

Nephrology

Urinalysis, Hematuria, Proteinuria, and Biopsy

Hematuria with proteinuria, hypertension, or reduced GFR

Dx: Glomerular hematuria—dysmorphic RBCs, RBC casts, or cola-colored urine without clots

NEXT: Nephrology evaluation with serologies and biopsy, not cystoscopy

CONTRAST: Clots, isomorphic RBCs, or terminal hematuria → urologic source

≥3 RBCs/hpf on microscopy after menses, exercise, trauma, and UTI are excluded

HIGH RISK: Age ≥60, >30 pack-years, or >25 RBCs/hpf → cystoscopy plus CT urography

INTERMEDIATE: Age 40-59, 10-30 pack-years, or 11-25 RBCs/hpf → cystoscopy plus renal ultrasound

LOW RISK: Women <50/men <40, never-smoker, 3-10 RBCs/hpf → repeat urinalysis in 6 months

TRAP: Anticoagulation does not explain hematuria—evaluate anyway

Heme-positive dipstick with no RBCs on microscopy

Dx: Pigmenturia—myoglobinuria or hemoglobinuria

SEPARATE THEM: Clear plasma with high CK → rhabdomyolysis; pink plasma with low haptoglobin → intravascular hemolysis

CONTRAST: Red urine with a negative dipstick → beets, rifampin, phenazopyridine, or porphyria

Screening for kidney damage in diabetes or hypertension

TEST: Spot urine albumin-to-creatinine ratio; dipstick protein misses A2 albuminuria

CATEGORIES: A1 <30; A2 30-300; A3 >300 mg/g

CONFIRM: 2 of 3 elevated samples over 3-6 months; exercise, fever, and heart failure raise UACR transiently

CONTRAST: UPCR measures total protein; use it when nonalbumin protein is suspected

UPCR ≥3.5 g/g with normal albumin and no edema

Dx: Nephrotic-range proteinuria without nephrotic syndrome—often obesity-related FSGS or diabetes

NEXT: Confirm on a first-morning spot UPCR, then refer for biopsy if the cause is not obvious

CONTRAST: Nephrotic syndrome adds hypoalbuminemia, edema, and hyperlipidemia with thrombosis risk

Patient under 30 with isolated proteinuria under 1 g/day and normal creatinine

Dx: Orthostatic proteinuria

TEST: Split collection—normal first-morning UPCR with elevated daytime UPCR confirms it; benign, no biopsy

CONTRAST: Persistent first-morning proteinuria, hematuria, hypertension, or low GFR needs kidney evaluation

Older patient with AKI/heavy proteinuria but negative or trace dipstick

Dx: Monoclonal light-chain proteinuria / cast nephropathy

WHY: Dipstick detects albumin, not light chains

TEST: SPEP/UPEP with immunofixation and serum free light chains

RULE: Kidney injury from a small clone is MGRS, not benign MGUS; involve nephrology and hematology