MICROHEMATURIA: AUA/ SUFU GUIDELINE 2020

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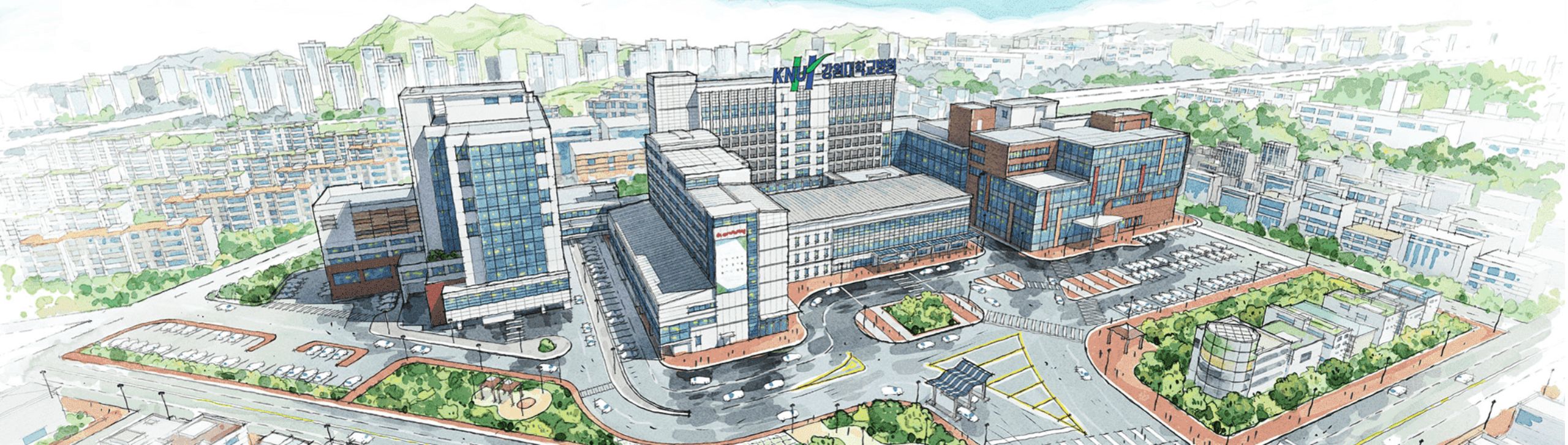

1. MicrohematuriaGuideline

- Algorithm
- Strength of Evidence Definition
- AUA Nomenclature
- Urothelial Cancer Risk Factors
- AUA Microhematuria Risk Stratification System

2. Guideline Statements

- Diagnosis and Definition of Microhematuria
- Initial Evaluation
- Risk Stratification
- Urinary Tract Evaluation
- Urinary Markers
- Follow-Up

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Kangwon National University Hospital

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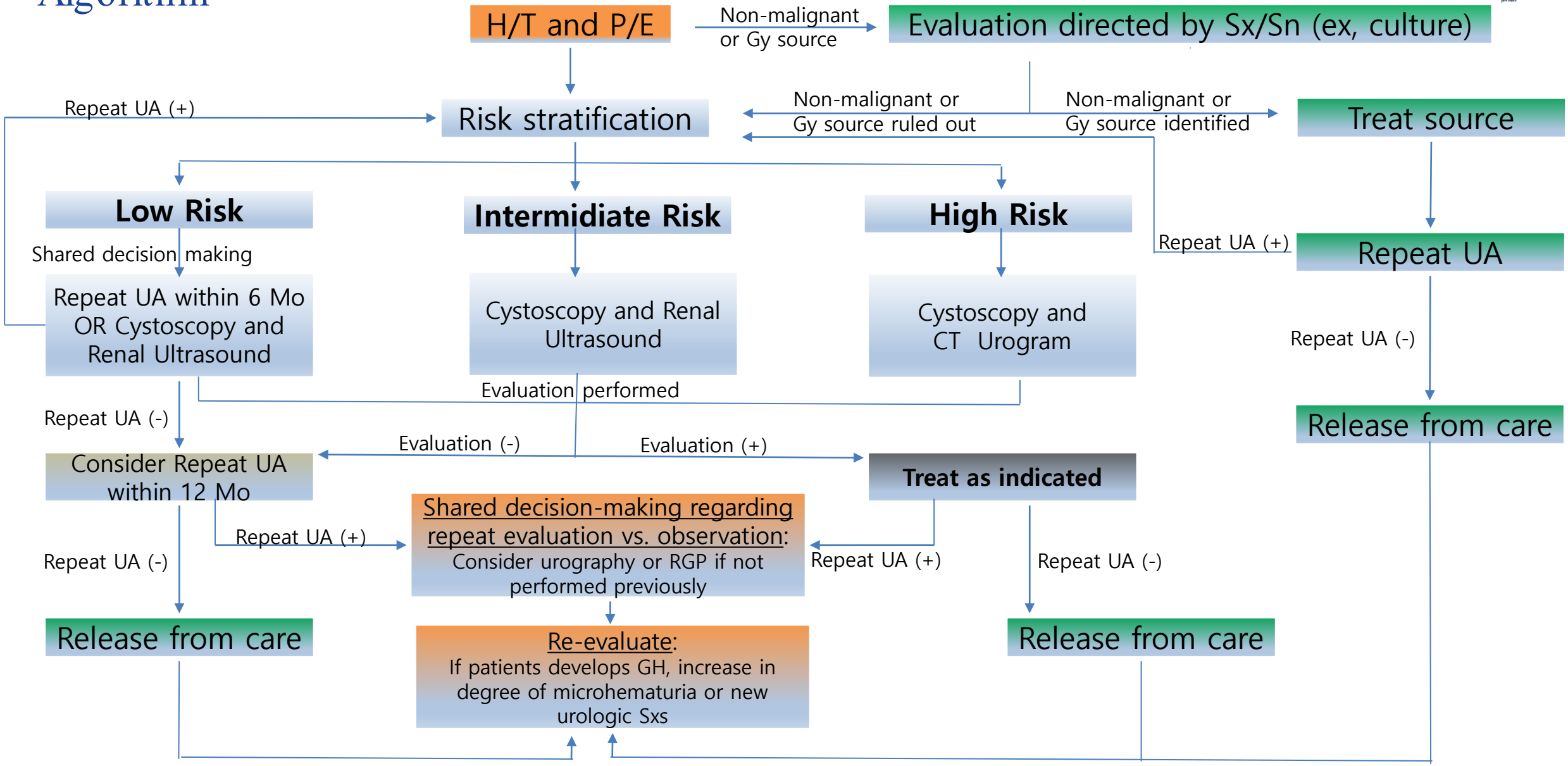
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Non-malignant or Gy source
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Non-malignant or Gy source identified
Treat source
Low Risk
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Shared decision making
Repeat UA within 6 Mo OR Cystoscopy and Renal Ultrasound
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Repeat UA (-)
Release from care
Evaluation performed
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Evaluation (+)
Consider Repeat UA within 12 Mo
Treat as indicated
Repeat UA (+)
Shared decision-making regarding repeat evaluation vs. observation:
Consider urography or RGP if not performed previously
Repeat UA (+)
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Release from care
Release from care
Re-evaluate:
If patients develops GH, increase in degree of microhematuria or new urologic Sxs

2012 AUA guideline

All patients ≥ 35 yrs c MH: CT urography, cystoscopy recommended

Strength of Evidence Definitions

AUA Strength of Evidence Category	GRADE Certainty Rating	Definition
A	High	• We are very confident that the true effect lies close to that of the estimate of the effect
B	Moderate	• We are moderately confident in the effect estimate • The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different
C	Low	• Our confidence in the effect estimate is limited • The true effect may be substantially different from the estimate of the effect
	Very Low	• We have very little confidence in the effect estimate • The true effect is likely to be substantially different from the estimate of effect

AUA Nomenclature Linking Statement Type: Strong

Evidence Grade	Evidence Strength A (High Certainty)	Evidence Strength B (Moderate Certainty)	Evidence Strength C (Low Certainty)
Strong Recommendation (Net benefit or harm substantial)	-Benefits > Risks/Burdens (or vice versa) -Net benefit (or net harm) is substantial -Applies to most patients in most circumstances and future research is unlikely to change confidence	-Benefits > Risks/Burdens (or vice versa) -Net benefit (or net harm) is substantial -Applies to most patients in most circumstances but better evidence could change confidence	-Benefits > Risks/Burdens (or vice versa) -Net benefit (or net harm) appears substantial -Applies to most patients in most circumstances but better evidence is likely to change confidence (rarely used to support a Strong Recommendation)

AUA Nomenclature Linking Statement Type: Moderate

Evidence Grade	Evidence Strength A (High Certainty)	Evidence Strength B (Moderate Certainty)	Evidence Strength C (Low Certainty)
Moderate Recommendation (Net benefit or harm moderate)	-Benefits > Risks/Burdens (or vice versa) -Net benefit (or net harm) is moderate -Applies to most patients in most circumstances and future research is unlikely to change confidence	-Benefits > Risks/Burdens (or vice versa) -Net benefit (or net harm) is moderate -Applies to most patients in most circumstances but better evidence could change confidence	-Benefits > Risks/Burdens (or vice versa) -Net benefit (or net harm) appears moderate -Applies to most patients in most circumstances but better evidence is likely to change confidence

AUA Nomenclature Linking Statement Type: Conditional

Evidence Grade	Evidence Strength A (High Certainty)	Evidence Strength B (Moderate Certainty)	Evidence Strength C (Low Certainty)
Conditional Recommendation (Net benefit or harm comparable to other options)	-Benefits=Risks/Burdens -Best action depends on individual patient circumstances -Future Research is unlikely to change confidence	-Benefits= Risks/Burdens -Best action appears to depend on individual patient circumstances -Better evidence could change confidence	-Balance between Benefits & Risks/Burdens unclear -Net benefit (or net harm) comparable to other options -Alternative strategies may be equally reasonable -Better evidence likely to change confidence

Urothelial Cancer Risk Factors

Risk Factors Included in AUA Microhematuria Risk Stratification System	Additional Urothelial Cancer Risk Factors
Age	Irritative lower urinary tract symptoms
Male sex	Prior pelvic radiation therapy
Smoking use	Prior cyclophosphamide/ifosfamide chemotherapy
Degree of microhematuria	Family history of urothelial cancer or Lynch Syndrome
Persistence of microhematuria	Occupational exposures to benzene chemicals or aromatic amines (e.g., rubber, petrochemicals, dyes)
History of gross hematuria	Chronic indwelling foreign body in the urinary tract

AUA Microhematuria *Risk Stratification* System

Low (patient meets all criteria)	Intermediate (patients meets any one of these criteria)	High (patients 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	• 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	• Women or Men age ≥60 years • >30 pack years • >25 RBC/HPF on a single urinalysis • History of gross hematuria

2. Guideline Statements

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Diagnosis and Definition of Microhematuria

1. Clinicians should define microhematuria as **>3 RBC/HPF**
on microscopic evaluation of a single, properly collected urine specimen. (Strong Recommendation; Evidence Level: Grade C)

2. Clinicians should not define microhematuria 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 microhematuria, 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 microhematuria. (Clinical Principle)

4. Clinicians should perform the same evaluation of patients with microhematuria 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)

5. In patients with findings suggestive of a gynecologic or non-malignant urologic etiology, clinicians should evaluate the patients with appropriate physical examination techniques and tests to identify such an etiology. (Clinical Principle)

Initial Evaluation

6. 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. If microhematuria persists or the etiology cannot be identified, clinicians should perform risk-based urologic evaluation. (Clinical Principle)

7. In patients with hematuria attributed to a urinary tract infection, clinicians should obtain a urinalysis with microscopic evaluation following treatment to ensure resolution of the hematuria. (Strong Recommendation; Evidence Level: Grade C)

8. Clinicians should refer patients with microhematuria for nephrologic evaluation if medical renal disease is suspected. However, risk-based urologic evaluation should still be performed. (Clinical Principle)

Risk Stratification

9. Following initial evaluation, clinicians should categorize patients presenting with microhematuria as low-, intermediate-, or high-risk for genitourinary malignancy based on the accompanying tables. (Strong Recommendation; Evidence Level: Grade C)

Urinary Tract Evaluation

Low-Risk

10. In low-risk patients with microhematuria, clinicians should engage patients in shared decision-making to decide between repeating urinalysis within six months or proceeding with cystoscopy and renal ultrasound. (Moderate Recommendation; Evidence Level: Grade C)

Initially Low-Risk with Hematuria on Repeat Urinalysis

11. Low-risk patients who initially elected not to undergo cystoscopy or upper tract imaging and who are found to have microhematuria on repeat urine testing should be reclassified as intermediate- or high-risk. In such patients, clinicians should perform cystoscopy and upper tract imaging in accordance with recommendations for these risk strata (Strong Recommendation; Evidence Level: Grade C)

Urinary Tract Evaluation

Intermediate-Risk

12. Clinicians should perform cystoscopy and renal ultrasound in patients with microhematuria categorized as intermediate-risk for malignancy. (Strong Recommendation; Evidence Level: Grade C)

Urinary Tract Evaluation

High-Risk

13. Clinicians should perform cystoscopy and axial upper tract imaging in patients with microhematuria categorized as high-risk for malignancy. (Strong Recommendation; Evidence Level: Grade C)

Options for Upper Tract Imaging in High-Risk Patients:

a. If there are no contraindications to its use, clinicians should perform multiphasic CT urography (including imaging of the urothelium). (Moderate Recommendation; Evidence Level: Grade C)

b. If there are contraindications to multiphasic CT urography, clinicians may utilize MR urography. (Moderate Recommendation; Evidence Level: Grade C)

c. If there are contraindications to multiphasic CT urography and MR urography, clinicians may utilize retrograde pyelography in conjunction with non-contrast axial imaging or renal ultrasound. (Expert Opinion)

Urinary Tract Evaluation

High-Risk *...continued...*

14. Clinicians should perform white light cystoscopy in patients undergoing evaluation of the bladder for microhematuria. (Moderate Recommendation; Evidence Level: Grade C)

15. In patients with persistent or recurrent microhematuria previously evaluated with renal ultrasound, clinicians may perform additional imaging of the urinary tract. (Conditional Recommendation; Evidence Level: Grade C)

16. In patients with microhematuria who have a family history of renal cell carcinoma or a known genetic renal tumor syndrome, clinicians should perform upper tract imaging regardless of risk category. (Expert Opinion)

Urinary Markers

17. Clinicians should not use urine cytology or urine-based tumor markers in the initial evaluation of patients with microhematuria. (Strong Recommendation; Evidence Level: Grade C)

18. Clinicians may obtain urine cytology for patients with persistent microhematuria after a negative workup who have irritative voiding symptoms or risk factors for carcinoma in situ. (Expert Opinion)

Follow- Up

19. In patients with a negative hematuria evaluation, clinicians may obtain a repeat urinalysis within 12 months. (Conditional Recommendation; Evidence Level: Grade C)

20. For patients with a prior negative hematuria evaluation and subsequent negative urinalysis, clinicians may discontinue further evaluation for microhematuria. (Conditional Recommendation; Evidence Level: Grade C)

21. For patients with a prior negative hematuria evaluation who have persistent or recurrent microhematuria at the time of repeat urinalysis, clinicians should engage in shared decision-making regarding need for additional evaluation. (Expert Opinion)

22. For patients with a prior negative hematuria evaluation who develop gross hematuria, significant increase in degree of microhematuria, or new urologic symptoms, clinicians should initiate further evaluation. (Moderate Recommendation; Evidence Level: Grade C)

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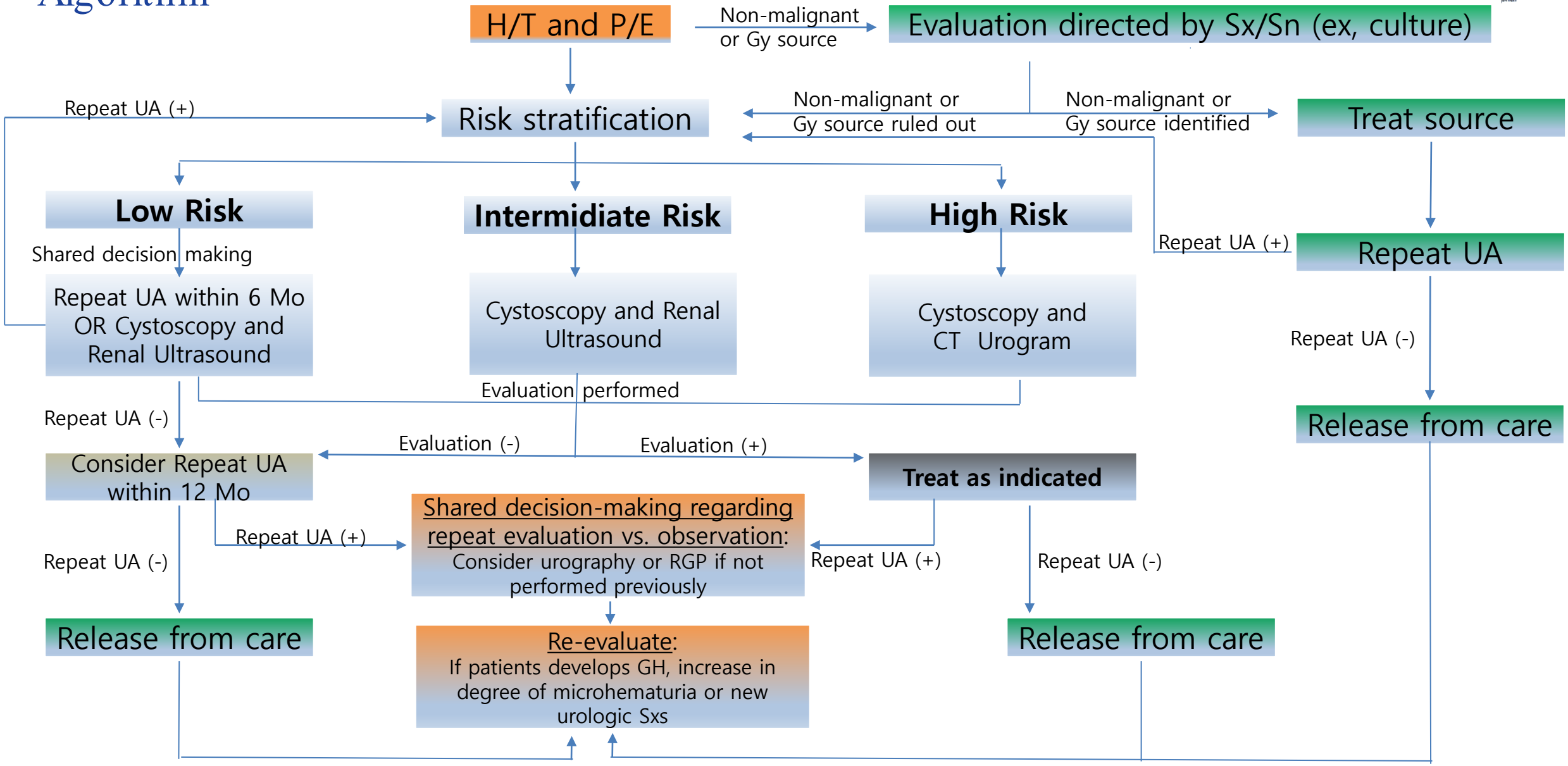
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