

# HEMATURIA

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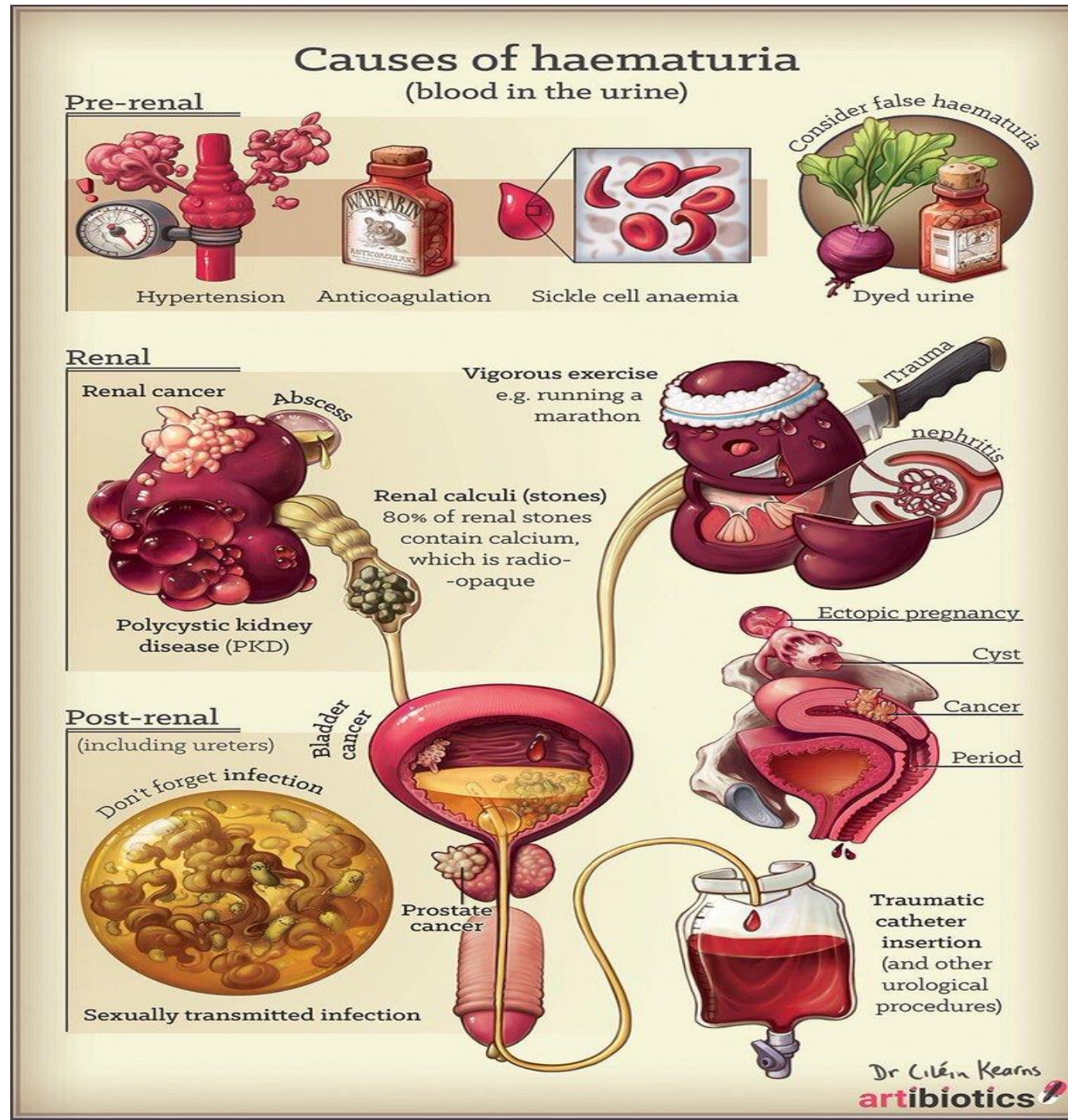
# HEMATURIA CAN EITHER BE GROSS OR MICROSCOPIC.

- Gross hematuria is hematuria that can be detected by the eye.
- Gross hematuria is more likely to be postrenal in origin.
- Microscopic hematuria is defined as : the presence of **5** or more red blood cells (RBCs) detected by high power field microscope.



# APPROACH TO HEMATURIA

- We should begin with the history and physical examination



# COMMON CAUSES OF HEMATURIA

- Urinary tract infections: 25%
- Urinary stones : 20%
- Bladder cancer and renal cancer
- Trauma (blunt trauma, insertion of foley's catheter and recent urological surgery)
- Glomerular disease
- Drugs : cyclophosphamide and anticoagulants
- Strenuous exercise



# HISTORY

After taking the patient profile:

Important symptoms:

1- Irritative symptoms: Frequency, urgency and dysuria (suggestive of a UTI or bladder cancer)

2- the presence of blood clots indicates that the pathology is in the urinary tracts rather than from the renal parenchyma

3- risk factors for malignancy : weight loss, anorexia, smoking, family history and exposure to asbestos.

4-relationship to voiding :

Initial hematuria related to urethral cause

Terminal : prostate or bladder neck , bladder stone

Total : bladder and above

5- painful or painless



# HISTORY

- The presence of flank pain that radiates to the groin: suggestive of a uretric stone
- History of a bleeding disorder
- If the patient is a female we should ask her if she is currently menstruating
- Recent vigorous exercise
- The presence of periorbital swelling, lower limb swelling or rash is suggestive of a glomerular origin.
- Family history of urolithiasis or PKD





# PHYSICAL EXAMINATION

- 1: Vital signs
- 2: abdominal examination for tenderness (renal angle tenderness)
- 3. palpation for a masses in the kidney
- 4: examination of the skin for bruisis
- 5: examination for lower limb edema



# INVESTIGATIONS

- We will also ask for a **CBC** ( to test for anemia ),
- **Kidney function tests**
- **INR.**
- **Urine analysis**
- **Urine culture**





# INVESTIGATIONS

- After initial evaluation we can guide our investigations towards the most likely diagnosis.
- If there are RBC casts or Dysmorphic RBCs the pathology is most likely renal and further evaluation for glomerular disease is indicated.
- The presence of pyuria will be followed by a urine culture and If a UTI is present we will treat with antibiotics and re evaluate the patient after treatment.



# INVESTIGATIONS

- CT scan without contrast if the patient has symptoms of Stones .
- TRIPHASIC CT scan if suspected malignancy or unexplained hematuria.

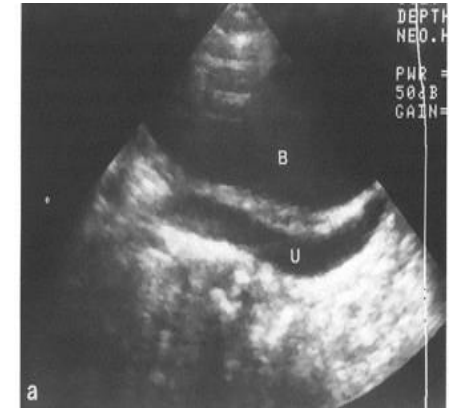




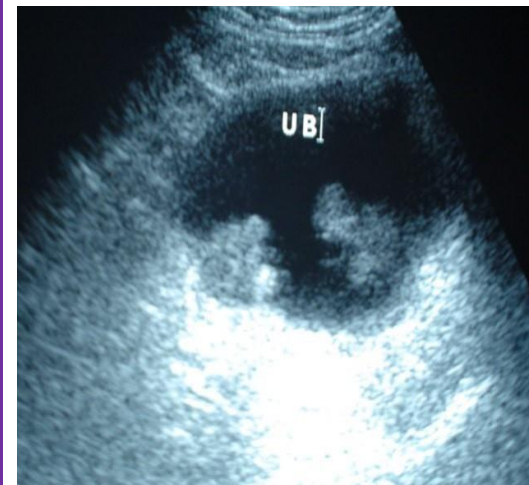
# ULTRASONOGRAPHY

Urinary tract neoplasm,  
stone disease,  
inflammatory  
processes, congenital  
abnormalities, vascular  
lesions, and  
obstruction

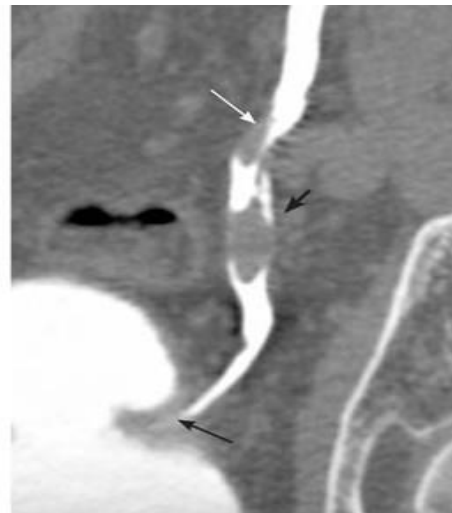
Not likely to detect non  
obstructing ureteral  
stones or small  
urothelial  
abnormalities,



Bladder tumor causing  
hydroureteronephrosis



# INTRAVENOUS UROGRAPHY



Ureteric urothelial carcinoma



# VERY IMPORTANT !!!!!

- Gross painless hematuria in a patient above the age of 35 should be considered as cancer until proven otherwise
- 85% of patients with bladder cancer and 40% of patients with renal cell carcinoma present with gross hematuria.
- The American Urological association states that any patient above the age of 35 with hematuria should undergo cystoscopy.



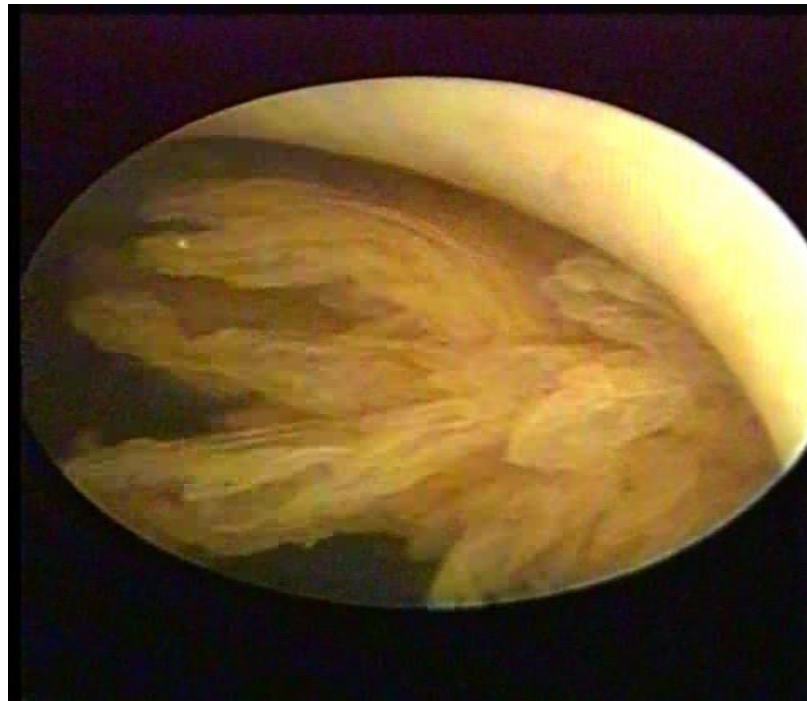
# CYSTOSCOPY

- All patients with gross hematuria without evidence of glomerular disease or infection should undergo cystoscopy.
- If the patient has evidence of glomerular disease but there is blood clots he should also undergo a cystoscopy.





# CYSTOSCOPY



Bladder growth found in cystoscopy



# TRANSIENT HEMATURIA

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

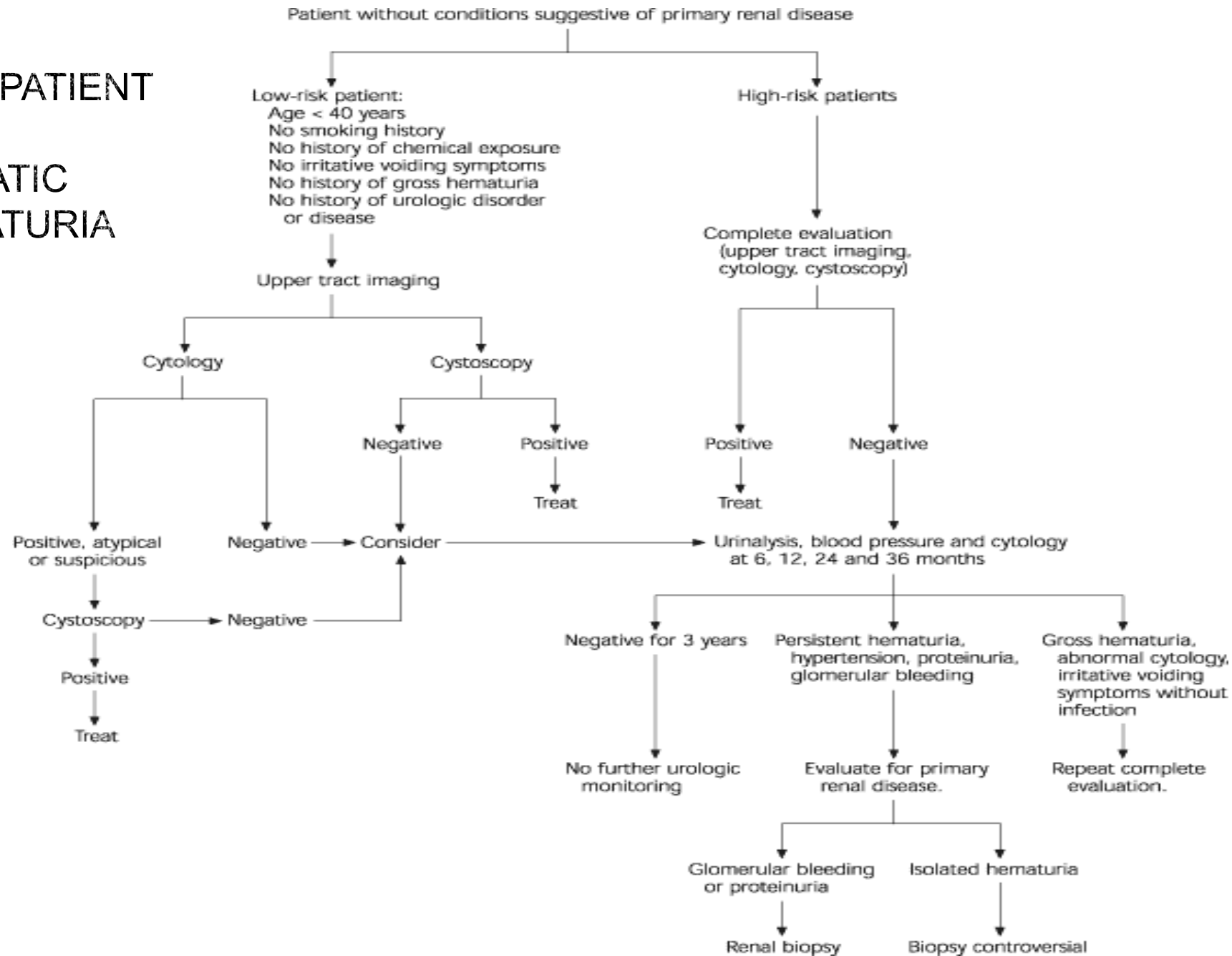


# MANAGEMENT OF HEMATURIA

- Hematuria is not a disease itself but a symptom, the treatment is directed towards treating the underlying cause and preserving kidney function.



# ADULT PATIENT WITH ASYMPTOMATIC MIC. HEMATURIA



# SUMMARY

- Hematuria is always alarming and investigation is warranted.
  - Urine microscopic exam. Should be carried out in all cases of +ve dipstick test
  - Evaluation must be started with detailed occupational, family and medical history
  - Medical causes should be excluded
  - U/S and CT scan are much helpful for evaluation of patients with hematuria



# SUMMARY

- Urine cytology and cystoscopy should be included in the work up for high risk patient group
- No abnormality is found in up to 70% of patients with asymptomatic microscopic hematuria despite full conventional urologic investigation( urine cytology, cystoscopy, imaging.)



**THANK YOU**

