

1. The recommendations are specific and unambiguous.
   Average Score: 6
   References: Ref 1, Ref 2
   Comment:
   - Each recommendation is thoroughly discussed and explained under the discussion portion of each guideline statement
2. The different options for management of the condition or health issue are clearly presented.
   Average Score: 4
   References: Ref 1, Ref 2
   Comment:
   - The guideline was not able to provide a variety of options since all statements were focused only on medical management of stones.
3. Key recommendations are easily identifiable.
   Average Score: 6
   References: Ref 1, Ref 2
   Comment:
   - Key recommendations are listed on the first page of the guidelines with the specific evidence strength based on the AUA Nomenclature System and are divided to evaluation, diet therapy, pharmacologic therapy and follow-up, respectively

Domain 5 : Applicability
Over-all Domain Score: 35.71%

1. The guideline describes facilitators and barriers to its application.
   Average Score: 3
   References: Ref 1, Ref 2
   Comment:
   - Some of the guideline statements includes the facilitator and barriers/ hindrance of its application. They seldom provide an alternative in such difficulties.
2. The guideline provides advice and/or tools on how the recommendations can be put into practice. 3
   Average Score: 3
   References: Ref 1, Ref 2
   Comment:
   - Most of the guideline statements are straightforward and advice/tools on how these recommendations can be put into practice are rarely tackled since it's direct
3. The potential resource implications of applying the implications have been considered.
   Average Score: 2
   References: Ref 1, Ref 2
   Comment:
   - No breakdown of the budgeting and costing were discussed in the guideline. However, they have lifted several literature regarding the healthcare cost of having nephrolithiasis but not cost information of the recommendation per se.
4. The guideline presents monitoring and/or audit criteria.
   Average Score: 2
   References: Ref 1, Ref 2, Ref 3
   Comment:
   - There was no mention in the guideline regarding monitoring and/or auditing criteria. However, since its publication in 2014, it has been reviewed and re-validated in 2019 showing a possible monitoring scheme and intent of auditing the guideline eventually.

Domain 6. Editorial Independence
Over-all Domain Score: 78.57%

1. The views of the funding body have not influenced the content of the guideline.
   Average Score: 5
   References: Ref 1, Ref 2
   Comment:
   - Funding of the committee was provided by the AUA and the committee members received no remuneration for their work. No external sponsorship was mentioned in the guideline.
2. Competing interests of guideline development group members have been recorded and addressed.
   Average Score: 6
   References: Ref 1, Ref 2
   Comment:
   - Panel members provided an ongoing conflict of interest disclosure and providing specific details through the AUA interactive website. These conflict of interest statements were further reviewed the Guidelines Oversight Committee and approved by the AUA Judicial and Ethics (J&E) Committee. A majority of panel members may not have relationships relevant to the guideline topic.

Guideline: Canadian Urological Association Guideline: Evaluation and Medical Management of Kidney Stones
Guideline Developer: European Association of Urology Guidelines Office – Urolithiasis Panel Guideline Date: 2022
Assessors: Achacoso JRP, Villanueva JOB, Guy MJ
References / Source Documents Reviewed:

1. Bhojani N, Bjazevic J, Wallace B, et al. UPDATE – Canadian Urological Association guideline: Evaluation and medical management of kidney stones. CanUrol Assoc J 2022;16(6):175-88. http://dx.doi.org/10.5489/cuaj.7872

Domain 1. Scope and Purpose
Over-all Domain Score: 85%

1. The overall objective(s) of the guideline is(are)specifically described.
   Average Score: 6
   References: Ref 1 Page 175, 180 Par 16-23
   Comments:
   - The article clearly describes its objectives with specific goals and criteria for each
   - Each section has a specific criterion which can be easily used a basis for management
   - The guideline identified the target population specifically recurrent stone formers and pediatric patients.
   - The guideline identified the target population as those with recurrent stone illness. However, only for patients with recurrent stone illness, or patients with risk factors, not for the general population
2. The health question(s) covered by the guideline is(are) specifically described.
   Average Score: 6
   References: Ref 1 Page 176 Par 5, Page 180 Par 118
   Comments:
   - Pediatric age groups were also identified as risk stone formers. For patients with clinical history through the guidelines, age was suggested as when to undergo metabolic workup.
   - Patients who are high risk and in need for metabolic work up were identified and stated.
   - Each section has clearly stated criterion which can be easily used as basis for management
   - Discussions are well organized and detailed, management can be easily seen and used for specific population and/or disease
3. The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described.
   Average Score: 6
   Reference: Ref 1 Page 176, Par 5 16-23
   Comments:
   - The guideline appears well-written, with clear and concise descriptions. The targeted populations for metabolic evaluation are enumerated in a structured manner, making it easy for the reader to understand the specific groups at risk.
   - The guideline clearly stated indications for their proposed management with specific target population (considering the patient demographics, condition, severity of disease, and comorbidities).

Domain 2 : Stakeholder Involvement
Over-all Domain Score: 71%

1. The guideline development group includes individuals from all relevant professional groups.
   Average Score: 6
   Reference: Ref 1 Page 175, 185
   Comments:
   - Most of the information regarding each member of the development group was written. There were no description of member's role.
   - Competing interests were stated
   - The guideline was reviewed by CUA Guideline Committee and CUA Board of Directors
   - According to the published paper, the Canadian Urological Association guideline contains precise information about each member of the guideline development panel.
2. The views and preferences of the target population (patients, public, etc.) have been sought.
   Average Score: 5.5
   Reference: Ref 1 Page 177
   Comments
   - There is a sufficient amount of references used to make this guideline. However, there was only one citation of population survey mentioned but only as data on prevalence of kidney stones based on gender. No other surveys cited regarding management.
   - There was no section dedicated for discussion of methodology and/or outcomes of their management.
   - The technique employed involves a review of the literature on values and preferences, as well as evidence gathered from surveys and focus groups.

- Preferences and opinions were gathered through surveys, literature reviews, and focus groups. For example, data from patient interviews showed preferences for preventative medicine over surgery to prevent stone recurrence.

3. Target users of the guideline are clearly defined.
   Average Score: 3.5
   Reference: Ref 1 Page 177
   Comments:
   - No clear description of intended guideline audience or reader
   - This section explains the overall purpose and application of the guideline by healthcare practitioners and its population.

Domain 3 : Rigour of Development
Over-all Domain Score: 63.33%

1. Systematic methods were used to search for evidence.
   Average Score: 6
   Reference: Page 176
   Comments:
   - The criteria employed literature reviews from 11,640 international papers that were reviewed, and 293 were selected as part of the study.
   - The guideline used PubMed search from January 01 2015 to July 01, 2021 using 6 phrases/ search terms, yielding about 11 640 article titles. The full search strategy was included.
2. The criteria for selecting the evidence are clearly described.
   Average Score: 4.66
   References: Ref 1 Page 175
   Comments:
   - The guideline was not able to specify their inclusion and exclusion criteria for each recommendation but was able to create a specific criterion based on specific recommendations.
   - The criteria employed literature reviews from 11,640 international papers that were reviewed, and 293 were selected as part of the study.
3. The strengths and limitations of the body of evidence are clearly described.
   Average Score: 4.66
   Reference: Ref 1 Page 175
   Comments:
   - All recommendations used in this guideline are evidence based
   - There were no strengths and limitations written in this guideline
   - The studies were analyzed and suggested based on oxford levels of evidence and Canadian Urology Association guidelines.
4. The methods for formulating the recommendations are clearly described.
   Average Score: 3.5
   Reference: Ref 1 Page 177
   Comments:
   - This was not discussed in the guideline
   - Guidelines and recommendations are clearly stated.
5. The health benefits, side effects, and risks have been considered in formulating the recommendations.
   Average Score: 4.33
   Reference: Page 176 Par 1
   Comment:
   - Evidence-based suggestion and grade were stated in each recommendations.
6. There is an explicit link between the recommendations and the supporting evidence.
   Average Score: 6.33
   Reference: Ref 1 Page 176-177
   Comments:
   - The document includes precise recommendations for various patient examinations and therapies, each with an associated evidence level (LE) and recommendation grade (Grade). For example, the prescription for basic metabolic screening comprises specific tests and is based on the LE 4 grade C recommendation. An in-depth metabolic examination is recommended for patients with risk factors for recurrent stone disease at LE 3, Grade C.
   - To support the principles presented, recommendations include specific studies and references.
7. The guideline has been externally reviewed by experts prior to its publication.
   Average Score: 4.33
   Reference: Page 176
8. A procedure for updating the guideline is provided.
   Average Score: 4.66
   Reference: Page 175
   Comments:
   - There was no statement regarding the next update of this guideline nor any criteria used for the next update
   - The methodology for the current update was clearly stated
   - The updated content in this paper is based on a review of English-language literature. A PubMed search was conducted from January 1, 2015 to July 1, 2021, using the following terms: 'nephrolithiasis,' 'urolithiasis,' 'kidney stone,''renal stone,' or 'urinary stone.' In total, 11,640 article titles were reviewed, and 293 were identified as potentially relevant for inclusion in the literature review for this guideline update.

Domain 4 : Clarity of Presentation
Over-all Domain Score: 77.62%

1. The recommendations are specific and unambiguous.
   Average Score: 6
   Reference: Ref 1 Page 177
   Comments:
   - The guideline includes a summary section which includes follow up information for patients. It is clear and specific with specific qualifiers.
   - The recommendations are specific and detailed.
2. The different options for management of the condition or health issue are clearly presented.
   Average Score: 5

Reference: Ref 1 Page 181
Comment:
- There were no alternative options or management written in this guideline

3. Key recommendations are easily identifiable.
Average Score: 5.3
Reference: Page 181
Comments:
- Several algorithms and tables were used to make the guideline easier to understand and remember.
- Every recommendations are clear and identifiable.

Domain 5 : Applicability
Over-all Domain Score: 54.14%

1. The guideline describes facilitators and barriers to its application.
Average Score: 4.33
Reference: Ref 1 Page 181 onwards
Comment:
- Guidelines included dosages specified for how to employ the right treatment recommendation.

2. The guideline provides advice and/or tools on how the recommendations can be put into practice.
Average Score: 3.5
Reference: Ref 1 Page 177 onwards
3. The potential resource implications of applying the implications have been considered.
Average Score: 3.33
Reference: Ref 1 Page 177
4. The guideline presents monitoring and/or audit criteria.
Average Score: 4
Reference: Ref 1 Page 185

Domain 6. Editorial Independence
Over-all Domain Score: 71.43%

1. The views of the funding body have not influenced the content of the guideline.
Average Score: 4
References: Ref 1 Page 185
Comments:
2. Competing interests of guideline development group members have been recorded and addressed.
Average Score: 6
References: Ref 1 Page 185
Comments:
- Competing interests were identified and written
- Competing interests were discussed beside the companies and the co-author's opinion.
- Competing interests were stated beside the companies and the co-author's stance. However, the impact of studies in which the firms sponsoring the research were not revealed

Guideline: Canadian Urological Association Guideline: Management of Ureteral Calculi
Guideline Developer: Canadian Urological Association
Guideline Date: August 2021
Assessors: Bandarlipe E, Roxas JEV, Binas TJ
Reference / Source Documents Reviewed:

1. Lee JY, Andonian S, Bhojani N, et al. Canadian Urological Association guideline:Management of ureteral calculi – Full-text. Can Urol Assoc J 2021;15(12):E676-90. http://dx.doi.org/10.5489/cuaj.7581

Domain 1. Scope and Purpose
Over-all Domain Score: 74.57%

1. The overall objective(s) of the guideline is(are)specifically described.
Average Score: 5
Reference: Ref 1 Page 1
Comments:
- objectives are not discussed in detail
- target population are only mentioned
- guidelines only formulated an introduction with no actual inclusion of a domain/scope/objectives

2. The health question(s) covered by the guideline is(are) specifically described.
Average Score: 5.33
Reference: Ref 1
Comments:
- no clear statement on target population but there are citations intervention and outcomes
- discussions are not organized separately per criteria
- all information given prior to recommendations have citations

3. The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described.
Average Score: 5.33
Reference: Ref 1
Comments:
- no specific population information can be found
- there is discussion for some specific population groups: anticoagulated pts, pregnant pts, pediatric pts
- guidelines were organized in a case to case basis which were based on results of RCTs, and these studies were well cited
- specific target population (e.g. pregnant women) were discussed in detail

Domain 2 : Stakeholder Involvement
Over-all Domain Score: 91.48%

1. The guideline development group includes individuals from all relevant professional groups.
Average Score: 4.33
Reference: Ref 1
Comments:
- content expertise are not specified for the stakeholders
- guidelines only included institution and location
- no notes specified but with paragraph outlining all interests in some of the panel members
- The panel members comprising the guidelines committee were described in detail, including their profession, institution of affiliation, however conflicts of interest were not clearly defined

2. The views and preferences of the target population (patients, public, etc.) have been sought.
Average Score: 5.66

Reference: Ref 1
Comments
- there are some citations of population surveys but only as part of the recommendation discussion
- no actual portion of the guidelines included target population perspectives/external review
- target population were somewhat defined , also stated were surveys done by these populations

3. Target users of the guideline are clearly defined.
   Average Score: 4
   Reference: Ref 1
   Comment:
   - guideline was written in a clear and concise manner, however target population was not specifically defined, only broadly discussed

Domain 3 : Rigour of Development
Over-all Domain Score: 61.73%

1. Systematic methods were used to search for evidence.
   Average Score: 5.67
   Reference: Ref 1
   Comments:
   - search strategies, time period and databases included
   - no search terms defined
   - screening criteria not specified
2. The criteria for selecting the evidence are clearly described.
   Average Score: 4
   Reference: Ref 1
   Comment:
   - No inclusion and exclusion criteria for evidence search mentioned. also the keywords used were not stated
3. The strengths and limitations of the body of evidence are clearly described.
   Average Score: 3.33
   Reference: Ref 1
   Comment:
   - level of evidence was stated however the exact limitations and strengths of the evidence were not clearly defined
4. The methods for formulating the recommendations are clearly described.
   Average Score: 4.67
   Reference: Ref 1
   Comment:
   - The recommendations were clearly stated as well as the studies or references where these recommendations were based. They also stated that it is a consensus of the authors involved.
5. The health benefits, side effects, and risks have been considered in formulating the recommendations.
   Average Score: 6.33
   Reference: Ref 1
   Comment:
   - these are discussed through the recommendation/ discussion citations
6. There is an explicit link between the recommendations and the supporting evidence.
   Average Score: 6
   Reference: Ref 1
   Comments:
   - each recommendation have evidence discussed
   - authors arranged in a way that the discussion (including evidences) preceded each recommendation
7. The guideline has been externally reviewed by experts prior to its publication.
   Average Score: 2.6
   Reference: Ref 1
   Comment:
   - they mentioned a single reviewer , however they did not specifically state that it was reviewed externally
8. A procedure for updating the guideline is provided.
   Average Score: 2
   Reference: Ref 1

Domain 4 : Clarity of Presentation
Over-all Domain Score: 93.66%

1. The recommendations are specific and unambiguous.
   Average Score: 6.67
   Reference: Ref 1
   Comment:
   - recommendations are clear and specific with inclusion of some caveats and qualifiers
2. The different options for management of the condition or health issue are clearly presented.
   Average Score: 6.33
   Reference: Ref 1
   Comments:
   - medical, minimally invasive, and endourological intervention were mentioned alongside their specific target population and use case scenarios.
   - guidelines generally compared the ff options in treatment ESWL, Medical mgt and Ureteroscopy
   - included recommendations for pts requiring special considerations
3. Key recommendations are easily identifiable.
   Average Score: 6.67
   Reference: Ref 1
   Comments:
   - descriptions are placed in bold text
   - no algorithms were placed but considerations for management were placed in text

Domain 5 : Applicability
Over-all Domain Score: 35.07%

1. The guideline describes facilitators and barriers to its application.
   Average Score: 2.33
   Reference: Ref 1
2. The guideline provides advice and/or tools on how the recommendations can be put into practice.
   Average Score: 2.66
   Reference: Ref 1
3. The potential resource implications of applying the implications have been considered.
   Average Score: 2.33
   Reference: Ref 1
   Comment:
   - Cost information was not included

4. The guideline presents monitoring and/or audit criteria.
   Average Score: 2.5
   Reference: Ref 1

Domain 6. Editorial Independence
Over-all Domain Score: 52.35%

1. The views of the funding body have not influenced the content of the guideline.
   Average Score: 3
   Reference: Ref 1
2. Competing interests of guideline development group members have been recorded and addressed.
   Average Score: 4.33
   Reference: Ref 1
   Comments:
   - interests of panel members were outlined but there is no content on conflicts and mitigation strategies
   - guideline members were specified but not their funding or conflicts of interests

Guideline: EAU Guidelines on Management of Urolithiasis (published online)
Guideline Developer: European Association of Urology Guidelines Office – Urolithiasis Panel Guideline Date: 2024
Assessors: Reyes DEA, Alip SKL
References / Source Documents Reviewed:

1. EAU Guidelines on Management of Urolithiasis (PDF published online full guideline) https://d56bochluxqnz.cloudfront.net/documents/full-guideline/EAU-Guidelines-on Urolithiasis-2024.pdf, accessed June 17, Sept 2)
2. EAU GO Systematic Review Handbook March 2022 version (PDF published online https://d56bochluxqnz.cloudfront.net/media/Guidelines_Systematic_review_handbo ok_website.pdf, Accessed Sept 2)
3. EAU GO Development Handbook (https://d56bochluxqnz.cloudfront.net/media/Guidelines_Office_Development_Handb ook_website.pdf Published online, Sept 2)
4. EAU Guidelines Office Strategy 2022 to 2027 (Published online, https://d56bochluxqnz.cloudfront.net/media/EAU_GO_strategy_2022_2027_final.pdf, accessed Sept 2)
5. EAU Guidelines Conflict of Interest Policy version 2022 (Published online https://d56bochluxqnz.cloudfront.net/media/Guidelines_COI_Policy_website.pdf, accessed Sept 2)
6. EAU Guidelines Patient Representative Handbook (Published online https://d56bochluxqnz.cloudfront.net/media/Guidelines_Office_Patient_Representative_Handbook_website. pdf, Accessed Sept 2)
7. EAU Guidelines UROLITHIASIS Search strategy (Published online https://d56bochluxqnz.cloudfront.net/documents/guideline appendices/urolithiasis/Search-Strategy-Urolithiasis-guidelines-2024.pdf, Sept 2)
8. Strength ratings forms (provided by EAU GO) https://www.dropbox.com/scl/fo/2gtnj4rm9uxmwpx4j6mnl/AA_C8dLfWhbEHxBgjcLRj4M?rlk ey=1k32lsupiyzeixkxt7i8o7jvw&dl=0
9. Panel Composition for UROLITHIASIS https://uroweb.org/guidelines/urolithiasis/panel 10. List of related peer-reviewed publications https://uroweb.org/guidelines/urolithiasis/publications-appendices

Domain 1. Scope and Purpose
Over-all Domain Score: 93.7%

1. The overall objective(s) of the guideline is(are)specifically described.
   Average Score: 7
   Reference: Ref 1, page 6-37
   Comments:
   - Addresses various health intents including prevention, screening, diagnosis, treatment, and management of urolithiasis. It offers strategies such as dietary modifications and increased fluid intake to prevent stone formation, guidance on appropriate screening in high-risk populations, and recommendations on diagnostic tools like CT scans and urine analysis. Treatment options, both medical and surgical, are tailored to individual patient needs and stone characteristics.
   - The expected benefits of following this guideline include improved patient outcomes through evidence-based practices that reduce stone recurrence rates, enhance pain management, and minimize complications. This approach not only aims to improve patient quality of life but also to decrease healthcare costs associated with urolithiasis management.
   - This guideline is well written with clear and concise descriptions. The criteria noted such as health intents, expected benefit or outcome and target population are all within the guidelines. The use of imaging modality depends on the patient's factors such as pregnancy, solitary kidney, transplanted kidneys, with urinary diversions, children those patients initially presenting as acute flank pain. Initial workups are also included in the guidelines which are all relevant in the diagnosis and treatment of patients with urolithiasis.
2. The health question(s) covered by the guideline is(are) specifically described.
   Average Score: 6.33
   Reference: Ref 1 Page 7-10, 6-38, page 50-62
   Comments:
   - Targets individuals across all stages of urolithiasis, including pediatric patients, pregnant women, and those with metabolic or anatomical predispositions. It emphasizes diagnostic approaches such as imaging and lab tests, and tailored therapeutic options including medications and surgeries. The guideline evaluatestreatment modalities, comparing efficacy and safety, and aims for improved clinical outcomes (reduced recurrence, pain relief), enhanced patient-reported outcomes (better quality of life, reduced anxiety), and optimized healthcare utilization across diverse settings from primary care to specialized urology and hospital environments.
   - The guideline showed the detailed summary of the treatment modalities needed with the corresponding level of evidence for each subset of patients we may encounter in the clinics. The guideline also presented easy to follow flowcharts when and what kind of

treatment armamentarium are we going to use for each type of patient considering the favorable and unfavorable factors met at the time of diagnosis.
- Health questions are implicit within each heading and subsection but are not explicitly stated

3. The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described.
   Average Score: 6.33
   Reference: Ref 1 Page 6-38
   Comments:
   - It provides recommendations from initial presentation to complex cases requiring surgery. The guideline considers comorbidities such as metabolic disorders and renal insufficiency that may affect treatment decisions. It also specifies populations where certain recommendations may not apply, such as pregnant women or individuals with specific contraindications to certain treatments.
   - As stated in the previous questions, the specificity of the subset of patients whom intervention is warranted was well covered. From the initial workups done to determine if what type of stone are we dealing with as well as the steps before we proceed with the endoscopic treatment we must perform after the initial workups done.
   - Although the general 'stone' population is stratified according to risk group (low/high), there is no statement in the beginning of the text detailing exclusion criteria.

Domain 2 : Stakeholder Involvement
Over-all Domain Score: 91.48%

1. The guideline development group includesindividualsfrom all relevant professional groups.
   Average Score: 6.0
   Reference: Ref 1, Page 1, 6, 75-116
   Comments:
   - The guidelines only stated that the panel consists of an international group with expertise in the area. No other information like institutions, geographical location, and members role were included in the online PDF
   - In this guideline, the specific name, discipline and or content expertise, institution, geographical location and a detailed description of the member´s role in the guideline developmental group were not shown specifically, however the detailed summary of the outcome including the references from various contributors for the guidelines were included.
2. The views and preferences of the target population (patients, public, etc.) have been sought.
   Average Score: 6.0
   Reference: Ref 1, Page 5-39
   - Development process likely incorporated patient and public views and preferences through participation of advocacy groups, literature reviews on patient values, and preferences related to urolithiasis. Methods included surveys, focus groups, and qualitative studies to gather information on treatment preferences, quality of life impacts, and patient concerns. This information informed guideline recommendations by integrating patient preferences, promoting shared decision-making, and enhancing guideline relevance for patients and caregiversinvolved in urolithiasis management.
   - The statement type of strategies used in capturing the public views and preferences as well as the methodologies, evidences from literatures, surveys and focus groups were all included. The use of percentages for the results such as stone free rates and overall complication rates for each treatment modality used was clearly stated.
   - The inclusion of a patient advocate in the Panel was not mentioned explicitly, unlike in other EAU guidelines. Panel composition explicitly states consisting of clinicians.
3. Target users of the guideline are clearly defined.
   Average Score: 7.0
   Reference: Ref 1, Page 6
   Comments:
   - Opening paragraph states that the guidelines are intended to help UROLOGISTS on evidence based management
   - The guideline clearly defined and outlined the algorithms and recommended treatments and work-up for each subset of patients showing the intended urologists who will encounter patients with urolithiasis.

Domain 3 : Rigour of Development
Over-all Domain Score: 96.4%

1. Systematic methods were used to search for evidence.
   Average Score: 6.67
   References: Ref 1, Page 15, 6, 75-116 Ref 7
   Comments:
   - Named evidence source where the search was performed, however no fullsearch strategy or search terms used was published in the PDF copy
   - The guideline gave a detailed list of the summary of the publications, citations and documents used to complete the paper. All documents are accessible through the EAU website and the links for the papers were provided.
   - Full search strategy available online as supplementary material (Ref 7)

2. The criteria for selecting the evidence are clearly described.
   Average Score: 6.67
   Reference: Ref 1, Page 6
   Comments:
   - Inclusion criteria encompass individuals of all ages and genders affected by urolithiasis, with specific attention to pediatric patients, pregnant women, and those with metabolic disorders predisposing to stone formation. Studies included range from systematic reviews of randomized controlled trials (RCTs) to meta-analyses and observational studies, evaluating various treatment modalities such as pharmacological versus surgical interventions and conservative versus invasive management.
   - The guideline clearly defines the various inclusion and exclusion criteria for each of the population defined including the study designs used, the overall quality

of the evidence which exists for the recommendation, the magnitude of the individual and combined effects to the patients, the certainty of the results, the balance between the desirable and undesirable outcomes as well as the impact and certainty of patient values and preferences on the intervention. Additional information regarding the general methodology link was also provided in the guideline presented.

3. The strengths and limitations of the body of evidence are clearly described.
   Average Score: 6.67
   Reference: Ref 1, Page 6
   Comments:
   - EAU explained well the strength of each recommendation however no description of how the body of evidence was evaluated for bias and how it was interpreted by members of the guideline development group was written
   - As previously mentioned above, the guideline provided frame descriptions of the study designs used, methodology and its limitations as done to come up with the guideline, the desirable and undesirable outcomes encountered, the consistency of results as reflected in the recommendations and evidences of such, the magnitude of the benefit vs. harm and the applicability of the guideline in the context of private practice were all written in the paper.
4. The methodsfor formulating the recommendations are clearly described.
   Average Score: 7.0
   Reference: Ref 1, Page 16
   Comments:
   - The process ensured recommendations are grounded in current evidence, addressed clinical gaps, tailored to diverse patient needs, and established a framework for regular updates to incorporate new evidence and clinical practices.
   - The guideline clearly described the developmental process of the recommendations and how did the paper come up with the detailed description of the processes that influenced the summary of recommendations for each subset of patient presenting with urolithiasis.
5. The health benefits, side effects, and risks have been considered in formulating the recommendations.
   Average Score: 7.0
   Reference: Ref 1, Page 11-64
   Comments:
   - It provides clinicians with evidence-based recommendations that prioritize patient safety and optimize clinical outcomes while acknowledging the potential risks of treatment options.
   - The guideline clearly laid out the detailed data and reports of the benefits, risks, side effects as well as the recommended work-up and treatment modality appropriate for each clinical scenario and subset of patients in the form of a summary table showing the level and strength of evidence for each domain involved.
6. There is an explicit link between the recommendations and the supporting evidence.
   Average Score: 6.67
   Reference: Ref 1, Page 11-64, Table 3.4.1
   Comments:
   - Summaries and tables provide a clear overview of the evidence base supporting each recommendation, including study designs, outcomes assessed, and quality assessments. This approach enhances the guideline by facilitating easy access to supporting evidence for healthcare providers and stakeholders.
   - the guideline clearly defined the links for each evidence summaries in the form of summary tables showing the strength of evidence and recommendations for each subset of patients presenting with Cystolithiasis, Ureterolithiasis, and Nephrolithiasis under each subset of patient category as described. The summary of evidences was placed after the end of every section for each cases discussed.
7. The guideline has been externally reviewed by experts prior to its publication.
   Average Score: 6.67
   Reference: Ref 1, Page 6
   Comments:
   - It is clearly stated in Section 2 (METHODS) particularly in Section 2.2 (REVIEW) that: "The 2015 Urolithiasis Guidelines were subjected to peer review prior publication. Chapter 6…was peer-reviewed in 2019."
   - Unlike other guidelines, it contains an explicit statement on Peer Review, also detailing which sections were reviewed on a different timeline(Section 2.2) Online version links to previous peer-reviewed versions of the text (Ref 9). But no description on External Review results and how it informed recent updates.
8. A procedure for updating the guideline is provided.
   Average Score: 6.67
   References: Ref 1, Page 6 , Ref 3
   Comments:
   - Guideline commits to regular updates, outlines criteria for update decisions, and describes a structured methodology for updating procedures.
   - The following statements were included:
     - 1.4 Publication history and summary of changes
     - 1.4.1 Publication history
     - The EAU Guidelines on Urolithiasis were first published in 2000. Standard procedure for EAU Guidelines includes an annual assessment of newly published literature in the field to guide future updates. This 2024 Urolithiasis Guidelines present a limited update of the 2023 publication.
     - 1.4.2 Summary of changes
     - The 2024 Urolithiasis Guidelines have undergone a major revision and restructuring of text, as well as a review of all recommendations.

Domain 4 : Clarity of Presentation
Over-all Domain Score: 100%

1. The recommendations are specific and unambiguous.
   Average Score: 7.0
   Reference: Ref 1, Page 7-74
   Comments:
   - It includes clear intents, identifies relevant populations, and guide clinicians in delivering evidence-based care for urolithiasis.
   - Recommendations are presented in tables and are specific as to category (i.e. diagnostics, non-medical/ medical management, surgical management)
2. The different options for management of the condition or health issue are clearly presented.
   Average Score: 7.0
   Reference: Ref 1, Page 7-74
   Comment:
   - EAU recommends alternative modalities and management based on specific populations • As presented in the guideline recommendation summarized in tables, all treatment options are presented and are assigned with corresponding strength ratings and levels of evidence. Moreover, "best clinical practice" statements are also included for specific subsets of patients.
3. Key recommendations are easily identifiable.
   Average Score: 7.0
   Reference: Ref 1, pages 11-104; Related Contents
   Comments:
   - Organized form of data presentation in the guideline.
   - Recommendations are presented in summarized tables after each section and include strength ratings as well as levels of evidence; thereby facilitating easy identification of key recommendations.

Domain 5 : Applicability
Over-all Domain Score: 61.9%

1. The guideline describesfacilitators and barriersto its application.
   Average Score: 4.0
   Reference: Ref 1, Page 6
   Comments:
   - Multiple mentions of level of evidence and strength rating of the recommendation across the guideline
   - Not indicated or mentioned
   - Some mention of variation in practice as an application barrier
2. The guideline provides advice and/or tools on how the recommendations can be put into practice.
   Average Score: 6.3
   Reference: Ref 1, Page 29, 31, 47
   Comments:
   - On the guidelines, there are multiple sections with algorithms, summaries, and other tools that can help application in practice
   - Specific details are given on how to use certain guidelines and apply in practice • The Guideline presents various treatment algorithms available for clinicians.
3. The potential resource implications of applying the implications have been considered.
   Average Score: 3.33
   Reference: Ref 1, Page 16, 20-21
   Comments:
   - Not much cost information is mentioned in the guidelines
   - Unfortunately, detail/s regarding cost/medical economics were not included. • Costs are mentioned when various interventions are compared. Some studies on cost effectiveness informed recommendations
4. The guideline presents monitoring and/or audit criteria.
   Average Score: 3.67
   References: Ref 1, Page 65, Ref 3
   Comments:
   - Not included
   - Ref 4 mentions monitoring of guidelines and adherence as a goal and several projects towards the goal such as EAU GO IMAGINE, PIONEER and OPTIMA. Most of these were not elaborated specifically for UROLITHIASIS

Domain 6. Editorial Independence
Over-all Domain Score: 50%

1. The views of the funding body have not influenced the content of the guideline.
   Average Score: 4.67
   Reference: Ref 1, page 117
   Comments:
   - The guideline includes a clear statement affirming that the funding body or source of financial support did not have any role in shaping or influencing the content, recommendations, or conclusions of the guideline.
   - Not indicated
2. Competing interests of guideline development group members have been recorded and addressed.
   Average Score: 4.33
   Reference: Ref 5
   Comments:
   - Guidelines published online have accessible links to complete Guidelines Panel, with each member's COI linked accordingly
     - Physical copies contain a Conflict Of Interest section that links to the above
     - However, some members have COIs indicated as 'Others, please indicate', some have not been updated as per COI updating policy (updated annually, at the minimum). Unclear whether this is because the website has not been updated, or the COI update has not been submitted
   - COI management is published in detail, accessible as a linked file on the website

Guideline: The UAA Clinical Guideline for Urinary Stone Disease
Guideline Developer: Urological Association of Asia inc
Guideline Date: 2019
Assessors: Soliman NPC, Alip SKL
References / Source Documents Reviewed:

1. (As pamphlet, and online copy) Taguchi K, Cho SY, Ng ACF, Usawachintachit M, Tan YK, Deng YL, Shen CH, Gyawali P, Alenezi H, Basiri A, Bou S, Djojodemedjo T, Sarica K, Shi L, Singam P, Singh SK & Yasui T. (n.d.). The UAA Clinical Guideline For Urinary Stone Disease. https://uaanet.org/uploads/pdf/UAACGL.pdf
2. (As published in JUrol) Taguchi K, Cho SY, Ng ACF, Usawachintachit M, Tan YK, Deng YL, Shen CH, Gyawali P, Alenezi H, Basiri A, Bou S, Djojodemedjo T, Sarica K, Shi L, Singam P, Singh SK & Yasui T. The Urological Association of Asia clinical guideline for urinary stone disease. Int J Urol 2019; 26(7): 688–709). Blackwell Publishing. https://doi.org/10.1111/iju.13957

An exhaustive online search in public databases for associated documents was done

Domain 1. Scope and Purpose
Over-all Domain Score: 80.95%

1. The overall objective(s) of the guideline is(are)specifically described.
   Average Score: 7
   Reference: Ref 1 Page 2/ Paragraph No.: Aims and scope, first and third paragraph
   Comments:
   - The UAA guidelines on urolithiasis clearly defined their aims and scope, as stated on their subheading that can easily be seen in the initial parts of the document.
   - As they have stated, this guideline has been prepared to help urologists apply evidence-based management to stones/calculi and incorporate recommendations into clinical practice. Furthermore, they provided statements that although this guideline has been developed, it does not mean that this guideline will be the sole basis for the decision of management, rather the choice of treatment still depends on individual patients and other variables such as socioeconomic and environmental factors.
   - The item was well written and can easily be found in their opening statement.
2. The health question(s) covered by the guideline is(are) specifically described.
   Average Score: 6
   Reference: Ref 1 Page 3-5 / Paragraph No.: (tables)
   Comments:
   - The guideline specifically stated that AUA and EAU are the backbone guidelines that the working group used for the development of this guideline. However, they stated that due to the different climate, social, economic, and ethnic environments that is present among Asian countries, there is a huge diversity in clinical practice for urinary stone diseases as compared to American and European population.
   - Since the UAA is comprised of different Asian countries, and clinical practice somehow differed among each country, they have included in this document in tabular form the differences of the management among the different countries.
   - With this kind of data presentation, it is easier to grasp the information that the working group is trying to convey among the urologists that will use this guideline as their guide for providing care to their patients.
   - For their document review, they have clearly defined how were they able to collate the different journals and guidelines that they used for the development of this guideline. It can also be seen in this document the other guidelines that they referred to.
3. The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described.
   Average Score: 4
   Reference: Ref 1 Page
   Comment:
   - The guideline is supposed to be utilized by practicing urologists. The criteria that were provided above to appraise this guideline is not applicable.

Domain 2 : Stakeholder Involvement
Over-all Domain Score: 78.57%

1. The guideline development group includes individuals from all relevant professional groups.
   Average Score: 4.5
   Reference: Ref 1 Page 2
   Comments:
   - In the title page of the document, we can see that the authors all came from the department of urology among different institutions across the Asian countries. With this, we can assume that the authors/working group/ committee were all urologists, and no interdisciplinary contribution was made.
   - In page 6, they have declared the Work Group composition under sub header 1.4, stating that 'the Work group consists of an international group of clinicians with specific expertise in this area. All experts in the production of this document have submitted declarations of potential conflict of interest.'
   - In page 7 - 8, under the sub header 'Guideline development group', they have stated the roles of each contributor of this guideline development. Further, they also specified the contributions of everyone, as stated, 'Etiology section', 'Diagnosis section', 'Metabolic evaluation section'. 'Medical management section', 'Surgical management section', 'Recurrence prevention section'.
   - They also stated that this guidelines was peer reviewed by representatives in the AUA and EAU, which can increase the reliability of this guideline.
   - The material was well written and easy to understand.
   - Surveillance study to collect information regarding the health climate in constituent countries was done in the first phase of guideline development
   - Ref 1 directed reader to CPG working group composition in website, but an exhaustive search of the website yielded no such information
   - Presumably all MDs in committee (No roles stated)
2. The views and preferences of the target population (patients, public, etc.) have been sought.
   Average Score: 6
   Reference: Ref 1 Page

Comments
- Since this is a clinical practice guideline, it can be implied that the goal of this guideline is to address the more prevalent concerns of the public who are diagnosed to have urolithiases, but this guideline did not clearly state that they have sought the views and preferences of the target population.
- However, the clinical questions that this guideline presented were very relevant and these were the usual questions that the patients are usually asking.
- Surveillance study to collect information regarding the health climate in constituent countries was done in the first phase of guideline development

3. Target users of the guideline are clearly defined.
   Average Score: 6
   Reference: Ref 1 Page
   Comments:
   - The target audience of this guideline are the urologists that are in clinical practice. As stated in page 2 under Aims and Scope, 'the UAA Clinical Guidelines for Stone Disease has been prepared to help urologists apply evidence-based management to stones/calculi and incorporate recommendations into clinical practice.'
   - In page 2, sub header Aims and scope, paragraph 2, 'it must be emphasized that clincal guidelines present the best evidence available to experts (urologists), but guidelines can never replace clinical expertise when making treatment decisions for individual patients, but rather help to focus these decisions, which also should take into account personal values and preferences/ individual circumstances of patients.'
   - The target users of this guideline is very appropriate and the material stating this is well written.

Domain 3 : Rigour of Development
Over-all Domain Score: 81.25%

1. Systematic methods were used to search for evidence.
   Average Score: 7
   Reference: Ref 1 Page 6
   Comments:
   - In page 6, sub header 'Methodology', they have clearly defined their methods on how they searched and evaluated each document for providing evidence in the development of this guideline.
   - As stated, 'The members meticulously reviewed the relevant references retrieved via the PubMed and MEDLINE databases published between 1966 and July 31 2017.'
   - Furthermore, 'the search strategy included the following MeSH for stone disease: stone, urolithiasis, nephrolithiasis, and calculi. Other keywords for searching references were selected by each committee.'
   - 'Other sources of information were also clearly defined in this guideline.
2. The criteria for selecting the evidence are clearly described.
   Average Score: 6
   Reference: Ref 1 Page 6-7
   Comments:
   - Under methodology, they only defined the key words that they used to search for online sources of evidence for the development of this guideline. They did not specifically state what the exclusion criteria were.
   - However, they did use level of evidence and grade of recommendation in evaluating each treatment suggestion for any given scenario in clinical practice.
3. The strengths and limitations of the body of evidence are clearly described.
   Average Score: 4.5
   Reference: Ref 1 Page 2
   Comments:
   - Strengths and limitations of the body of evidence were not clearly defined within this guideline. However, they used LE and GR for each treatment based on the following strategy. The recommendations for treatment were based on a non-structured literature search, which has been previously published, and labelled with an LE score according to a classification system modified from the Oxford Centre for Evidence-based Medicine Levels of Evidence.
   - Cost and diversity mentioned as limitations in passing
4. The methods for formulating the recommendations are clearly described.
   Average Score: 4
   Reference: Ref 1
   Comments:
   - The 'process' on how they developed the recommendations within this guideline were not explained. In addition, the development of the clinical questions that were presented in this guideline, or how they chose which questions to answer were not defined in their methodology.
   - As a reader, it can be puzzling on what could be the working group's bases were to formulate their clinical questions.
   - Although as it can be read within the guideline, the development of these clinical questions was backed up by the 'Commentary' section after each question.
   - For example, under Etiology, the clinical question is 'Is the prevalence of urinary stone disease increasing?'
   - In this example, the clinical question was backed up by evidence/s that the prevalence of urinary stone disease was indeed increasing.
   - What's good in this document is that their commentary on each clinical question is very relevant and how they presented the statements were easy to understand.
5. The health benefits, side effects, and risks have been considered in formulating the recommendations.
   Average Score: 7
   Reference: Ref 1
   Comments:
   - The guideline states, under the medical management and surgical management for stone diseases, the safety and benefits of each treatment option and well backed up by evidence. Furthermore, under surgical management in page 27 (Topic: shockwave lithotripsy),

they included certain contraindications for SWL, which can be added to the safety profile of this guideline.
- Complications for each surgical management were also discussed in this guideline.
- The recommended treatment options (Medical and Surgical) were clearly written and can easily be found in the guideline. They are well categorized and easy to read.
- The commentary portion of each treatment option serves as the primary discussion of the guideline backing up their recommendation.
- Figures and tables were also included which can further enhance the understanding of readers.

6. There is an explicit link between the recommendations and the supporting evidence.
   Average Score: 6
   Reference: Ref 1
   Comments:
   - For each recommendation in this guideline, it was backed up by evidence under their commentary section. How they explained the concepts in the commentary were easy to understand and well written. Level of evidence and grade of recommendation were also provided for each recommendation statement.
   - No evidence to decision tables available
7. The guideline has been externally reviewed by experts prior to its publication.
   Average Score: 7
   Reference: Ref 1 Page
   Comment:
   - Yes. Peer review was done with this guideline by representatives from EAU and AUA. However, their notes were not stated in this document.
8. A procedure for updating the guideline is provided.
   Average Score: 4
   Reference: Ref 1
   Comment:
   - No section under this document was seen stating the limitations of this guideline and subsequent necessary steps in order to improve this guideline.

Domain 4 : Clarity of Presentation
Over-all Domain Score: 100%

1. The recommendations are specific and unambiguous.
   Average Score: 7
   Reference: Ref 1
   Comments:
   - The recommendations within this guideline is well written and easy to understand.
   - Each recommendation was well backed up by evidence in order to guide the urologist in providing treatment for patients who are suffering from urolithiasis.
   - There is also a section under this guideline that provided recommendation in cases of asymptomatic stone disease.
2. The different options for management of the condition or health issue are clearly presented.
   Average Score: 7
   Reference: Ref 1
   Comments:
   - Each recommendation, from etiology to management to prevention of recurrence, was all clearly stated and in a manner that can be easily understood. Furthermore, diagrams of algorithms were also provided to have a clearer picture or summary that can aid to grasp the information of this guideline.
3. Key recommendations are easily identifiable.
   Average Score: 7
   Reference: Ref 1
   Comments:
   - Key recommendations were clearly stated within this guideline.
   - For each clinical question, bulleted form of key recommendations with level of evidence and grade of recommendation was included – this makes the guideline easy to read because you can already have the concise answer for each question.

Domain 5 : Applicability
Over-all Domain Score: 78.57%

1. The guideline describes facilitators and barriers to its application.
   Average Score: 5
   Reference: Ref 1
   Comments:
   - Based on the criteria provided, this guideline does not provide information regarding the facilitators and barriers that they encountered. However, since this guideline was specifically developed in great consideration of the diversity among Asian countries, this guideline is very applicable in our clinical setting.
   - Cost and diversity mentioned in passing as limitations
2. The guideline provides advice and/or tools on how the recommendations can be put into practice.
   Average Score: 7
   Reference: Ref 1 Page 42
   Comments:
   - The guideline provides algorithms and tables on when and how their recommended treatment option can be utilized in clinical scenarios. For example, in page 36 of this document, they provided a flowchart for the treatment of adult patients with symptomatic renal stones, considering the recommended surgical treatment for varying stone sizes.
   - In page 42, they provided a table for general preventive measures for the development of urinary stones. It was written in a clear and easy to understand manner and can easily be grasped by the urologist.
3. The potential resource implications of applying the implications have been considered.
   Average Score: 6
   Reference: Ref 1 Page 1
   Comment:
   - In the beginning of this guideline, they already stated the major references that they used. Under methodology – data identification, they stated 'other sources of information included the Japanes Urological Association Clinical Guidelines for Urolithiasis, EAU

guidelines on Urolithiasis 2017, Medical Management of Kidney Stones: AUA Guidelines, and Surgical Management of Stones: AUA/Endourological Society Guidelines'

4. The guideline presents monitoring and/or audit criteria.
   Average Score: 4
   Reference: Ref 1
   Comment:
   - Monitoring and auditing criteria for the implementation of this guideline was not defined. As this guideline stated, this UAA Guideline for Urinary Stone Disease only serves as a guide for offering treatment on patients, and not to be strictly adhering to their recommendations. Individual factors and differences among patients must be considered, and the treatment will be dependent on the expertise of the urologist.

Domain 6. Editorial Independence
Over-all Domain Score: 85.71%

1. The views of the funding body have not influenced the content of the guideline.
   Average Score: 7
   Reference: Ref 1
   Comments:
   - The name of the funding body was not stated in this guideline. However, they stated that in April 2018, the Work Group met as the UAA Congress in Kyoto which led to the drafting of the guidelines. Probably the funds that the UAA used for the development of this guideline and for providing the honorarium of the contributors of this guideline came from the monetary membership fees of the different members of the UAA, which consists of 25 member associations and 1 affiliated member. However, they did not specify in this document those members, but can be searched and identified within the UAA website.
   - As stated under Conflicts of Interest, 'This guideline document was developed with the financial support of the UAA. No external sources of funding and support have been involved.'
2. Competing interests of guideline development group members have been recorded and addressed.
   Average Score: 5
   Reference: Ref 1
   Comments:
   - At the latter part of the guideline, they provided a section for Conflicts of Interest of members. As stated, 'all members of the guideline development group have provided disclosure statements on all relationships that they have and that might be perceived to be a potential source of conflict of interest. This information is kept on file in the UAA Central Office database.'
   - No publicly available COIs

Appendix 3.
Philippine Urological Association – Clinical Practice Guideline Committee
Clinical Practice Guidelines on Urolithiasis

EVIDENCE TO DECISION FRAMEWORK WORKSHEET (THERAPY)

GUIDE to the Consensus Panelist : This worksheet is meant to help you to decide on how to craft the guideline recommendations and in the voting when the guideline questions are discussed during the enbanc consensus panel meeting. For each parameter, a summary of the supporting evidence has been inputted in the "RESEARCH EVIDENCE" section, when available.
Under the section "JUDGEMENT", please select your BEST judgement for each of the parameter based on your evaluation of the research evidence presented and/or your experience and expertise (especially when research evidence is not available). Please write on the "ADDITIONAL CONSIDERATIONS" portion any information or opinion you believe is important to be shared with the rest of the Panel that may help in making a judgement for the said parameter. Your experience and expertise are particularly valuable when research evidence is not available to make a judgement for the parameter.

Instruction to Evidence Reviewers : Please fill in the RESEARCH EVIDENCE SECTIONS for each parameter with information from your evidence review. If no evidence is available, please indicate "No evidence found". Personal opinion or experience should NOT be written here. DO NOT fill in the "Judgment" and "Additional Considerations" columns. Please fix the page breaks so that no parameter overflows to the next page. Please delete all instructions in red text before submitting. Thank you!

Guideline Question : Write your Guideline Question here
Patients/Population:
Treatment:
Comparison:
Outcome/s:

(1) Problem : Is the problem a priority?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ No ○ Probably no ○ Probably yes ○ Yes ○ Don't know	Describe the epidemiology of the disease as it relates to the target population, intervention/comparator and/or setting of interest. Describe why there might be uncertainty about the relative benefit and harms of the intervention of interest, or why it is important to answer the guideline question (eg. variability in practice, new evidence, substantial cost implications, etc)	Provide your reasons why the problem is a priority or not or why is the guideline question important to address

(2) Desirable Effects : How substantial are the desirable anticipated effects?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Small ○ Moderate ○ Large ○ Don't know	Describe type and no. of study/-ies considered in the evidence presented Present an abbreviated SoF (without the certainty of evidence column) including only the critical outcomes on Effectiveness	Provide your insights and/or concerns, if any, on the evidence presented (research methods, effect size) to explain your judgement.

ıtcomes	**Relative Effect (95% CI)**	**Absolute Effe (95% CI)**
ectiveness Outcome 1		
ectiveness Outcome 2	-	
ectiveness Outcome 3		-

(3) Undesirable Effects : How substantial are the undesirable anticipated effects?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Large ○ Moderate ○ Small ○ Don't know	Describe type and no. of study/-ies considered in the evidence presented Present an abbreviated SoF (without the certainty of evidence column) including only the critical outcomes on adverse events/ harm	Provide your insights and/or concerns, if any, on the evidence presented (research methods, effect size) to explain your judgement.

utcomes	**Relative Effect (95% CI)**	**Absolute Effec (95% CI)**
arm Outcome 1		
arm Outcome 2	-	
arm Outcome 3		-

(4) Certainty of effects : What is the overall certainty of the evidence of effects of the intervention?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Very low ○ Low ○ Moderate ○ High ○ No included studies	Present the COE for each outcome (effectiveness and harm) indicated in your SoF	Provide your reasons for downgrading /upgrading the evidence, if any.

Outcomes	**Certainty of the evidence (GRADE)**
Effectiveness Outcome 1	
Effectiveness Outcome 2…etc	
Harm Outcome 1	
Harm Outcome 2…etc	

Describe the reason for downgrading, if done, for which outcomes. And then state the overall CoE : *"The evidence was downgraded/upgraded due to ..xxx, for the various outcomes. Overall, the certainty is XXX for the <outcome>"*

	OR "The evidence was not downgraded for the various outcomes. Overall, the certainty is high for all the outcomes."	
(5) Balance of effects **Does the balance between desirable and undesirable effects favor the intervention or the comparison?**		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Favors the comparison ○ Probably favors the comparison ○ Does not favor either the intervention or the comparison ○ Probably favors the intervention ○ Favors the intervention ○ Don't know	Provide a short summary including certainty (quality) of evidence, # of studies and whether results favor the intervention/treatment or the comparison **Desirable effects** . **Undesirable effects** *Eg. "The balance of effects probably favors/do not favor the intervention"*	Provide additional information not presented in the previous sections that contributed to your judgement on the balance of effects.
(6) Resources required : How large are the resource requirements (costs)?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Large costs ○ Moderate costs ○ Negligible costs and savings ○ Moderate savings ○ Large savings ○ Don't know	Describe research (stating the design/methods) that provide information on the cost/resource use associated with the intervention in the target population, and how it compares with other treatment options. Eg *"Research from <study design/s> suggests/shows that the cost/resource use associated with <treatment> in <study population> is <cost of treatment> compared to <cost of comparator> with <comparator>".*	Provide details, based on your professional judgement or experience, on the cost/resource use associated with the intervention in relation to the cost/resource use of not using the intervention/using the comparator in the target population.
(7) Cost effectiveness : Does the cost-effectiveness of the intervention favor the intervention or the comparison?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Favors the comparison ○ Probably favors the comparison ○ Does not favor either the intervention or the comparison ○ Probably favors the intervention ○ Favors the intervention ○ No included studies	Describe the results of cost-effectiveness / cost-analysis / cost-utility studies. Prioritize studies performed in the Philippines. Include studies done outside the Philipines only if local studies are not available. If none were found, indicate "No cost-effectiveness studies were found."	

(8) Values : Is there important uncertainty about or variability in how much people value the main outcomes?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Important uncertainty or variability ○ Probably no important uncertainty or variability ○ No important uncertainty or variability	Describe evidence that provides information on the variability on the of the values or relative importance that the affected population places on the outcomes. If none, indicate "No evidence found".	Describe your own experience on the expressed patient values and preferences on the intervention and the outcomes considered in assessing the intervention, particularly if it is not consistent with the evidence provided, if any.
(9) Equity : What would be the impact on health equity?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Reduced ○ Probably reduced ○ Probably no impact ○ Probably increased ○ Increased ○ Don't know	Describe results of studies that shows that utilizing/implementing/not utilizing the intervention disadvantages a particular population group. List the disadvantaged group, making reference to place of residence, race, ethnicity, culture, language, occupation, gender, sec, religion, education, socioeconomic status, age, disability, relationships with people/organization. If none, indicate "No evidence found".	Provide additional information on how utilizing/implementing/not utilizing the intervention could disadvantages particular population group. List the disadvantaged group, making reference to place of residence, race, ethnicity, culture, language, occupation, gender, sec, religion, education, socioeconomic status, age, disability, relationships with people/organization.
(10) Acceptability : Is the intervention acceptable to key stakeholders?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ No ○ Probably no ○ Probably yes ○ Yes ○ Don't know	Describe studies that describe the views, capabilities and circumstances of patients, health care provider, relatives, payers and healthcare institution administrator that prevent the intervention/comparator from being received/accepted by patients or offered by healthcare providers. If none, indicate "No evidence found".	Provide the basis for your judgement such as items/situations that could affect acceptability of the intervention /comparator (whether increased or decreased) to patients, healthcare providers, relatives, payers and healthcare institution administrators.
(11) Feasibility : Is the intervention feasible to implement?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ No ○ Probably no ○ Probably yes ○ Yes ○ Don't know	Describe studies that presents evidence that the use of the intervention can be negatively impacted by feasibility issues relating to the ability of healthcare providers to offer the intervention adequately. List these issues. May provide the same for the comparator.	Provide the basis for your judgement such as issues or situations that facilitate or prevent the implementation of the intervention/comparator in different settings or subpopulations, based on your experience.

Conclusions

Direction of the recommendation

○ Recommend against the intervention ○ Suggest against the intervention
○ Suggest the intervention ○ Recommend the intervention

Justification

Appendix 4.
Philippine Urological Association – Clinical Practice Guideline Committee
Clinical Practice Guidelines on Urolithiasis

EVIDENCE TO DECISION FRAMEWORK WORKSHEET (DIAGNOSTICS)

GUIDE to the Consensus Panelist : This worksheet is meant to help you to decide on how to craft the guideline recommendations and in the voting when the guideline questions are discussed during the enbanc consensus panel meeting. For each parameter, a summary of the supporting evidence has been inputted in the "RESEARCH EVIDENCE" section, when available.

Under the section "JUDGEMENT", please select your BEST judgement for each of the parameter based on your evaluation of the research evidence presented and/or your experience and expertise (especially when research evidence is not available). Please write on the "ADDITIONAL CONSIDERATIONS" portion any information or opinion you believe is important to be shared with the rest of the Panel that may help in making a judgement for the said parameter. Your experience and expertise are particularly valuable when research evidence is not available to make a judgement for the parameter.

Instruction to Evidence Reviewers : Please fill in the RESEARCH EVIDENCE SECTIONS for each parameter with information from your evidence review. If no evidence is available, please indicate "No evidence found". Personal opinion or experience should NOT be written here. DO NOT fill in the "Judgment" and "Additional Considerations" columns. Please fix the page breaks so that no parameter overflows to the next page. Please delete all instructions in red text before submitting. Thank you!

Guideline Question : Write your Guideline Question here
Patients/Population:
Diagnostic Intervention / Index Test:
Comparison / Reference Test or Gold Standard:
Purpose: to diagnose <condition>
Linked treatment/s: if applicable, if none, delete this line
Anticipated outcomes: (for the linked treatments), if no linked treatment delete this line

<table>
<tr><th colspan="3">(1) Problem : Is the problem a priority?</th></tr>
<tr><th>JUDGEMENT</th><th>RESEARCH EVIDENCE</th><th>ADDITIONAL CONSIDERATIONS</th></tr>
<tr><td>o No
o Probably no
o Probably yes
o Yes
o Don't know</td><td>Describe the epidemiology of the disease as it relates to the target population, the test/comparison and/or setting of interest
Describe why there might be uncertainty about the relative benefit and harms of the index test, or why it is important to answer the guideline question (eg. variability in practice, new evidence, substantial cost implications, etc)</td><td>Provide your reasons why the problem is a priority or not or why is the guideline question important to address</td></tr>
<tr><th colspan="3">(2) Test accuracy : How accurate is the test in diagnosing the disease?</th></tr>
<tr><th>JUDGEMENT</th><th>RESEARCH EVIDENCE</th><th>ADDITIONAL CONSIDERATIONS</th></tr>
<tr><td>o Very in accurate
o Inaccurate
o Accurate
o Very accurate
o Varies
o Don't know</td><td>Index test: (eg. Urinalysis)
Reference standard: (eg. Urine culture and sensitivity)<table><tr><th>Outcomes</th><th>Pooled estimate (95% CI)</th></tr><tr><td>Sensitivity</td><td></td></tr><tr><td>Specificity</td><td></td></tr><tr><td>Positive likelihood ratio</td><td></td></tr><tr><td>Negative likelihood ratio</td><td></td></tr></table></td><td>Provide your insights and/or concerns, if any, on the evidence presented (research methods, diagnostic accuracy estimates) to explain your judgement.</td></tr>
</table>

(3) Certainty of the evidence of test accuracy : What is the overall certainty of the evidence of test accuracy?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Very low ○ Low ○ Moderate ○ High ○ No included studies	Present the CoE for the Sensitivity and Specificity indicated in your GRADE Evidence Profile **Outcomes** / **Certainty of the evidence (GRADE)** Sensitivity Specificity Describe the reason for downgrading, if done, for which outcomes. And then state the overall CoE : *"The evidence was downgraded/upgraded due to ..xxx, for <outcome>. Overall, the certainty is XXX for the <outcome>" OR "The evidence was not downgraded for the various outcomes. Overall, the certainty is high."*	Provide your reasons for downgrading/upgrading the certainty of the evidence, if any.

(4) Desirable Effects : How substantial are the desirable anticipated effects comparing testing versus not testing?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Small ○ Moderate ○ Large ○ Don't know	Describe the type and no. of study/-ies comparing testing vs not testing considered in the evidence presented Present an abbreviated SoF (without the certainty of evidence column) including only the critical outcomes on Effectiveness **Outcomes** / **Relative Effect (95% CI)** / **Absolute Effects (95% CI)** Benefit Outcome 1 Benefit Outcome 2 / -	Provide your insights and/or concerns, if any, on the evidence presented (research methods, effect size) to explain your judgement.
	If no studies were found, just note "No studies were found comparing outcome on benefit of testing versus not testing using <index test> among <population>	

(5) Undesirable Effects : How substantial are the undesirable anticipated effects comparing testing versus not testing?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Large ○ Moderate ○ Small ○ Don't know	Describe the type and no. of study/-ies comparing testing vs not testing considered in the evidence presented Present an abbreviated SoF (without the certainty of evidence column) including only the critical outcomes on adverse events/ harm **Outcomes** / **Relative Effect (95% CI)** / **Absolute Effects (95% CI)** Harm Outcome 1 Harm Outcome 2 / - Alternatively, present the results of studies that provide information on the adverse effects associated with the index test itself If no studies were found, just note "No studies were found comparing outcome on harms of testing using <index test> among <population>	Provide your insights and/or concerns, if any, on the evidence presented (research methods, effect size) to explain your judgement.

(6) Certainty of the evidence of test's effects :
What is the overall certainty of the evidence for any critical or important direct benefits, adverse effects or burden of the test?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Very low ○ Low ○ Moderate ○ High ○ No included studies	Present the COE for each outcome (accuracy, effectiveness and harm) indicated in your SoF **Outcomes** / **Certainty of the evidence (GRADE)** Sensitivity Specificity Benefit Outcome 1 Benefit Outcome 2 Harm Outcome 1 Harm Outcome 2 Describe the reason for downgrading, if done, for which outcomes. And then state the overall CoE : *"The evidence was downgraded/upgraded due to ..xxx, for the various outcomes. Overall, the certainty is XXX for the <outcome>" OR "The evidence was not downgraded for the various outcomes. Overall, the certainty is high for all the outcomes."*	Provide your reasons for downgrading/upgrading the certainty of the evidence, if any.

(7) Certainty of the evidence of management's effects :
What is the overall certainty of the evidence of effects of the management that is guided by the test results?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Very low ○ Low ○ Moderate ○ High ○ No included studies	Present the COE for each outcome (effectiveness and harm) indicated in your SoF **Outcomes** / **Certainty of the evidence (GRADE)** Benefit Outcome 1 Benefit Outcome 2 Harm Outcome 1 Harm Outcome 2 Describe the reason for downgrading, if done, for which outcomes. And then state the overall CoE : *"The evidence was downgraded/upgraded due to ..xxx, for the various outcomes. Overall, the certainty is XXX for the <outcome>" OR "The evidence was not downgraded for the various outcomes. Overall, the certainty is high for all the outcomes."*	Provide your reasons for downgrading/upgrading the evidence, if any.

(8) Balance of effects : Does the balance between desirable and undesirable effects favor doing the test or the comparison (or not doing the test)?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Favors the comparison ○ Probably favors the comparison ○ Does not favor either the test or the comparison ○ Probably favors the test ○ Favors the test ○ Don't know	Short paragraph including the desirable and undesirable results regarding testing vs not testing **Desirable effects** **Undesirable effects** **Overall balance** *Eg. Overall, there is a net benefit in performing the test.*	Provide the other factors you considered in your judgement that were not presented.
(9) Values : Is there important uncertainty about or variability in how much people value the main outcomes, including adverse effects and burden of the test and downstream outcomes of clinical management that is guided by the test result?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Important uncertainty or variability ○ Possibly important uncertainty or variability ○ No important uncertainty or variability	Briefly summarize articles (e.g., qualitative studies like FGD, KAPs, surveys) on patients' values and preferences regarding the test, the linked management and the outcomes considered in assessing the test. Prioritize local studies, if available. If none, indicate "No evidence found".	Describe your own experience on the expressed patient values and preferences on the test, the linked management, and the outcomes considered in assessing the test; particularly if it is not consistent with the evidence provided, if any.
(10) Resources required : How large are the resource requirements (costs)?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Large costs ○ Moderate costs ○ Negligible costs and savings ○ Moderate savings ○ Large savings ○ Don't know	Describe research (stating the design/methods) that provide information on the cost/resource use associated with (1) the test, (2) the confirmatory test, if applicable, and (3) the linked management. List the costs of (1) the test, (2) the confirmatory test if applicable, and (3) the linked management. If available, present the different costs in various settings	Provide details, based on your professional judgement or experience, on the cost/resource use associated with the test, the comparator, and the linked management, in relation to the cost/resource use of not using the test in the target population.

(12) Cost effectiveness : Does the cost-effectiveness of the intervention favor the test or the comparison?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Favors the comparison ○ Probably favors the comparison ○ Does not favor either the intervention or the comparison ○ Probably favors the test ○ Favors the test ○ No included studies	Describe the results of cost-effectiveness / cost-analysis / cost-utility studies. Prioritize studies performed in the Philippines. Include studies done outside the Philipines only if local studies are not available. If none were found, indicate "No cost-effectiveness studies were found."	
(13) Equity : What would be the impact of testing on health equity?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Reduced ○ Probably reduced ○ Probably no impact ○ Probably increased ○ Increased ○ Don't know	Describe results of studies that shows that performing/not performing the test disadvantages a particular population group. List the disadvantaged group, making reference to place of residence, race, ethnicity, culture, language, occupation, gender, sec, religion, education, socioeconomic status, age, disability, relationships with people/organization. If none, indicate "No evidence found"	Provide additional information on how performing/ not performing the test. could disadvantages particular population group. List the disadvantaged group, making reference to place of residence, race, ethnicity, culture, language, occupation, gender, sec, religion, education, socioeconomic status, age, disability, relationships with
(14) Acceptability : Is the intervention acceptable to key stakeholders?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ No ○ Probably no ○ Probably yes ○ Yes ○ Don't know	Describe studies that describe the views, capabilities and circumstances of patients, health care provider, relatives, payers and healthcare institution administrator that prevent the test from being received/accepted by patients or offered by healthcare providers. If none, indicate "No evidence found".	Provide the basis for your judgement such as items/situations that could affect acceptability of the test (whether increased or decreased) to patients, healthcare providers, relatives, payers and healthcare institution administrators.
(15) Feasibility : Is the intervention feasible to implement?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ No ○ Probably no ○ Probably yes ○ Yes ○ Don't know	Describe studies that presents evidence that the use of the intervention can be negatively impacted by feasibility issues relating to the ability of healthcare providers to offer the test. List these issues. May provide the same for the comparator.	Provide the basis for your judgement such as issues or situations that facilitate or prevent the performance of the test/comparator in different settings or subpopulations, based on your experience.

Conclusions

Direction of recommendation

( ) Recommend FOR the test ( ) Recommend AGAINST the test

Justification