

بنام خداوند عشق و زیبایی



Hematuria

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- **www.mums.ac.ir/rsc-ktc**

Microscopic hematuria

- American urological association :
- >3RBC per high_power field
- From two out of three properly collection UA specimen

isolated hematuria

- Common causes of isolated hematuria include :
 - stones
 - neoplasms
 - tuberculosis
 - trauma
 - prostatitis

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- A single urinalysis with hematuria is common
 - can result from :
 - menstruation
 - viral illness
 - allergy
 - exercise
 - mild trauma

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- Persistent or significant hematuria :
 - >3 RBCs/HPF on three urinalyses
 - a single urinalysis with >100 RBCs
 - gross hematuria
 - is associated with significant renal or urologic lesions in 9.1% of cases

- Epidemiology
 - Screening
 - Dipstick
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easy

available

inexpensive

reliable

sensitivity:91-100%

specificity:65-90%

spotted pattern:intact RBC

uniform pattern:free HB

- False positive:

myoglobin

menstrual blood

trauma

bacterial

peroxidase

Causes of pseudohematuria

- Drugs
 - phenazopyridine
 - quinine
 - rifampin
 - sulfonamides
 - nitrofurantoin
 - sulfasalazin
 - chloroquine
 - phenothiazines
 - methyldopa
- Food
- Other
 - endogenous/exogenous chemicals
- Non urinary source
 - Genital or anal bleeding

● False negative:

ascorbic acid

low PH

presence of:

formaldehyde

Cause of hematuria

- Renal cause:
 - Glomerular:

 - Primary GN
 - Secondary GN
 - Exercise induced hematuria
 - Non glomerular
 - Vascular
 - Cystic disease
 - Interstitial disease
 - Papillary necrosis
 - Renal neoplasms
- Post renal(urologic cause)
 - Ureter
 - Bladder
 - Prostate
 - Urethra
- Prerenal(hematologic cause)

● Evaluation

- Age

- Sex

- Race

- History of:

- Analgesic abuse

- Heavy tobacco use

- Pelvic irradiation

- Cyclophosphamide use

- Chronic UTI

- Exposure to aromatic amines-benzenes

History

- Review of all organ system
- Timing of hematuria
- Associated symptoms and signs

Associated symptoms and signs

● Edema- HTN

- Abdominal pain
- Recent respiratory tract infection
- Rheumatic symptoms
- Skin rash
- Dysuria pyuria pain
- STD –HIV-hepatitis
- Recent trauma
- Recent surgical procedures
- Bleeding diatheses
- Medication
- Past or present cancer
- Tobacco use
- Family history

Drugs and toxins caused hematuria

- Drugs

- Aspirin-NSAIDs
- Rifampin
- Penicillin-cephalosporin
- Warfarin-heparin
- Cyclophosphamide
- Sulfonamides
- Ciprofloxacin
- Probenecid
- penicillamin

- Toxins

- Mercury
- Lead
- Organic gold

Physical exam

- BP
- Signs of dehydration or volume overload
- Fever
- Suprapubic tenderness
- Rash
- Cardiovascular exam
- Abdominal exam
- Genitourinary exam

Hematuria on screening

complete UA&sediment

pyuria

dysmorphic RBC

isomorphous
RBC

Urine cultures

GN

IVP or CT

Positive negative

UTI

empiric therapy

interstitial nephritis

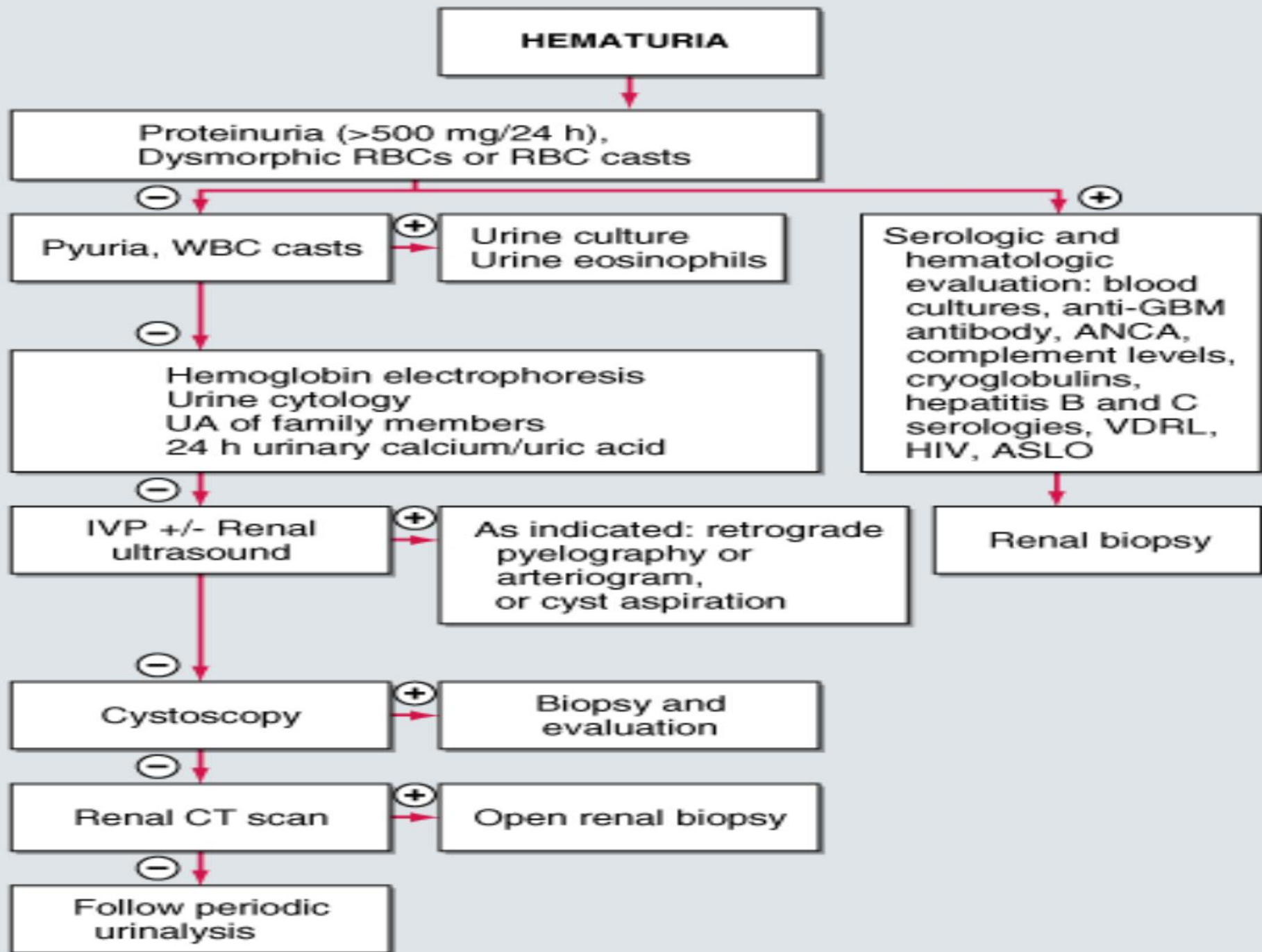
Lab workup

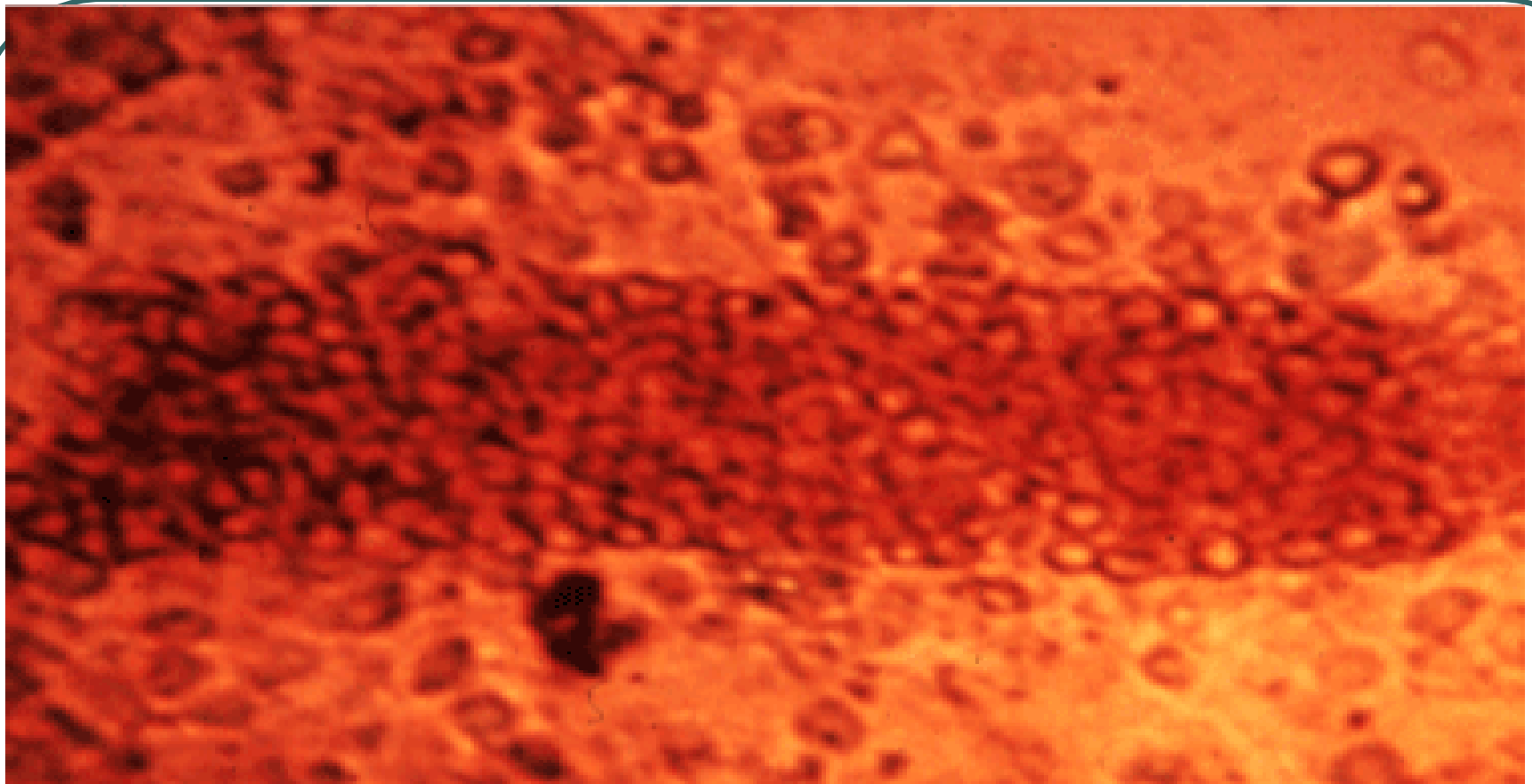
- CBC-Cr-BUN
- PT-PTT-BT
- HB eletrophoresis
- 24-hr urine collection
 - Calcium
 - Uric acid
- ANA-ANCA-anti GBM-ASO-complement levels-cryoglobulins
- Serology for hepatitis B and C and HIV
- Urine cytology

Imaging modalities

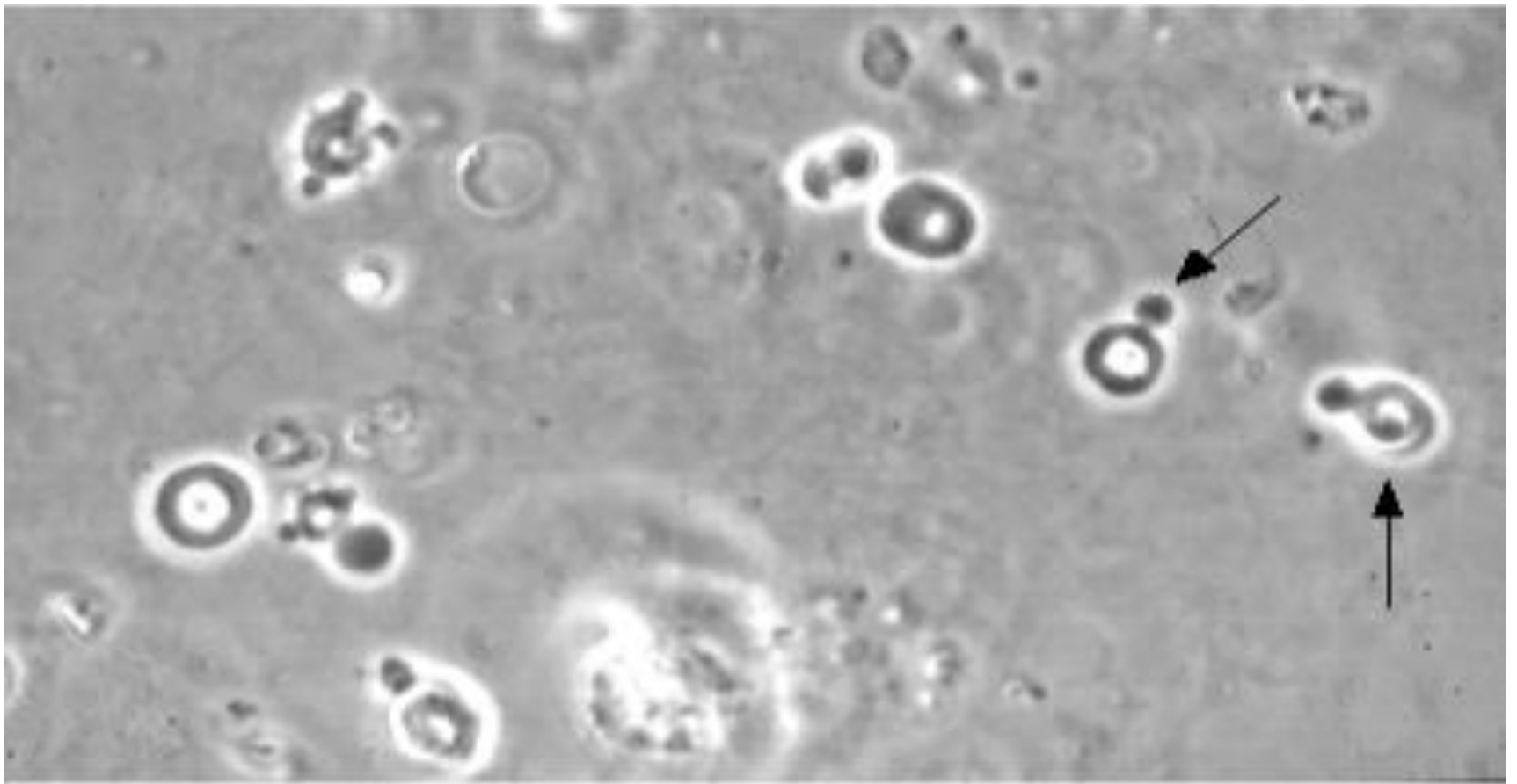
- Plain radiography

- IV urography
- U/S
- CT
- MRI
- Cystoscopy
- Renal biopsy





Red cell cast Urine sediment showing free red cells and a red cell cast that is tightly packed with red cells. It is more common for red cell casts to have fewer red cells trapped within a hyaline or granular cast. Red cell casts are virtually diagnostic of glomerulonephritis or vasculitis. Courtesy of Harvard Medical School.



Dysmorphic red cells Phase contrast microscopy showing dysmorphic red cells in a patient with glomerular bleeding. Acanthocytes can be recognized as ring forms with vesicle-shaped protrusions (arrows). Courtesy of Hans Köhler, MD.

THANKS FOR WATCHING



& LISTENING PATIENTLY