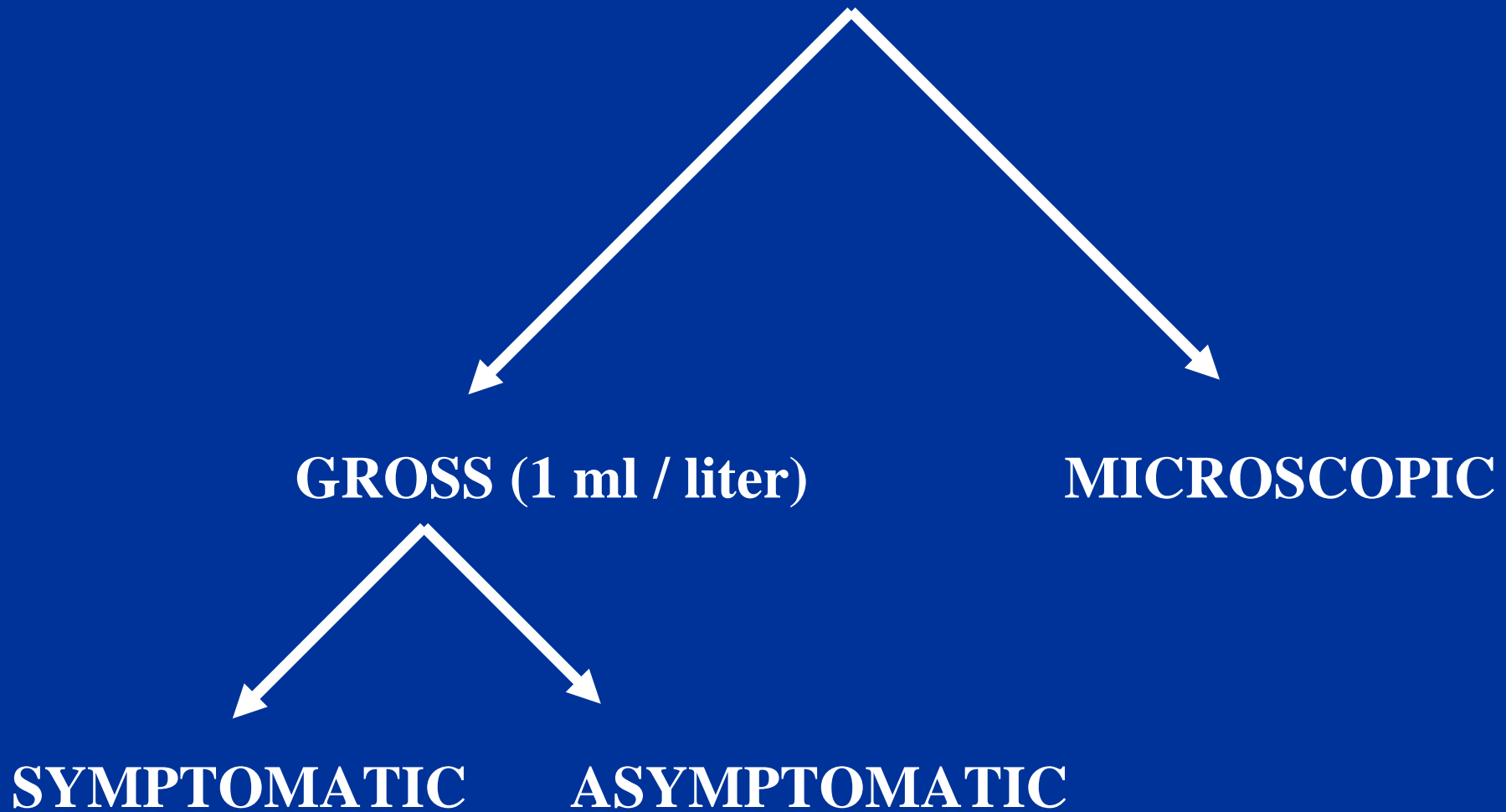


Perspectives in Men's Health

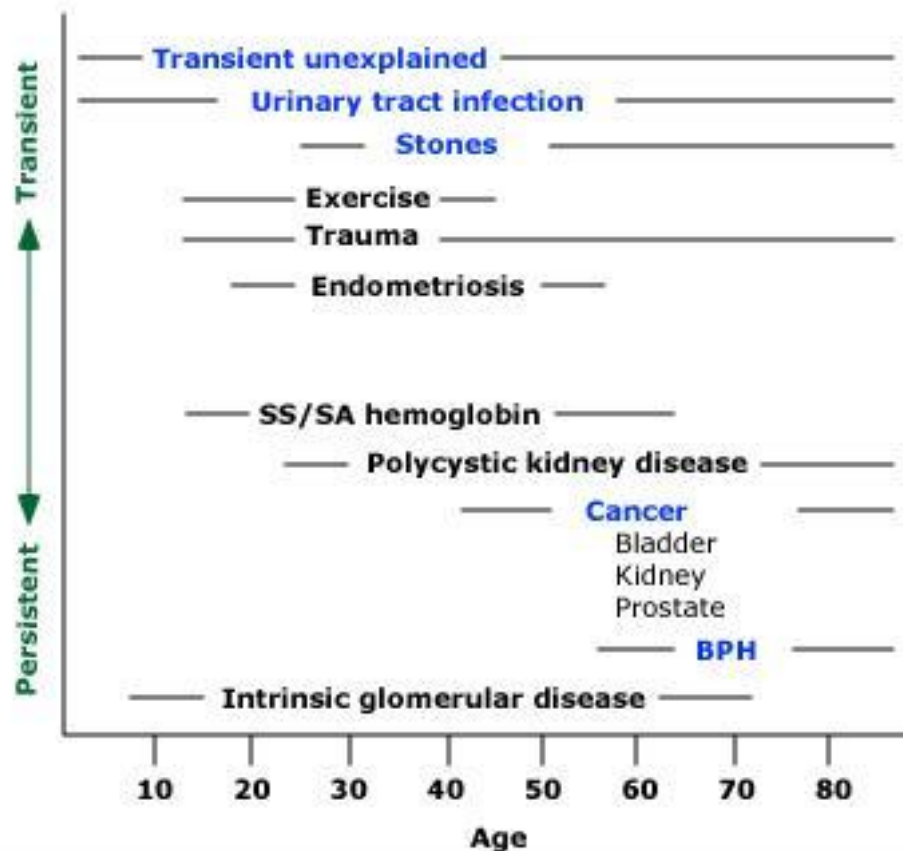


April 10-11, 2010 • Caesar's Palace • Las Vegas, Nevada

HEMATURIA



Major causes of hematuria by age and duration



Schematic representation of the major causes of hematuria in relation to the age at which they usually occur (horizontal axis), transience or persistence (vertical axis), and frequency (blue implies more frequent).

BPH: benign prostatic hyperplasia.

HEMATURIA - EVALUATION

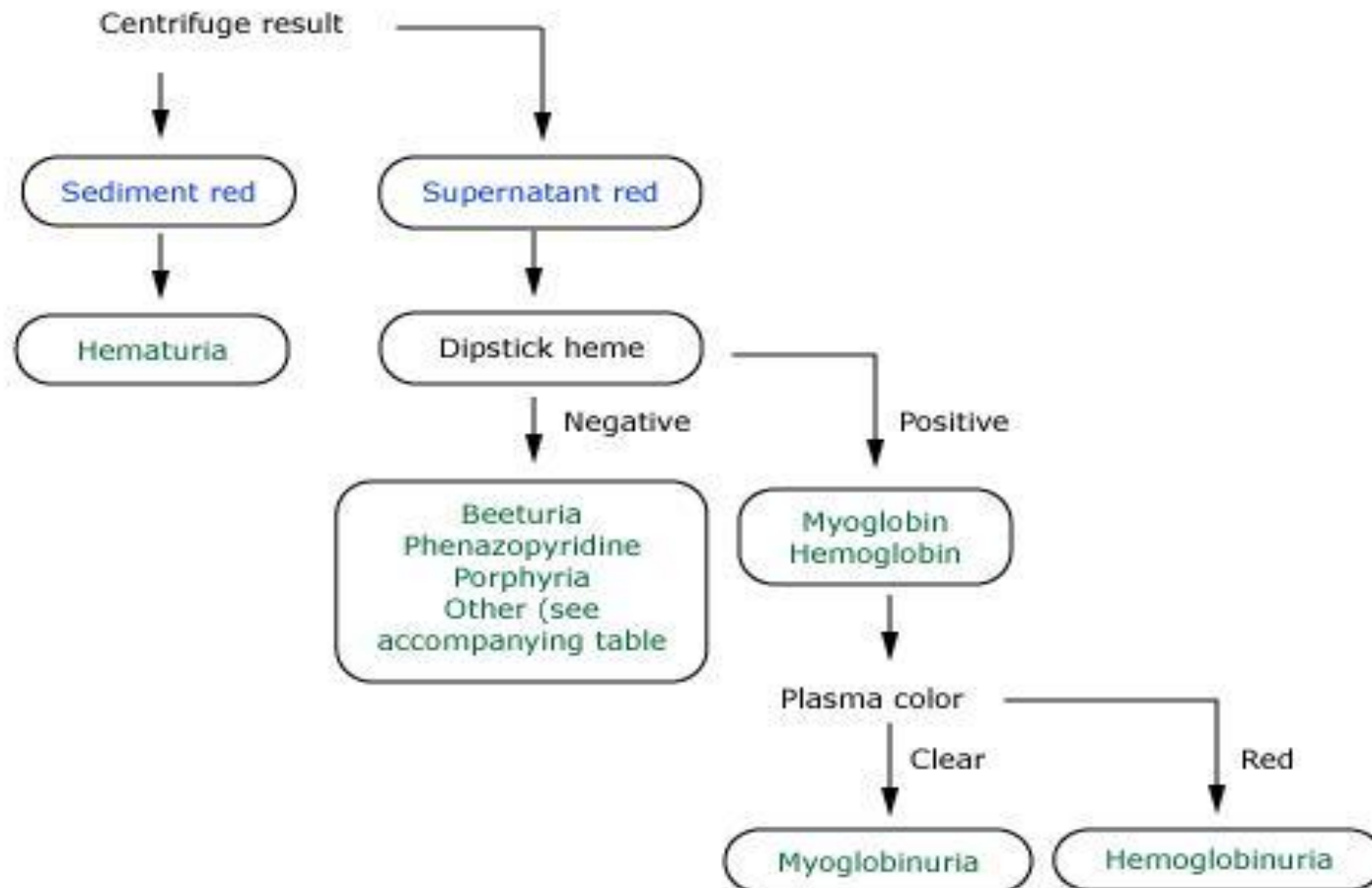
1. IS IT BENIGN (EXERCISE) OR SERIOUS (CANCER)?
2. IS IT UROLOGICAL OR NEPHROLOGICAL?

AIM OF WORK-UP

1. PROMPT DETECTION AND TX OF SERIOUS CAUSES
2. MINIMIZE # OF TESTS IN PATIENTS WITH BENIGN CAUSES

GROSS HEMATURIA - OR IS IT?

Approach to the patient with red or brown urine



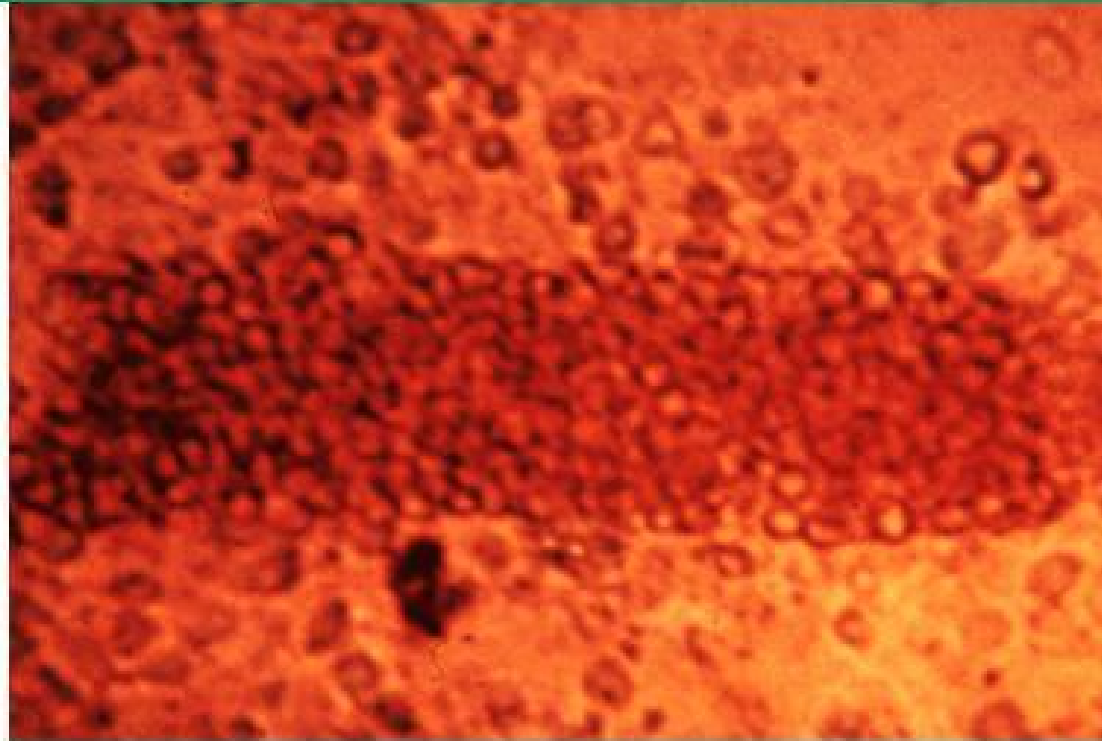
GROSS HEMATURIA

SUPERNATANT - CLEAR
SEDIMENT - RED

Distinguishing extraglomerular from glomerular hematuria

	Extraglomerular	Glomerular
Color (if macroscopic)	Red or pink	Red, smoky brown, or "Coca-Cola"
Clots	May be present	Absent
Proteinuria	<500 mg/day	May be >500 mg/day
RBC morphology	Normal	Dysmorphic
RBC casts	Absent	May be present

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.

Causes of heme-negative red urine

Medications
Doxorubicin
Chloroquine
Deferoxamine
Ibuprofen
Iron sorbitol
Nitrofurantoin
Phenazopyridine
Phenolphthalein
Rifampin
Food dyes
Beets (in selected patients)
Blackberries
Food coloring
Metabolites
Bile pigments
Homogentisic acid
Melanin
Methemoglobin
Porphyrin
Tyrosinosis
Urates

**SUPERNATANT –
RED**

DIPSTICK - NEG

GROSS HEMATURIA

MINIMUM WORK-UP

- CT UROGRAM WO / W CONTRAST
- CYSTOSCOPY
- URINARY CYTOLOGY

MICROHEMATURIA

- **Definition: ≥ 3 RBCs / HPF, 2 out of 3 U/As (not dipstick)**
- **Rule out UTI**
- **Prevalence: 0.2-16% (older men=21%)**

Ref: Grossfeld et al. Urology 57:604, 2001

DIPSTICK HEMATURIA

1. DETECTS 1 – 2 RBC's / HPF
2. MANY FALSE POSITIVES
 - A. SEMEN
 - B. ALKALINE URINE pH > 9
 - C. MYOGLOBINURIA

ALWAYS CONFIRM WITH MICROSCOPIC EXAMINATION

- BUT -

A NEGATIVE DIPSTICK USUALLY EXCLUDES ABNORMAL HEMATURIA ¹

Ref: ¹ Schroder FH BMJ 309:70, 1994.

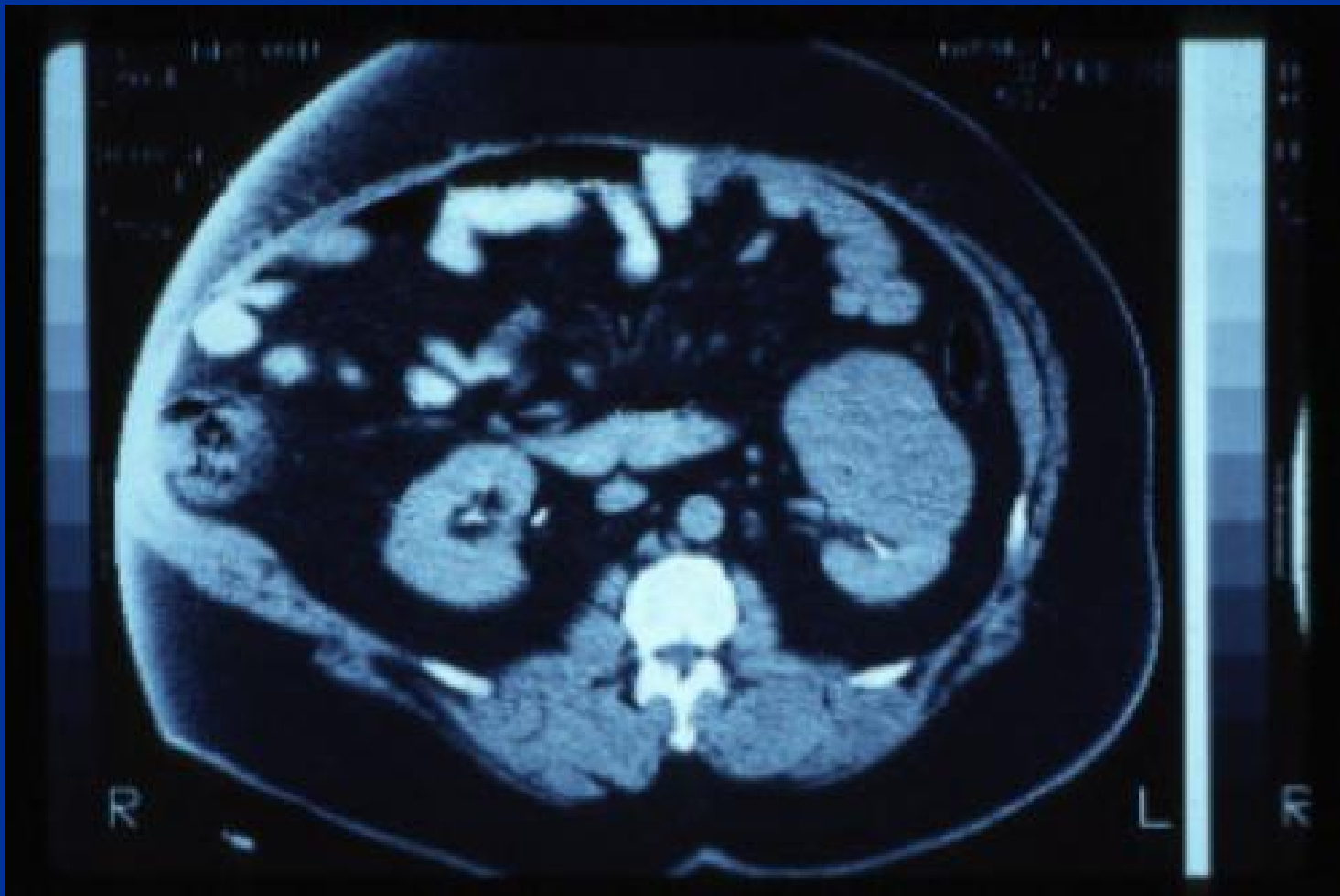
HIGH RISK PATIENTS WITH MH

- **Smoking history**
- **Occupational exposure to chemicals or dyes (benzenes or aromatic amines)**
- **History of gross hematuria**
- **Age >40 years**
- **History of urologic disorder or disease**
- **History of irritative voiding symptoms**
- **History of urinary tract infection**
- **Analgesic abuse**
- **History of pelvic irradiation**

MICROHEMATURIA

- Upper tract imaging first (CT w/ and wo/ IV contrast)
- Voided urine cytology in high-risk patients (no markers, e.g. BTA, NMP22 at this time)
- Cystoscopy (? Except <40 yrs old), bladder wash
- F/U with UA, cytology at 6, 12, 24, 36 mos. if indicated

CT:
LARGE RENAL TUMOR



IVP:

BLADDER FILLING DEFECT FROM BPH



RENAL ULTRASOUND



MALIGNANCY RISK

n = 1930; MEAN AGE = 58y; M to F = 62 to 38

MICRO AND / OR GROSS HEMATURIA

RESULTS

1. 12% HAD CA OF BLADDER
2. 0.7% HAD KIDNEY CANCER
3. 61% NO CAUSE

		<u>GROSS</u>		<u>MICROSCOPIC</u>	
	MEN	WOMEN		MEN	WOMEN
AGE 50-59	20	9		2	2
AGE 60-69	29	21		8	5

ASYMPTOMATIC MH

- n = 1575 MEN UNDERWENT HEMATURIA SCREENING
- 258/1575 (16.4%) WERE EVALUATED FOR HEMATURIA
- 21/ 258 (8.1%) WERE DIAGNOSED WITH BLADDER CANCER
- A COMPARATIVE UNSCREENED POPULATION OF MEN HAD HIGHER INCIDENCE OF DEATH (2.4% vs 0%) AT 14 y F/U.

SCREENING MAY REDUCE MORTALITY FROM BC

ASYMPTOMATIC MH

n = 234 MEN; 14 YEAR F/U

LONG TERM OUTCOME OF NEGATIVE W/U WITH SCREENING

- 2/234 (0.85%) DEVELOPED BLADDER CA (6.7 & 11.4 y LATER)
- 1 / 2 DIED OF B.C.
- NEED TO RETHINK F/U OF THESE PATIENTS

ASYMPTOMATIC MH

- **N = 200; AGE = 64y; LOW RISK**
- **CYSTO, CYTOLOGY, UPPER TRACT IMAGING**
- **NONE HAD POSITIVE CYTOLOGY**
- **8 / 200 HAD LOW-GRADE TCC BLADDER; 4 WERE Ta, 4 WERE Pt1**
- **CYTOLOGY WAS OF NO BENEFIT.**

Ref: Feifer et al. Urology 2010 Epub.

CONCLUSIONS

- **HEMATURIA REQUIRES W/U**
- **W/U DEPENDS ON AGE, SYMPTOMS URINARY FINDINGS AND RISK FACTORS FOR MALIGNANCY.**

Ref: Mohr et al JAMA 256:224-9, 1986

