ASYMPTOMATIC MICROHEMATURIA

MEDICAL MANAGEMENT OF UROLITHIASIS

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ASYMPTOMATIC MICROHEMATURIA
*based on AUA Guidelines 2012, available at AUAnet.org

DEFINITION

• **3 or more RBCs per h.p.f.** on a properly collected specimen without obvious cause

• A positive dipstick does NOT define microhematuria but merits microscopic examination
ASYMPTOMATIC MICROHEMATURIA

BENIGN CAUSES:

- infection, menstruation, vigorous exercise, medical renal disease, viral illness, trauma, recent urologic manipulation.

If benign causes ruled out:

- check renal function
- if renal parenchymal disease known or suspected (proteinuria, casts, renal insufficiency) may need concomitant nephrologic and urologic evaluation

NOTE: evaluation is necessary even in those taking anticoagulants
EVALUATION OF ASYMPTOMATIC MICROHEMATURIA

Initial evaluation should include some radiologic study:
• CT urogram - STUDY OF CHOICE (multiphasic CT w/ and w/o IV contrast)
• MR urogram - alternative option if allergies, etc.
• If contrast can't be given can use NCCT, MRI w/o contrast or renal US in combination with retrograde pyelography

Cystoscopic evaluation:
• ALL 35 y.o. or older
• If < 35 y.o. consider at physician discretion
• ALL of those with risk factors for GU malignancy need cystoscopy:
  • irritative voiding sxs (urgency, frequency, nocturia)
  • history of tobacco use
  • history of chemical exposure
EVALUATION OF ASYMPTOMATIC MICROHEMATURIA

Urine cytology and other urinary markers are NOT recommended routinely:

- May consider cytology following a negative w/u OR with risk factors for carcinoma-in-situ (CIS) such as LUTS, tobacco hx, chemical exposure

Following a negative evaluation check a yearly urinalysis:

- if negative for 2 years, stop
- if positive, consider repeat evaluation within 3-5 years
MEDICAL MANAGEMENT OF UROLITHIASIS (acute episode)

IMAGING
- CT stone search
- KUB - helps with following a radiopaque stone and helps to determine treatment options
- IVP - on occasion
- US

ACUTE MANAGEMENT
- pain medication
- medical expulsive therapy (alpha blockade)
- strain urine
- urine C&S if appropriate

INDICATIONS FOR URGENT REFERRAL
- intractable pain
- renal insufficiency/ solitary kidney
- UTI/ fever
MEDICAL MANAGEMENT OF UROLITHIASIS  
*AUA guidelines 2014, available at AUAnet.org*

BASIC EVALUATION of stone former:
• history/physical, BMP, urinalysis
• intact PTH level if primary HPT suspected (elevated Ca++)
• stone analysis if available (CaOx, CaPO4, uric acid, struvite, cystine)

METABOLIC EVALUATION CANDIDATES:
• high risk (family hx, intestinal disease/hx resection, recurrent UTIs, obesity, gout, DM, solitary kidney)
• recurrent stone formers (and those with multiple stones at first presentation)
• interested first time stone formers

METABOLIC EVALUATION TESTING:
• 24 hour urine study:
• volume, pH, Ca++, oxalate, uric acid, citrate, Na+, K+, creatinine
MEDICAL MANAGEMENT OF UROLITHIASIS

DIETARY RECOMMENDATIONS

• Urine volume at least 2.5 liters/day
• Ca++ stones with elevated urinary calcium
  - low sodium diet (<2,300 mg) with 1,000-1,200 mg/day Ca++

• CaOx stones with elevated urinary oxalate levels
  - decrease oxalate-rich foods w/ normal Ca++ intake

• Ca++ stones with low urinary citrate
  - increase fruit and vegetable intake; limit non-dairy protein

• Uric acid stones or Ca++ stones with high urinary uric acid
  - reduce non-dairy animal protein
MEDICAL MANAGEMENT OF UROLITHIASIS

PHARMACOLOGIC THERAPIES

Thiazide diuretics:  
- high urine Ca++ and recurrent calcium stones
- recurrent Ca++ stones in the absence of other abnormalities with persistent stone formation

Potassium citrate:  
- recurrent Ca++ stones and low urinary citrate
- recurrent Ca++ stones in the absence of other abnormalities with persistent stone formation
- uric acid and cystine stones to alkalinize urine appropriately (prevention/dissolution)

Allopurinol:  
- recurrent CaOx stones with hyperuricosuria and normal urinary Ca++
- NOT recommended as first line tx for uric acid stones

OTHER:  
- thiol-binding drugs, tiopronin/Thiola (cystine stones)
- acetohydroxamic acid/AHA (struvite post-op)
MEDICAL MANAGEMENT OF UROLITHIASIS

ONGOING MANAGEMENT

• periodic 24 hour urines to assess response to diet and pharmacotherapy
• blood testing for adverse drug effects
  - thiazides (hypokalemia, glucose intolerance, increased Ca++ w/ undiagnosed HPT)
  - allopurinol, tiopronin (LFTs)
  - AHA, tiopronin (anemia)
  - potassium citrate (hyperkalemia)
• repeat stone analysis if not responding to diet or pharmacologic therapy
• periodic re-imaging (KUB, US, LDCT)
Thank you