




Hematuria

- Gross hematuria : direct visual inspection / Overall urine color may be pink, red, brown.
- Microscopic hematuria : by microscopic examination of the urine (≥ 5 RBC/HPF)

—> Ask in Hx about :

- Amount & color of urine/blood
- It's Relationship to urine stream: Initial -> urethral cause
Terminal -> prostate or bladder neck, bladder stone, **BOO** 
Total -> bladder and above.. **RCC, Bladder CA**
- Presence of clots (pathology is in the UT Not from the renal parenchyma)
- Irritative symptoms: Frequency, urgency and nocturia.
- risk factors for malignancy: WL, anorexia, smoking and family history.
- flank pain that radiates to the groin: suggestive of a uretric **stone / ureteral obstruction**
- Concurrent pyuria + dysuria = **UTI**
- Recent URTI = infection-related **glomerulonephritis** positive
- FH of kidney disease: hereditary nephritis, polycystic kidney, or sickle cell disease.
- Symptoms of prostatic obstruction in old M (hesitancy& dribbling) suggests **BPH**  **MCC**
- History of a bleeding disorder or bleeding from multiple sites due to excessive anticoagulant therapy  **Assess for supratherapeutic**
- Cyclic hematuria in women that is most prominent during & shortly after menstruation—> **endometriosis** of the urinary tract
- LL swelling or rash is suggestive of a **glomerular origin / RCC**

—> Do in PE:

- Vitals, abdominal examination for tenderness (renal angle), palpation for a masses or urinary retention, genitalia
- DRE in Males to assess for enlargement (prostate cancer) or tenderness (prostatitis)

—> Diagnosis:

- Do **3C's** : **Cytology, cystoscopy, CT with contrast**
- Labs: KFT, CBC, UA, culture, INR
 - o **Urine analysis**: detects heme in urine (*high sensitivity, low specificity* / does not distinguish between RBCs, Hb, myoglobin.
 - o **Urine sediment**: Confirm hematuria with microscopy (≥ 5 RBCs/HPF)
If RBC casts and proteinuria: Evaluate for glomerular diseases.
If the morphology of RBCs is normal: Evaluate for non-glomerular causes (coagulation disorders, k.stones, CA)
 - o **Culture**: if clinical signs of infection or + WBCs dipstick (pyuria) and/or leukocyte esterase.
 - o **US**: Urinary tract neoplasm, stone disease, inflammatory processes, congenital abnormalities, vascular lesions, and obstruction.
➢ Not likely to show non-obstructing ureteral stones or small urothelial abnormalities.
 - o **Cystoscopy** :
 - ✓ All patients with gross hematuria without evidence of glomerular disease or UTI.
 - ✓ If the patient has evidence of glomerular disease but there is blood clots.
- ❖ Gross painless hematuria in a patient > 35 should be considered as cancer until proven otherwise-> CYSTOSCOPY.
- ❖ 85% of patients with bladder cancer and 40% of patients with RCC present with gross hematuria.
- ❖ urine remains pigmented after centrifugation because the pigments are dissolved in the urine and do not settle at the bottom like RBCs in hematuria.
- ❖ uninfected patients (UTI), subsequent evaluation depends upon whether the hematuria is gross or microscopic:
 1. gross hematuria with visible blood clots: **CTU, Cystoscopy**.
 2. gross hematuria without visible blood clots in the urine
 - A. Patients with AKI or findings suggestive of glomerular bleeding-> **nephrology**.
 - B. Nonpregnant patients without AKI: **CTU, Cystoscopy**.
 - C. Pregnant patients: kidney and bladder **US**.

3. microscopic hematuria:

- A. Patients with AKI or findings suggestive of glomerular bleeding-> **nephrology**.
- B. Pregnant patients: kidney and bladder **US**.
- C. Nonpregnant patients who have risk factors for malignancy: **CTU, Cystoscopy**.
- D. Nonpregnant patients who have no risk factors for malignancy: **do not require** imaging studies or cystoscopy.

- ❖ Transient hematuria: 50% of patients with microscopic hematuria have no apparent cause after thorough evaluation.
- ❖ In these patients' prognosis is excellent and it is recommended to monitor with annual urine analysis. After two negative urinalyses we can **stop the follow up**.

—> **Treatment:**

- ✓ Asymptomatic (isolated) hematuria generally does not require treatment.
- ✓ Microscopic hematuria in a woman during her menses, or shortly after vigorous exercise or acute trauma, **repeating US**.
- ✓ In UTI, **urinalysis** should be repeated approximately **6 wks** after completion of **abx therapy** .. to know if it is persistent.
- ✓ If abnormal clinical, Labs, or imaging, **treat the cause**.
- ✓ **Surgical intervention** in certain anatomic abnormalities (ureteropelvic junction obstruction, tumor, or significant urolithiasis).
- ✓ persistent microscopic hematuria **monitored every 6-12 months** for the appearance of signs or symptoms indicative of progressive renal disease.