UROLOGY

Urology for the OB/GYN Provider

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Disclosures

Objectives

- Review Guidelines and Best Practices
  - Microhematuria
  - Recurrent Urinary Tract Infections
  - Stone Management during Pregnancy
  - Urinary incontinence (SUI and OAB)
    - Tier 1 strategies
    - Surgical and Medical Management

Microhematuria

- Asymptomatic microhematuria is present in as many as 30% of adults
- Differential diagnosis
  - Urologic/Nephrologic/Gynecologic
- Hematuria represents nearly 20% of all urologic diagnoses
  - Less than 50% of patients with hematuria in primary care setting were referred
  - Over-reliance on imaging alone

Microhematuria

- Rate of urologic malignancies in patients with MH = 3%
- The risk of detecting an underlying cancer is highly dependent on risk factors
  - Age
  - Gender
  - Smoking history
  - Degree of hematuria

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Trauma/Reconstruction/Diversion

Microhematuria: AUA/SUFU Guideline

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Abbreviations and Acronyms

CIS = carcinoma in situ

GRADE = Grading of Recommendations, Assessment, Development, and Evaluation

MH = microhematuria

RBC/HPF = red blood cells per high-power field

RCC = renal cell carcinoma

UA = urinalysis

UTUC = upper tract urothelial carcinoma

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* Equal author contribution.

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Purpose: Patients presenting with microhematuria represent a heterogeneous population with a broad spectrum of risk for genitourinary malignancy. Recognizing that patient-specific characteristics modify the risk of underlying malignant etiologies, this guideline sought to provide a personalized diagnostic testing strategy.

Materials and Methods: The systematic review incorporated evidence published from January 2010 through February 2019, with an updated literature search to include studies published up to December 2019. Evidence-based statements were developed by the expert Panel, with statement type linked to evidence strength, level of certainty, and the Panel's judgment regarding the balance between benefits and risks/burdens.

Results: Microhematuria should be defined as $\geq$ 3 red blood cells per high power field on microscopic evaluation of a single specimen. In patients diagnosed with gynecologic or non-malignant genitourinary sources of microhematuria, clinicians should repeat urinalysis following resolution of the gynecologic or non-malignant genitourinary cause. The Panel created a risk classification system for patients with microhematuria, stratified as low-, intermediate-, or high-risk for genitourinary malignancy. Risk groups were based on factors including age, sex, smoking and other urothelial cancer risk factors, degree and persistence of microhematuria, as well as prior gross hematuria. Diagnostic evaluation with cystoscopy and upper tract imaging was recommended according to patient risk and involving shared decision-making. Statements also inform follow-up after a negative microhematuria evaluation.

Conclusions: Patients with microhematuria should be classified based on their risk of genitourinary malignancy and evaluated with a risk-based strategy. Future high-quality studies are required to improve the care of these patients.

Key Words: hematuria, cystoscopy, CT Urogram, bladder cancer, urothelial carcinoma, urine markers

Guideline Statements

Diagnosis and Definition of Microhematuria (MH)

1. Clinicians should define MH as >3 red blood cells per high-power field (RBC/HPF) on microscopic evaluation of a single, properly collected urine specimen. (Strong Recommendation; Evidence Level: Grade C)
2. Clinicians should not define MH by positive dipstick testing alone. A positive urine dipstick test (trace blood or greater) should prompt formal microscopic evaluation of the urine. (Strong Recommendation; Evidence Level: Grade C)

Initial Evaluation.

3. In patients with MH, clinicians should perform a history and physical examination to assess risk factors for genitourinary malignancy, medical renal disease, gynecologic and non-malignant genitourinary causes of MH. (Clinical Principle)

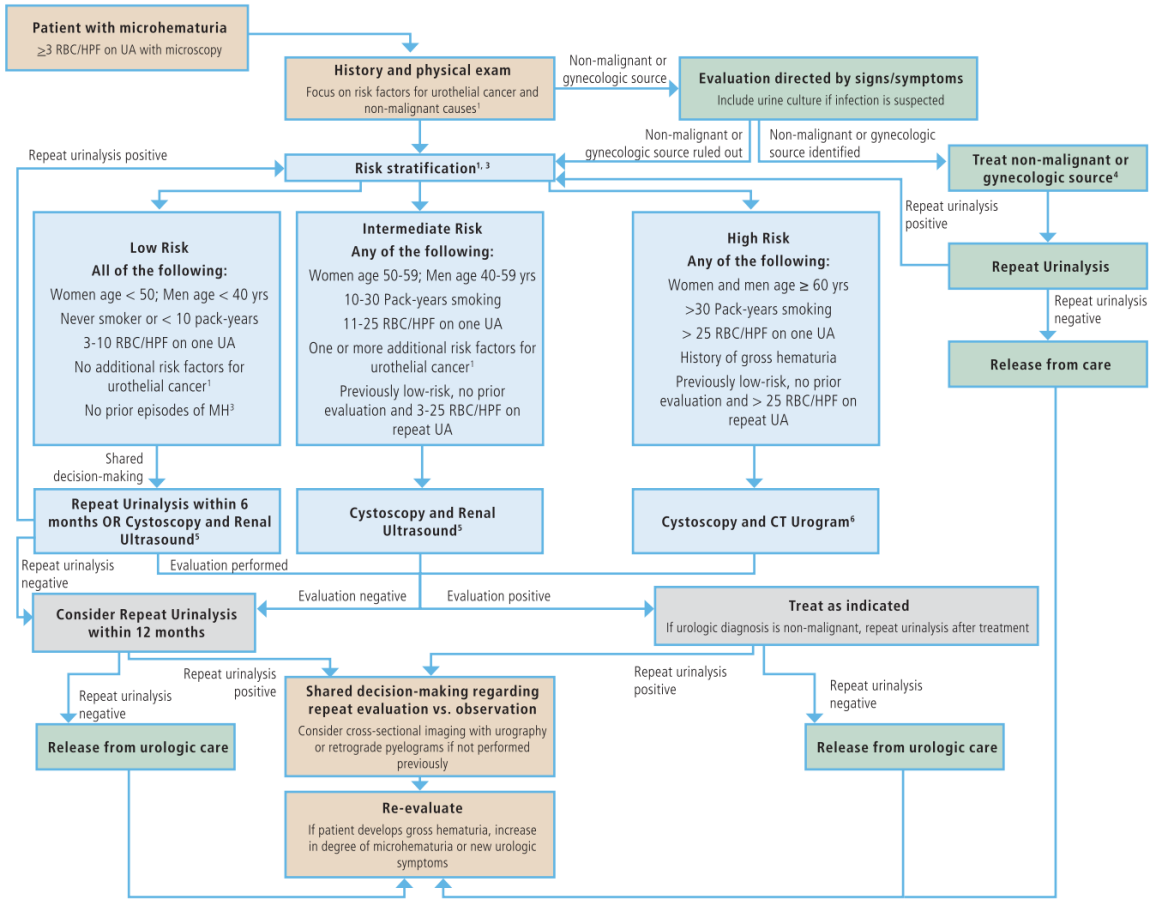
Careful consideration should be given to risk factors for malignancy (tables 3 and 4). Physical examination should include measurement of blood pressure and a genitourinary examination as dictated by the clinical history. For example, in women, examination of the external genitalia, introitus, and periurethral tissue may identify urethral pathology or other gynecologic pathology to explain the MH.

4. Clinicians should perform the same evaluation of patients with MH who are taking antiplatelet agents or anticoagulants (regardless of the type or level of therapy) as patients not on these agents. (Strong Recommendation; Evidence Level: Grade C)

Table 4: *AUA Microhematuria Risk Stratification System*

Low (patient meets all criteria)	Intermediate (patient meets any one of these criteria)	High (patient meets any one of these criteria)
• Women age <50 years; Men age <40 years • Never smoker or <10 pack years • 3-10 RBC/HPF on a single urinalysis • No risk factors for urothelial cancer (see Table 3)	• Women age 50-59 years; Men age 40-59 years • 10-30 pack years • 11-25 RBC/HPF on a single urinalysis • Low-risk patient with no prior evaluation and 3-10 RBC/HPF on repeat urinalysis • Additional risk factors for urothelial cancer (see Table 3)	• Women or Men age ≥60 years • >30 pack years • >25 RBC/HPF on a single urinalysis • History of gross hematuria

Microhematuria Evaluation Algorithm



1. Main risk factors for urothelial cancer are those in the AUA risk stratification system (age, male sex, smoking, degree of microhematuria and history of gross hematuria). Additional risk factors for urothelial carcinoma include but are not limited to irritative lower urinary tract voiding symptoms, history of cyclophosphamide or ifosfamide chemotherapy, family history of urothelial carcinoma or Lynch Syndrome, occupational exposures to benzene chemicals or aromatic amines, history of chronic indwelling foreign body in the urinary tract
2. If medical renal disease is suspected, consider nephrologic evaluation, but pursue concurrent risk-based urological evaluation
3. Patients may be low-risk at first presentation with microhematuria, but may only be considered intermediate- or high-risk if found to have persistent microhematuria
4. There are non-malignant and gynecologic sources of hematuria that do not require treatment and/or may confound the diagnosis of MH. Clinicians can consider catheterized urine specimen in women with vaginal atrophy or pelvic organ prolapse. Clinicians must use careful judgment and patient engagement to decide whether to pursue MH evaluation in the setting of chronic conditions that do not require treatment, such as the aforementioned gynecologic conditions, non-obstructing stones or BPH.
5. Clinician may perform cross-sectional imaging with urography or retrograde pyelograms if hematuria persists after negative renal ultrasound
6. MR Urogram or Non-contrast imaging plus retrograde pyelograms if contraindications to CT Urogram

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Microhematuria

- Patients with 'above threshold' urine MICRO
  - Repeat Urine MICRO within 6 months (sooner in my opinion)
  - If no further blood, can observe
  - If persistent MH, patient is considered intermediate or high risk and full evaluation is warranted

Microhematuria

- Full hematuria evaluation
  - Upper tract imaging
    - Renal Ultrasound for Low and Intermediate risk
    - Axial imaging (CT Urogram) for High risk
  - Cystoscopy
- Follow up after negative evaluation at one year

The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

AUGS
Advancing Female Pelvic Medicine and Reconstructive Surgery

COMMITTEE OPINION

Number 703 • June 2017

Committee on Gynecologic Practice
American Urogynecologic Society

This Committee Opinion was developed by the American College of Obstetricians and Gynecologists' Committee on Gynecologic Practice and the American Urogynecologic Society in collaboration with committee members Charles W. Nager, MD, Vivian W. Sung, MD, and James L. Whiteside, MD.

This document reflects emerging clinical and scientific advances as of the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed.

Asymptomatic Microscopic Hematuria in Women

ABSTRACT: Asymptomatic microscopic hematuria is an important clinical sign of urinary tract malignancy. Asymptomatic microscopic hematuria has been variably defined over the years. In addition, the evidence primarily is based on data from male patients. However, whether the patient is a man or a woman influences the differential diagnosis of asymptomatic microscopic hematuria, and the risk of urinary tract malignancy (bladder, ureter, and kidney) is significantly less in women than in men. Among women, being older than 60 years, having a history of smoking, and having gross hematuria are the strongest predictors of urologic cancer. In low-risk, never-smoking women younger than 50 years without gross hematuria and with fewer than 25 red blood cells per high-power field, the risk of urinary tract malignancy is less than or equal to 0.5%. Furthermore, the evaluation may result in more harm than benefit and is unlikely to be cost effective. Thus, data support changing current hematuria recommendations in this low-risk group. The American College of Obstetricians and Gynecologists and the American Urogynecologic Society encourage organizations producing future guidelines on the evaluation of microscopic hematuria to perform sex-specific analysis of the data and produce practical sex-specific recommendations. In the meantime, the American College of Obstetricians and Gynecologists and the American Urogynecologic Society recommend that asymptomatic, low-risk, never-smoking women aged 35–50 years undergo evaluation only if they have more than 25 red blood cells per high-power field.

Table 1. The Prevalence of Urinary Tract Cancer by Degree of Hematuria in Women Older Than 40 Years ⇦

Red Blood Cells Per High-Power Field	Urinary Tract Cancer (%)
3–10	0.22
11–25	0.40
26–99	0.87
More than 100	1.77

Data from Jung H, Gleason JM, Loo RK, Patel HS, Slezak JM, Jacobsen SJ. Association of hematuria on microscopic urinalysis and risk of urinary tract cancer. J Urol 2011;185:1698–703. [PubMed]

Recurrent UTIs

- An abnormal urinalysis does not a UTI make
  - Symptoms
  - Positive urine culture
- Differentiate between uncomplicated and complicated UTIs
  - Severity/frequency of UTIs
  - Patient factors

TABLE 1: Guideline Definitions	
Term	**Definition**
Acute bacterial cystitis	A culture-proven infection of the urinary tract with a bacterial pathogen associated with acute-onset symptoms such as dysuria in conjunction with variable degrees of increased urinary urgency and frequency, hematuria, and new or worsening incontinence
Uncomplicated urinary tract infection	An infection of the urinary tract in a healthy patient with an anatomically and functionally normal urinary tract and no known factors that would make her susceptible to develop a UTI
Complicated urinary tract infection	An infection in a patient in which one or more complicating factors may put her at higher risk for development of a UTI and potentially decrease efficacy of therapy. Such factors include the following: • Anatomic or functional abnormality of the urinary tract (e.g., stone disease, diverticulum, neurogenic bladder) • Immunocompromised host • Multi-drug resistant bacteria
Recurrent urinary tract infection	Two separate culture-proven episodes of acute bacterial cystitis and associated symptoms within six months or three episodes within one year
Asymptomatic bacteriuria	Presence of bacteria in the urine that causes no illness or symptoms
The index patient for this guideline is an otherwise healthy adult female with an uncomplicated recurrent urinary tract infection	

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GUIDELINE STATEMENTS

Evaluation

1. Clinicians should obtain a complete patient history and perform a pelvic examination in women presenting with rUTIs. (Clinical Principle)
2. To make a diagnosis of rUTI, clinicians must document positive urine cultures associated with prior symptomatic episodes. (Clinical Principle)
3. Clinicians should obtain repeat urine studies when an initial urine specimen is suspect for contamination, with consideration for obtaining a catheterized specimen. (Clinical Principle)
4. Cystoscopy and upper tract imaging should not be routinely obtained in the index patient presenting with a rUTI. (Expert Opinion)
5. Clinicians should obtain urinalysis, urine culture and sensitivity with each symptomatic acute cystitis episode prior to initiating treatment in patients with rUTIs. (Moderate Recommendation; Evidence Level: Grade C)
6. Clinicians may offer patient-initiated treatment (self-start treatment) to select rUTI patients with acute episodes while awaiting urine cultures. (Moderate Recommendation; Evidence Level: Grade C)

Asymptomatic Bacteriuria

7. Clinicians should omit surveillance urine testing, including urine culture, in asymptomatic patients with rUTIs. (Moderate Recommendation; Evidence Level: Grade C)

8. Clinicians should not treat ASB in patients. (Strong Recommendation; Evidence Level: Grade B)

Antibiotic Treatment

9. Clinicians should use first-line therapy (i.e., nitrofurantoin, TMP-SMX, fosfomycin) dependent on the local antibiogram for the treatment of symptomatic UTIs in women. (Strong Recommendation; Evidence Level: Grade B)

10. Clinicians should treat rUTI patients experiencing acute cystitis episodes with as short a duration of antibiotics as reasonable, generally no longer than seven days. (Moderate Recommendation; Evidence Level: Grade B)

11. In patients with rUTIs experiencing acute cystitis episodes associated with urine cultures resistant to oral antibiotics, clinicians may treat with culture-directed parenteral antibiotics for as short a course as reasonable, generally no longer than seven days. (Expert Opinion)

TABLE 3: First-line therapy for the treatment of uncomplicated symptomatic UTI			
Treatment effects	**Nitrofurantoin (monohydrate/macrocrystals)**	**TMP-SMX**	**Fosfomycin**
Cure rate	88-93%	90-100%	83-91%
Antimicrobial spectrum	narrow: *E. coli, S. saprophyticus*	typical uropathogens	Covers VRE, ESBL GNRs
Collateral damage	No	Minimal	No
Resistance	Low, stable X 50y	Increasing	Currently low
Dose & duration	100 mg BID X 5d	One DS BID X 3d	3 g single dose

Recurrent UTIs

- Prevention strategies
  - Cranberry tablets
  - Probiotics
  - Vaginal estrogen therapy
- Post-coital antibiotics
  - NF 50mg x 1
  - Cephalexin 250mg x 1

Antibiotic Prophylaxis

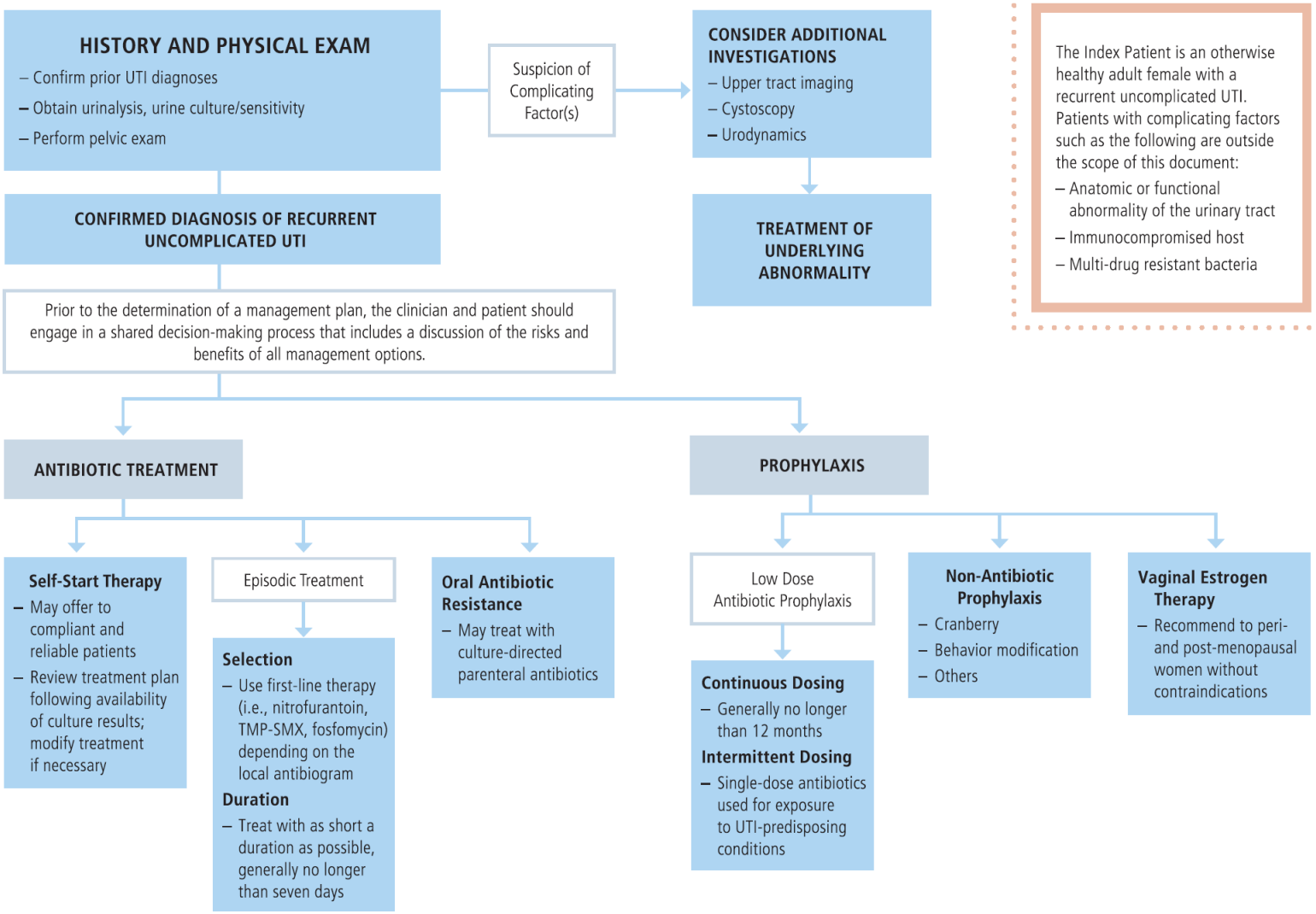
12. Following discussion of the risks, benefits, and alternatives, clinicians may prescribe antibiotic prophylaxis to decrease the risk of future UTIs in women of all ages previously diagnosed with UTIs. (Moderate Recommendation; Evidence Level: Grade B)

The results of trials on prophylactic antibiotics consistently demonstrate the positive effect of this preventive treatment, while acknowledging the increase in mild, moderate, and severe adverse events associated with antibiotic use. The effects of antibiotic prophylaxis have been shown to last during the active intake time period, with UTI recurrence equaling that of the placebo arm following cessation of prophylaxis.

Antibiotic prophylaxis dosing

Continuous prophylaxis:	
TMP	100 mg once daily
TMP-SMX	40 mg/200 mg once daily, 40 mg/200 mg thrice weekly
Nitrofurantoin	50 mg daily, 100 mg daily
Cephalexin	125 mg once daily, 250 mg once daily
Fosfomycin	3 gm every 10 days
Intermittent prophylaxis:	
TMP-SMX	40 mg/200 mg, 80 mg/400 mg
Nitrofurantoin	50—100 mg
Cephalexin	250 mg

Recurrant Uncomplicted Urinary Tract Infections in Women: AUA/CUA/SUFU Diagnosis & Treatment Algorithm



Stone Management during Pregnancy

- Flank pain during pregnancy poses a diagnostic dilemma
- Broad differential
  - Urinary tract infection/stone
  - Round ligament pain
  - Contractions
  - MSK
- Imaging algorithm is altered to avoid ionizing radiation exposure to the fetus

Stone Management during Pregnancy

- Renal Ultrasound
  - Readily available/low cost and has no ionizing radiation
  - Lower positive predictive value as compared to CT
  - Does renal pelvic dilation represent an obstructing stone or physiologic hydronephrosis?

Stone Management during Pregnancy

- MRI
  - Often recommended after a non-diagnostic or equivocal U/S
  - Limitations include
    - Lack of availability
    - Duration of study
    - Costs
  - Ureteral stones can be challenging to identify on MRI

Stone Management during Pregnancy

- Low levels of ionizing radiation (< 50mGy) during pregnancy appear safe
- Radiation doses associated with renal colic non-contrasted CT studies have been lowered to that of an abdominal X-ray

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Low-Dose Computed Tomography for the Evaluation of Flank Pain in the Pregnant Population

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ABSTRACT

Background: Evaluation of the pregnant patient with suspected renal colic is complex. Fetal irradiation concerns have traditionally prohibited the use of CT in this population. We report our institution's experience using low-dose CT in the evaluation of pregnant patients with refractory flank pain.

Patients and Methods: A retrospective review of all patients who underwent low-dose CT evaluation of the urinary tract for suspected urinary tract stones was performed. Data obtained included gestational age, urinalysis and ultrasonography results, CT findings, and calculated fetal radiation exposure.

Results: Between April 2004 and December 2006, 20 patients with an average gestational age of 26.5 weeks presented to our institution with acute, refractory flank pain consistent with a diagnosis of urolithiasis. All patients underwent renal ultrasonographic evaluation before unenhanced CT of the abdomen and pelvis using a low-dose protocol. The average radiation exposure was 705.75 mrads (range 210–1372; SD ± 338.66 mrads). Of the 20 patients, CT demonstrated urinary stones (1–12 mm) in 13. Of those patients with documented stones, 4 were treated conservatively, 2 underwent intrapartum stent placement, 5 had ureteroscopy with stone extraction, and 2 were treated postpartum.

Conclusion: Low-dose CT is highly sensitive and specific for the detection of urinary calculi in the pregnant population. CT confers a low risk of fetal harm and can improve patient care when used judiciously.

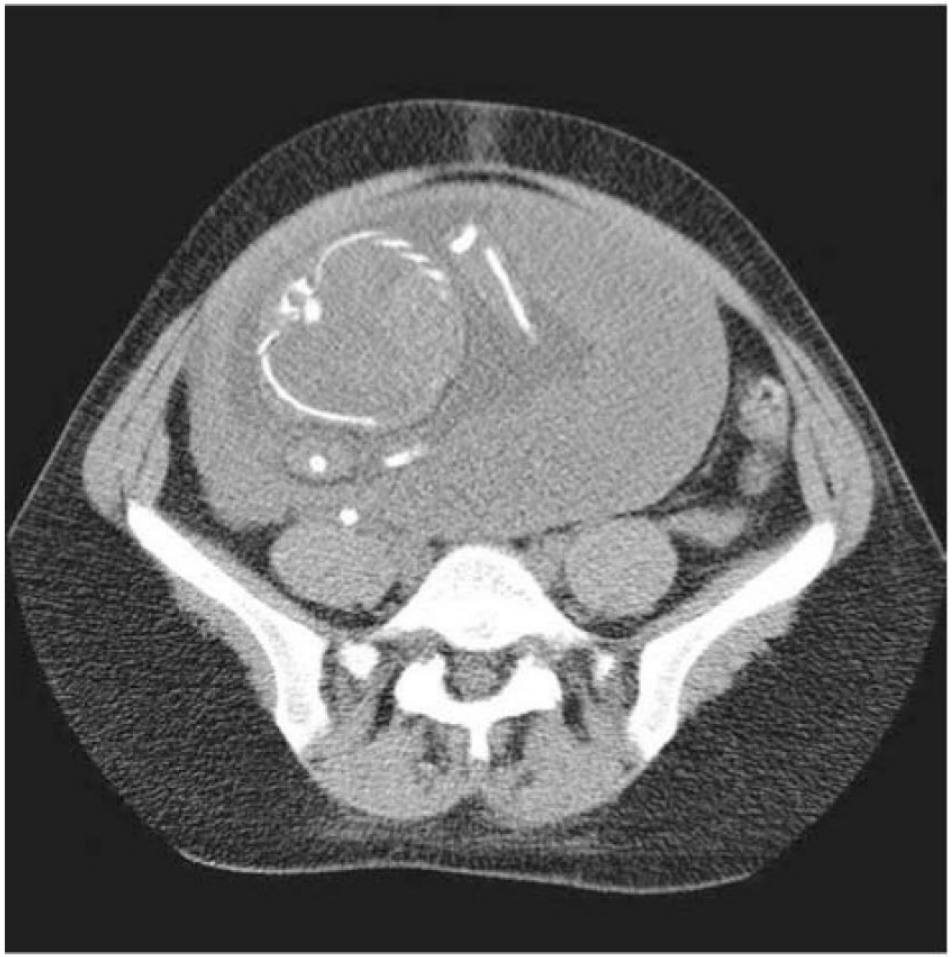

FIG. 1. Low dose CT scan of Patient 14. A 6 mm right distal ureteral stone is easily visualized. Estimated fetal dosage was 672 mrad. The patient was successfully treated with ureteroscopy and stone extraction.

Stone Management during Pregnancy

- Low Dose Computed Tomography
  - Readily available
  - High diagnostic accuracy (98.4%)
  - Very low likelihood of fetal harm
- Underutilized owing to institutional culture, misunderstanding of ionizing radiation risks, and/or fear of litigation
  - Delays in diagnosis or misdiagnosis

INTERIM UPDATE

The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

ACOG COMMITTEE OPINION

Number 723 • October 2017

(Replaces Committee Opinion Number 656, February 2016)

Committee on Obstetric Practice

This document is endorsed by the American College of Radiology and the American Institute of Ultrasound in Medicine. This Committee Opinion was developed by the American College of Obstetricians and Gynecologists' Committee on Obstetric Practice. Member contributors included Joshua Copel, MD; Yasser El-Sayed, MD; R. Phillips Heine, MD; and Kurt R. Wharton, MD. This document reflects emerging clinical and scientific advances as of the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed.

INTERIM UPDATE: This Committee Opinion is updated as highlighted to reflect a limited, focused change in the language and supporting evidence regarding exposure to magnetic resonance imaging and gadolinium during pregnancy.

Guidelines for Diagnostic Imaging During Pregnancy and Lactation

ABSTRACT: Imaging studies are important adjuncts in the diagnostic evaluation of acute and chronic conditions. However, confusion about the safety of these modalities for pregnant and lactating women and their infants often results in unnecessary avoidance of useful diagnostic tests or the unnecessary interruption of breastfeeding. Ultrasonography and magnetic resonance imaging are not associated with risk and are the imaging techniques of choice for the pregnant patient, but they should be used prudently and only when use is expected to answer a relevant clinical question or otherwise provide medical benefit to the patient. With few exceptions, radiation exposure through radiography, computed tomography scan, or nuclear medicine imaging techniques is at a dose much lower than the exposure associated with fetal harm. If these techniques are necessary in addition to ultrasonography or magnetic resonance imaging or are more readily available for the diagnosis in question, they should not be withheld from a pregnant patient. Breastfeeding should not be interrupted after gadolinium administration.

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Predictive Value of Current Imaging Modalities for the Detection of Urolithiasis During Pregnancy: a Multicenter, Longitudinal Study

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Purpose: We determined the optimal imaging study by which to diagnose and treat pregnant patients with suspected urolithiasis.

Materials and Methods: A retrospective, multicenter study was performed to determine the comparative accuracy of imaging modalities used before the surgical management of suspected urolithiasis in pregnant patients. Patients with a clinical suspicion of urolithiasis were evaluated with directed imaging including renal ultrasound alone, renal ultrasound and low dose computerized tomography, or renal ultrasound and magnetic resonance urography. When indicated, patients underwent therapeutic ureteroscopy. The rate of negative ureteroscopy was determined and the positive predictive values of the imaging modalities were calculated.

Results: A total of 51 pregnant patients underwent ureteroscopy. The mean age of the cohort was 27 years. Mean gestational age was 24.4 weeks. Of the women 24 (47%) underwent renal ultrasound and low dose computerized tomography, 22 (43%) underwent ultrasound alone, and 5 (10%) underwent renal ultrasound and magnetic resonance urography. Negative ureteroscopy occurred in 7 of the 51 patients (14%). The rate of negative ureteroscopy among patients who underwent renal ultrasound alone, renal ultrasound and low dose computerized tomography, and renal ultrasound and magnetic resonance urography was 23%, 4.2% and 20%, respectively. The positive predictive value of computerized tomography, magnetic resonance and ultrasound was 95.8%, 80% and 77%, respectively.

Conclusions: The rate of negative ureteroscopy was 14% among pregnant women undergoing intervention in our series. Of the group treated surgically after imaging with ultrasound alone, 23% had no ureteral stone, resulting in the lowest positive predictive value of the modalities used. Alternative imaging techniques, particularly low dose computerized tomography, offer improved diagnostic information that can optimize management and obviate unnecessary intervention.

Key Words: pregnancy, urinary calculi, diagnostic imaging, disease management, treatment outcome

Abbreviations and Acronyms

CT = computerized tomography

IVP = excretory urography

LDCT = low dose computerized tomography

MRU = magnetic resonance urography

PPV = positive predictive value

RUS = renal ultrasound

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* Financial interest and/or other relationship with Boston Scientific, Cook and Watson Pharmaceuticals.

† Financial interest and/or other relationship with Boston Scientific.

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Table 2. *Incidence of negative ureteroscopy*

Preop Imaging	No. Stones	No. No Stones	% Neg Ureteroscopy
Low dose CT	22	1	4.5
Ultrasound	13	5	27.8
MRI	4	1	20

Stone Management during Pregnancy

- Obtain U/A with urine culture and renal ultrasound
- Coordinate multi-disciplinary team
  - OB
  - Urology
  - Radiology/IR
- Assess for complicating factors
  - Fever/UTI/oliguria/fetal distress

Stone Management during Pregnancy

- If there are complicating factors, LDCT may provide expedited, actionable information that informs decision-making
- If there are complicating factors, the comparative risk discussion regarding LDCT is less ambiguous

Stone Management during Pregnancy

- If there are no complicating factors, the pace of decision making is more measured and deliberate
  - Conservative management with or without repeat RUS
  - Availability of MRI with continued consideration for LDCT

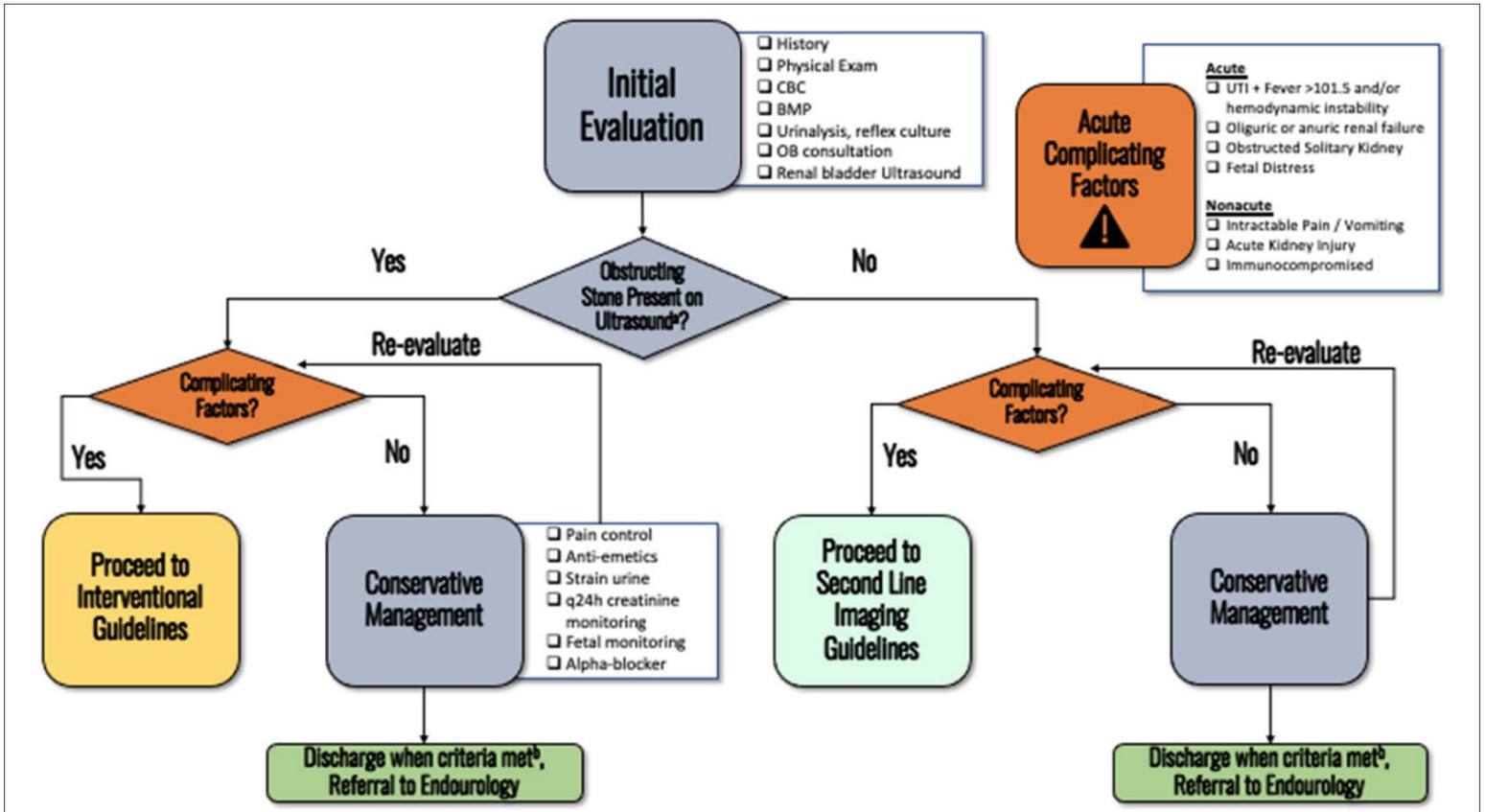

FIGURE 1 | The initial evaluation of an obstetric patients presenting with nephrolithiasis. **(a)** Pain is adequately controlled on oral pain medications, nausea well controlled and able to eat/drink, no AKI and stable creatinine, afebrile, non-concerning fetal monitoring. **(b)** When more emergent diagnosis is not needed. Consider performing doppler for RI, ureteral jets, or transvaginal ultrasonography (if distal stone suspected) if not already performed on initial ultrasound.

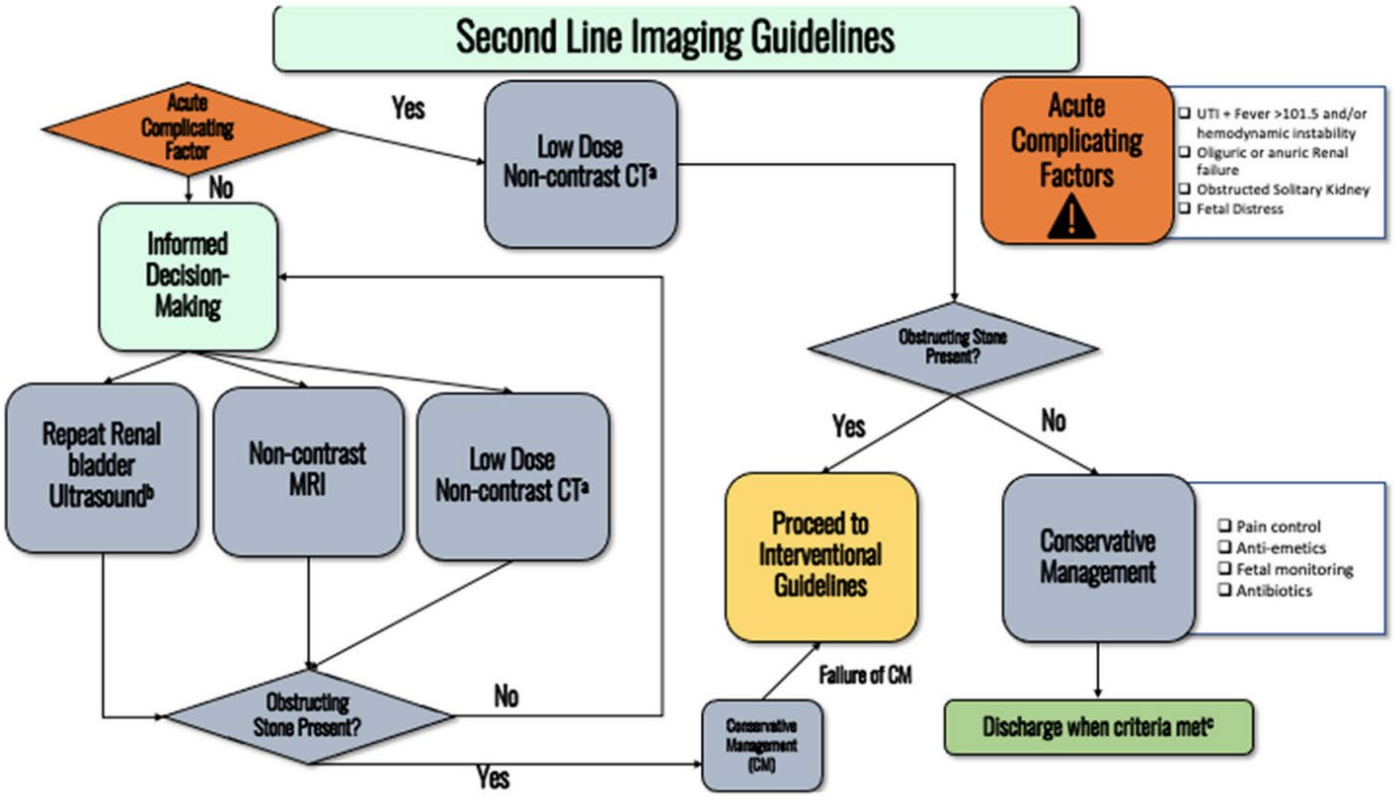

FIGURE 2 | Flowchart detailing the second-line imaging guidelines. **(a)** Consider discussing with medical physicist to ensure lowest possible radiation dose is administered. **(b)** Pain is adequately controlled on oral pain medications, nausea well controlled and able to eat/drink, no AKI and stable creatinine, afebrile, non-concerning fetal monitoring. **(c)** Transvaginal ultrasound can more accurately detect distal ureteral stones.

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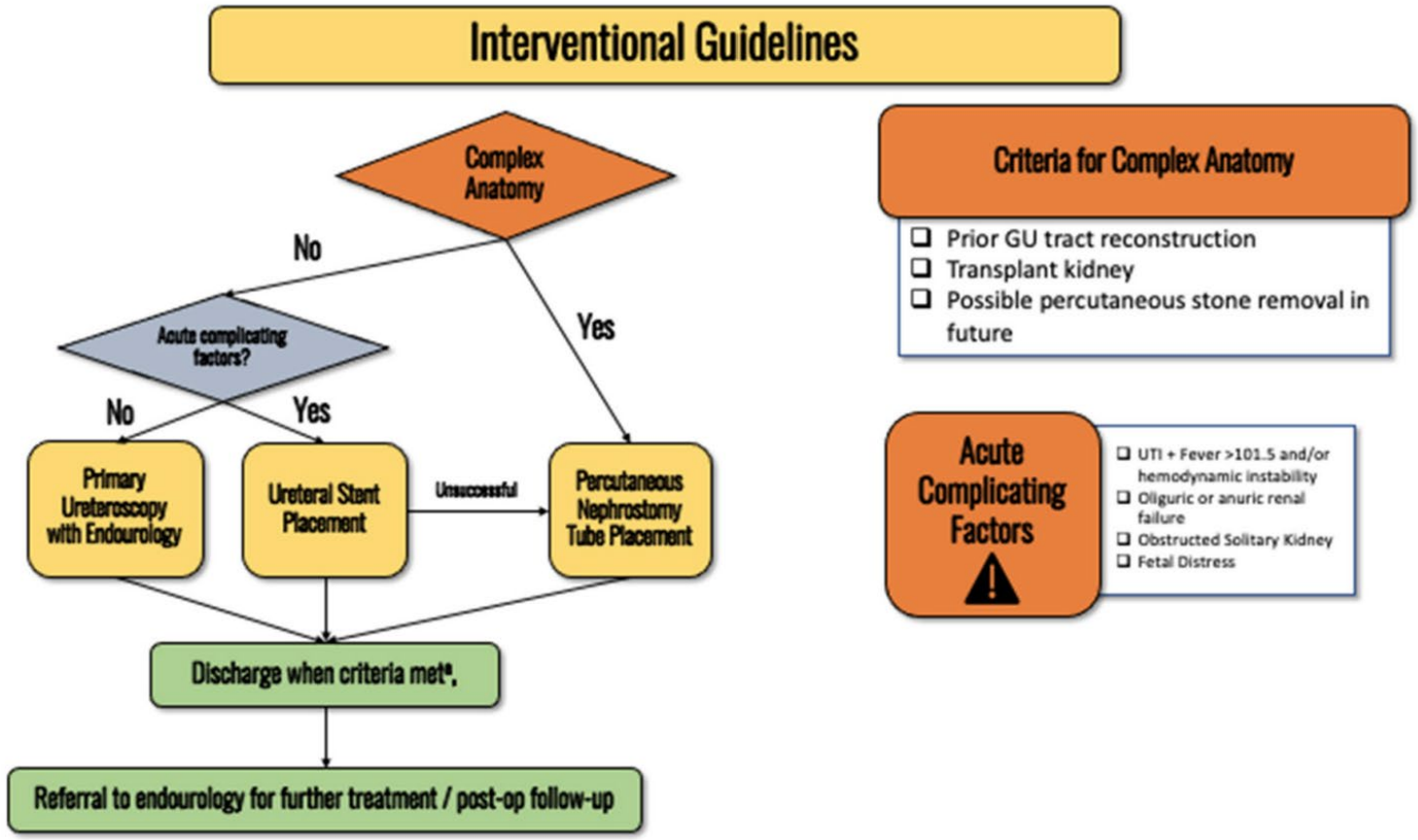

FIGURE 3 | Flowchart detailing the interventional guidelines for obstetric patients with nephrolithiasis. **(a)** Pain is adequately controlled on oral pain medications, nausea well controlled and able to eat/drink, no AKI and stable creatinine, afebrile, non-concerning fetal monitoring.

UROLOGY

Obstetric Complications of Ureteroscopy During Pregnancy

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Purpose: During pregnancy a ureteral stone and its management may pose risks for the mother and fetus. Definitive ureteroscopic management of an obstructing stone during pregnancy has been increasingly used without a reported increased incidence of urological complications. However, the rate of obstetric complications of ureteroscopy during pregnancy remains undefined.

Materials and Methods: Charts of pregnant women who had undergone ureteroscopy at 5 tertiary centers were reviewed. Patient and procedure characteristics were collected. Records were evaluated for the occurrence of obstetric complications in the postoperative period.

Results: A total of 46 procedures were performed in 45 patients at 5 institutions. There were 2 obstetric complications (4.3%), including 1 preterm labor managed conservatively and 1 preterm labor resulting in preterm delivery. There was no fetal loss. No statistically significant characteristics were identified differentiating those patients having obstetric complications.

Conclusions: Ureteroscopy performed during pregnancy has been previously reported to be urologically safe and effective for addressing ureteral stones. In our multi-institutional series a 4% rate of obstetric complications was observed. Based on this risk a multidisciplinary approach is prudent for the pregnant patient undergoing ureteroscopy.

Abbreviations and Acronyms

CT = computerized tomography

MRI = magnetic resonance imaging

Submitted for publication October 22, 2011.

Study received institutional review board approval.

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† Nothing to disclose.

‡ Financial interest and/or other relationship with Pfizer.

§ Financial interest and/or other relationship with Boston Scientific, Watson Pharmaceuticals, TARIS Biomedical, Cook Urological and Covidien.

‖ Financial interest and/or other relationship with Boston Scientific.

Urinary Incontinence

- History and Physical Exam
  - Degree of bother is the driving factor in my opinion
  - Consider use of a validated questionnaire
  - Broadly categorize symptoms into:
    - Stress
    - Urge
    - Mixed
    - "I don't know"

Urinary Incontinence

- Rule out hematuria and UTI
- Consider PVR
- Offer Tier 1 strategies
  - Biofeedback/Kegels/PFPT
  - Caffeine moderation
  - Timed voiding/prompted voiding

Urinary Incontinence

- Stress dominant incontinence or isolated SUI
  - Kegels/PFPT
  - Bulking agent (Bulkamid)
    - Core Videos (2020): BULKAMID Urethral Bulking System (youtube.com)
  - MUS
    - TVT/TOT/Single incision sling
- Limited role/niche role for Burch colposuspension and PVS

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Female Stress Urinary Incontinence: AUA/SUFU Evaluation and Treatment Algorithm

EVALUATION (INDICATIONS)

Initial evaluation

The initial evaluation of patients desiring to undergo surgical intervention should include the following components:

- History
- Physical exam
- Demonstration of SUI
- PVR assessment
- Urinalysis

Cystoscopy

Should not be performed unless there is a concern for lower urinary tract abnormalities

Urodynamics

May be omitted when SUI is clearly demonstrated

Additional evaluation

Additional evaluation **should** be performed in the following scenarios:

- Lack of definitive diagnosis
- Inability to demonstrate SUI
- Known/suspected NLUTD
- Abnormal urinalysis
- Urgency-predominant MUI
- Elevated PVR
- High-grade POP (if SUI not demonstrated with POP reduction)
- Evidence of significant voiding dysfunction

Additional evaluation **may** be performed in the following scenarios:

- Concomitant OAB symptoms
- Failure of prior anti-incontinence surgery
- Prior POP surgery

In patients who wish to undergo treatment, clinicians should counsel regarding the availability of observation, pelvic floor muscle training, other non-surgical options, and surgical interventions. Clinicians should counsel patients on potential complications specific to the treatment options.

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TREATMENT

Non-Surgical

- Continence pessary
- Vaginal inserts
- Pelvic floor muscle exercises +/- biofeedback

Surgical

- Bulking agents
- Midurethral sling (synthetic)
- Autologous fascia pubovaginal sling
- Burch colposuspension

If midurethral sling surgery is selected, clinicians may offer retropubic, transobturator, or single-incision sling to index patients. Clinicians must discuss the specific risks and benefits of mesh as well as alternatives to a mesh sling.

SPECIAL CASES

1. Fixed immobile urethra

- Pubovaginal sling
- Retropubic midurethral sling
- Urethral bulking agents

2. Concomitant surgery for POP repair and SUI

Any incontinence procedure

3. Concomitant NLUTD

Surgical treatment following appropriate evaluation and counseling

4. Child-bearing, diabetes, obesity, geriatric

Surgical treatment following appropriate evaluation and counseling

Urinary Incontinence

- Urge Dominant incontinence or isolated OAB
  - Kegels/PFPT
  - Timed voiding/caffeine moderation
  - Anticholinergics and beta-3 agonists
  - Botox
  - iTNS/PTNS
  - SNS

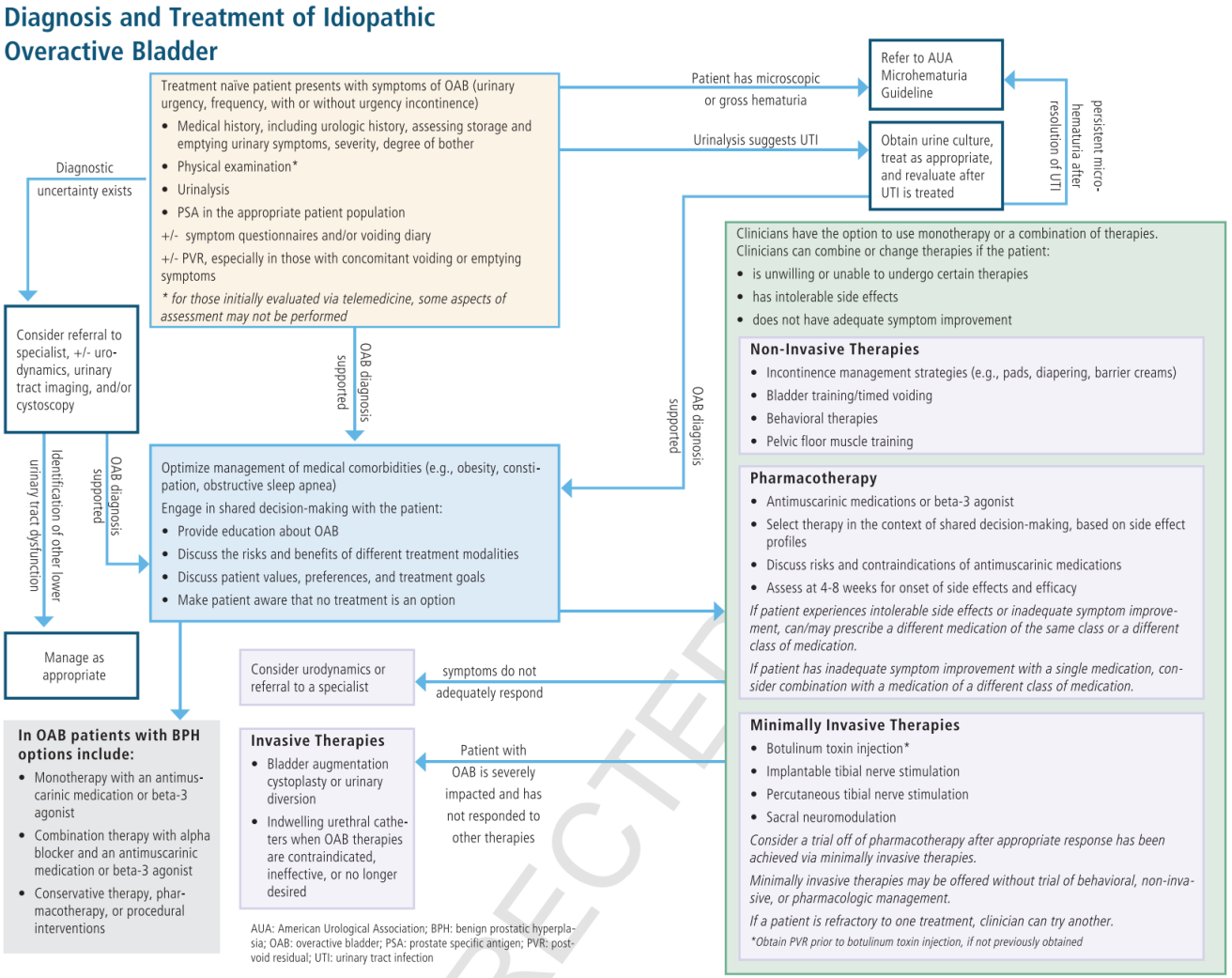

Figure. OAB algorithm.

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Questions?