

Nephrology

Urinalysis, Hematuria, Proteinuria, and Biopsy

Dysmorphic RBCs, RBC casts, or cola-colored urine

Dx: Glomerular hematuria / glomerulonephritis

Next: Nephrology evaluation; biopsy for active sediment with kidney dysfunction or suspected systemic disease

Contrast: Clots or isomorphic RBCs suggest a nonglomerular source

≥3 RBCs/hpf on urine microscopy

Rule: Microscopic hematuria = ≥3 RBCs/hpf in a properly collected specimen

Next: Exclude transient causes, then risk-stratify for cystoscopy and upper-tract imaging

Contrast: Proteinuria, dysmorphic RBCs, or RBC casts → nephrology; anticoagulation does not obviate evaluation

Hematuria with clots

Dx: Nonglomerular urinary tract bleeding

Contrast: Glomerular bleeding causes dysmorphic RBCs or RBC casts and usually no clots

Next: Urologic risk assessment, especially with gross hematuria, older age, or smoking

Heme-positive dipstick with no RBCs

Dx: Pigmenturia: myoglobin or free hemoglobin

Next: Check CK if rhabdomyolysis is suspected

Contrast: Hematuria has RBCs on microscopy

Screening for kidney damage in diabetes or hypertension

Test: Spot urine albumin-to-creatinine ratio (UACR)

Categories: A1 <30; A2 30–300; A3 >300 mg/g

Contrast: UPCR measures total protein; use when nonalbumin protein is suspected

Proteinuria ≥3.5 g/day or UPCR ≥3.5 g/g

Dx: Nephrotic-range proteinuria

Clue: Fatty casts or Maltese-cross lipid bodies

Next: Assess edema, albumin, lipids, thrombosis risk, cause, and biopsy need

Young patient with isolated proteinuria and normal evaluation

Dx: Orthostatic proteinuria

Test: Normal first-morning UPCR with elevated daytime UPCR

Contrast: Persistent proteinuria, hematuria, hypertension, or low GFR requires 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; biopsy if MGRS is suspected

Monoclonal immunoglobulin-mediated kidney injury without myeloma-defining burden

Dx: Monoclonal gammopathy of renal significance (MGRS)

Next: Nephrology and hematology evaluation for clone-directed therapy

Trap: A clone causing organ injury is not benign MGUS