



INTERACTIVE SESSION

UROGENITAL TRACT IMAGING

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2012





OBJECTIVES



To review the role of imaging in the urogenital disorders

Recognize the normal appearances of structures imaged in each modality

Stress upon the importance of systemic approach in the interpretation

“where to look & what to look for”





Imaging Modalities Utilized in Imaging the Urinary Tract

- ✓ Plain X-ray
- ✓ Ultrasound
- ✓ Computed Tomography
- ✓ Magnetic Resonance Imaging
- ✓ Nuclear studies
- ✓ Angiography





CASE NO. 1

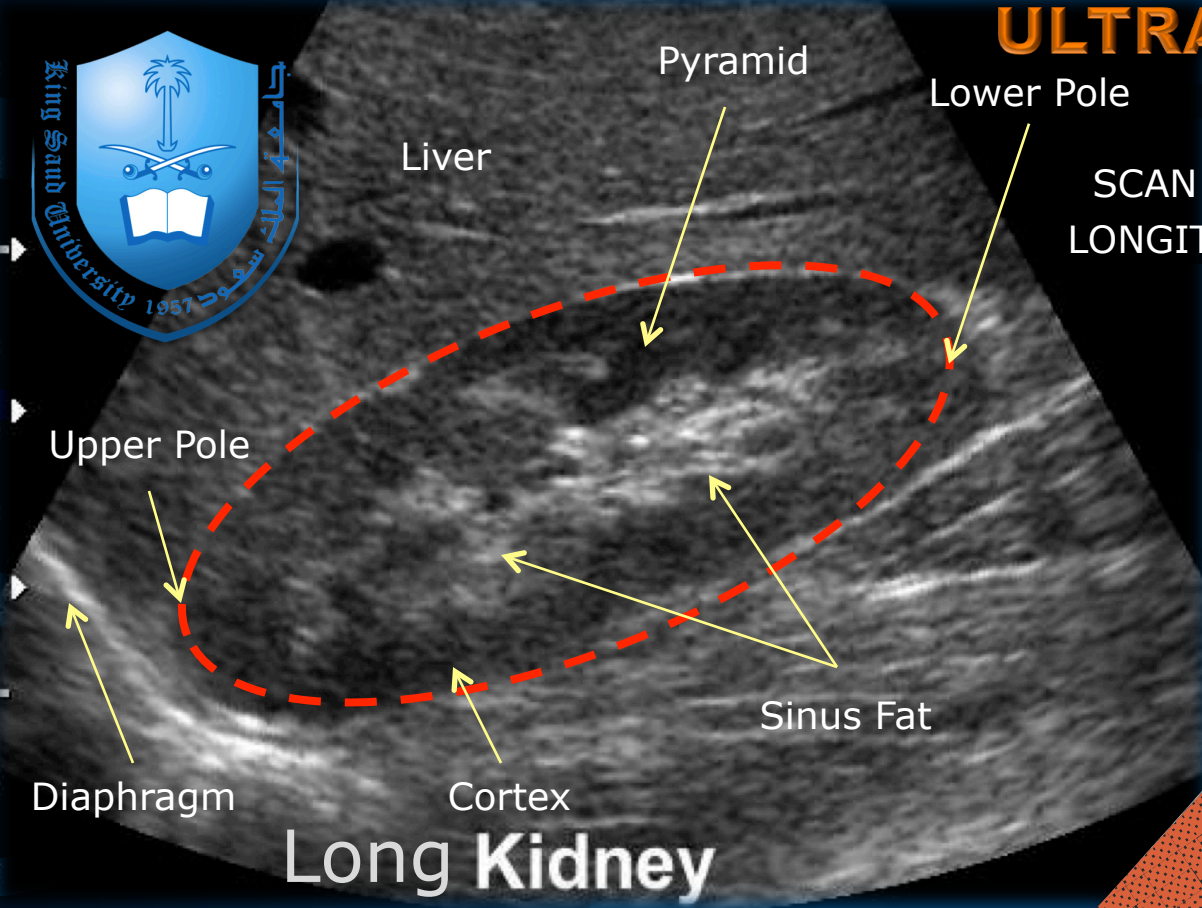
Young Adult presented with right loin pain and hematuria. Ultrasound Exam was performed. Which of the following is the likely finding?



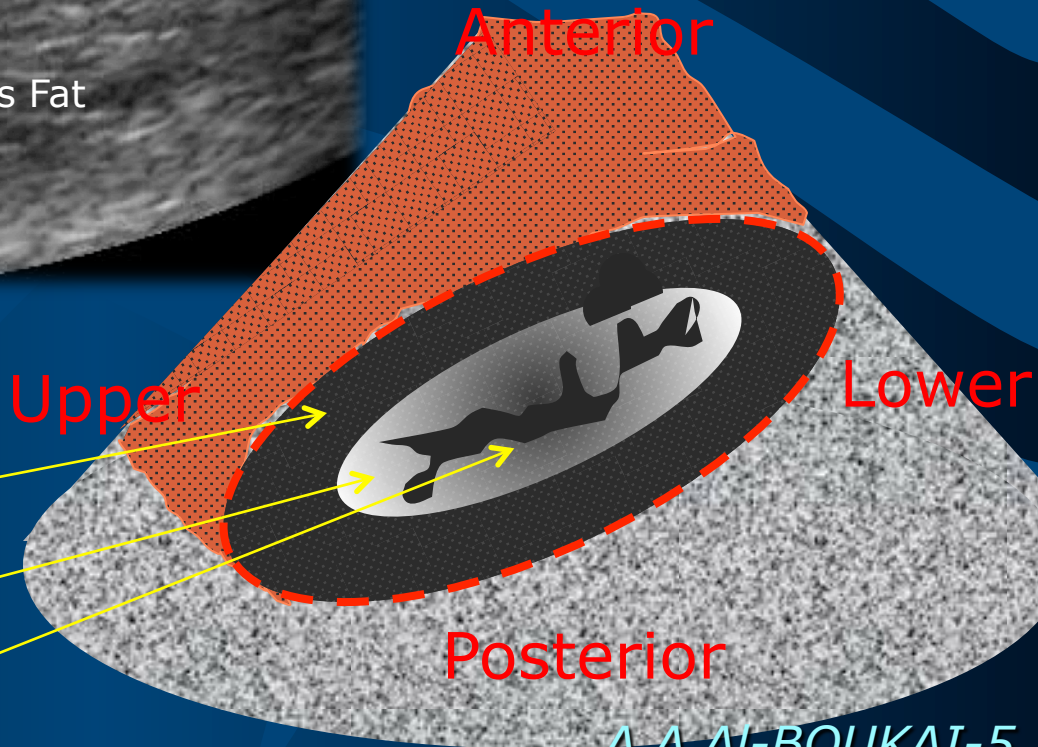
- a- Hydronephrosis
- b- Normal.
- c- Renal mass.
- d- Upper pole renal stone.



ULTRASOUND ANATOMY



SCAN USUALLY PERFORMED IN BOTH LONGITUDINAL & TRANSVERSE PLANES



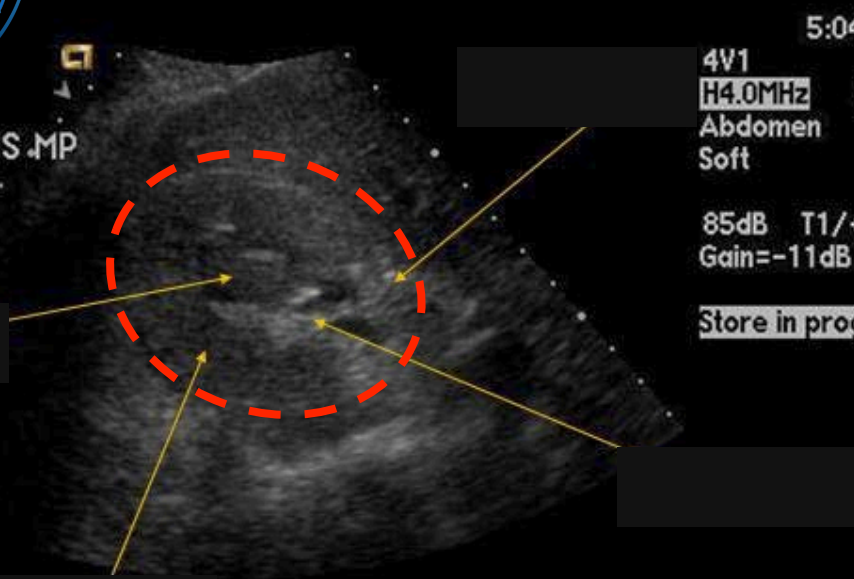
- Cortex → Hypoechoic
- Medulla → Hyperechoic (Fat)
- Collecting system → anechoic



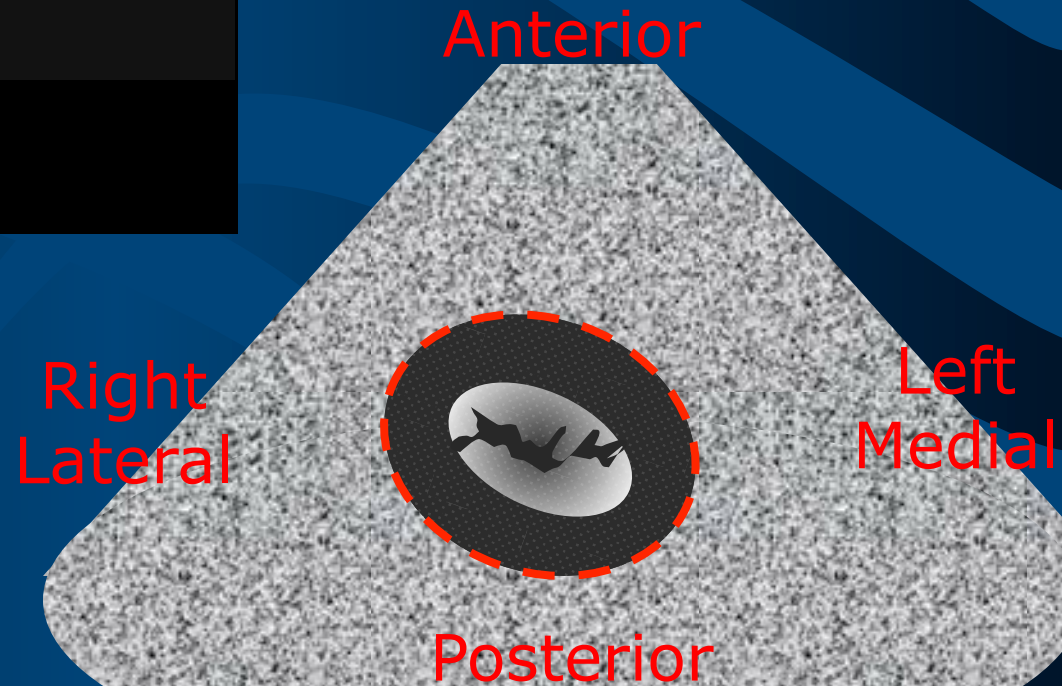
ULTRASOUND ANATOMY

SCAN USUALLY PERFORMED IN BOTH
LONGITUDINAL & TRANSVERSE PLANES

RT KID TRANS.MP



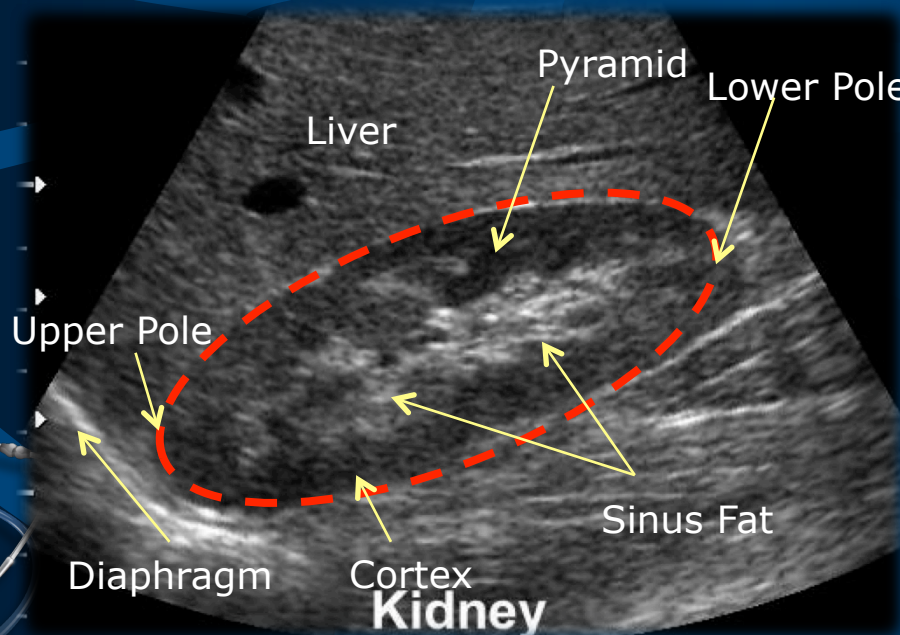
TRANS KIDNEY





CASE NO. 1

Young Adult presented with right loin pain and hematuria. Ultrasound Exam was performed. Which of the following is the likely finding?



- a- Hydronephrosis
- b- **Normal.**
- c- Renal mass.
- d- Upper pole renal stone.



CASE NO. 2

Adult patient presented with right loin pain and hematuria.

What would be the most appropriate imaging modality to be utilized?

- a- Plain abdominal x-ray.
- b- Non-enhanced CT scan for KUB region.**
- c- Contrast enhanced CT scan for KUB region.
- d- MRI of the KUB region.
- e- Ultrasound of the kidney.

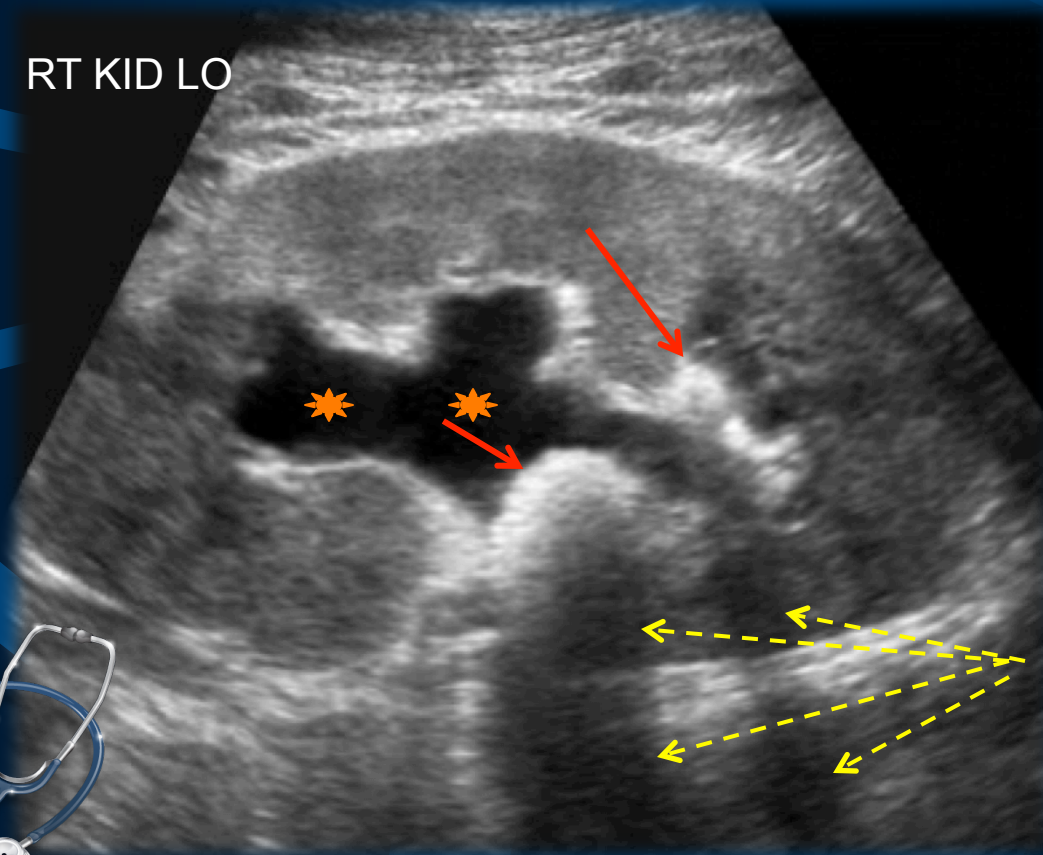




CASE NO. 2

Adult patient presented with right loin pain and hematuria.
What are the expected ultrasound finding in renal stones?

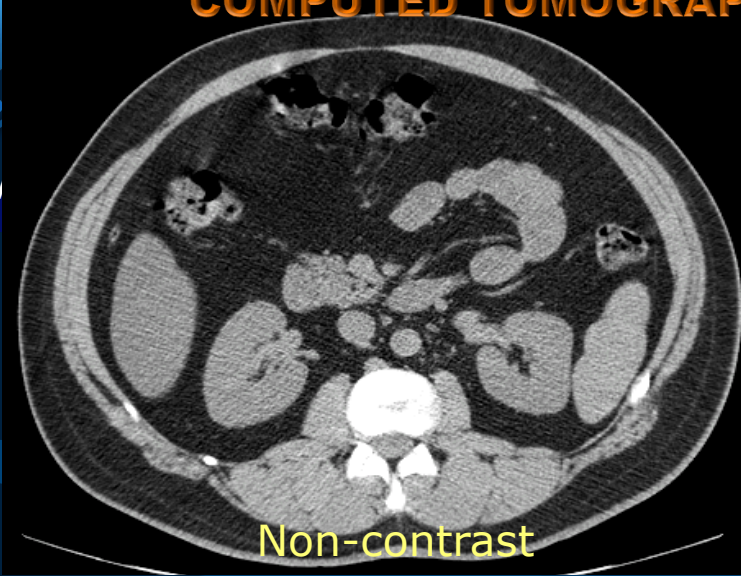
RT KID LO



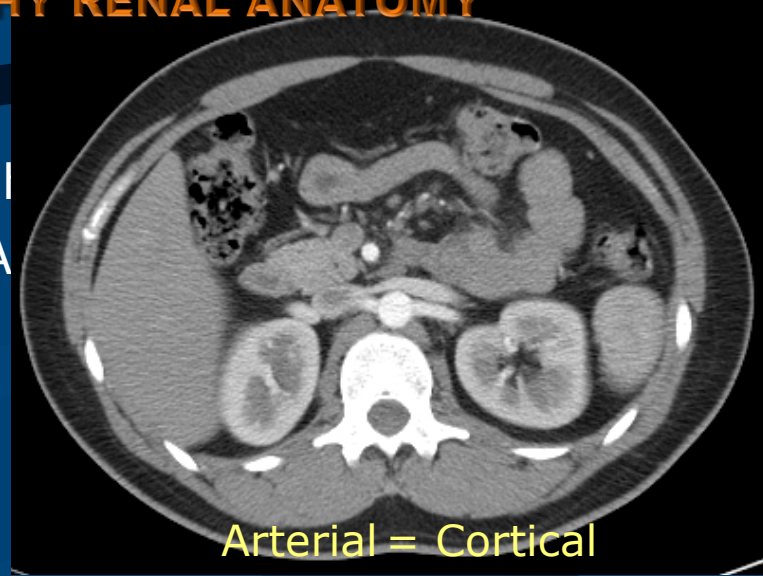
- ✓ Echogenic focus/foci reflecting stone(s)
- ✓ Mid/ lower pole
- ✓ Acoustic shadowing
- ✓ Hydronephrosis

CASE NO. 2

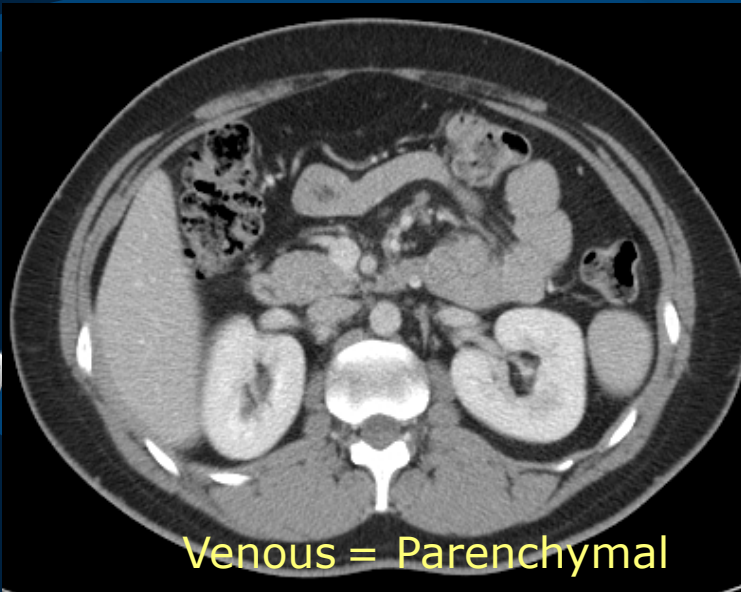
COMPUTED TOMOGRAPHY RENAL ANATOMY



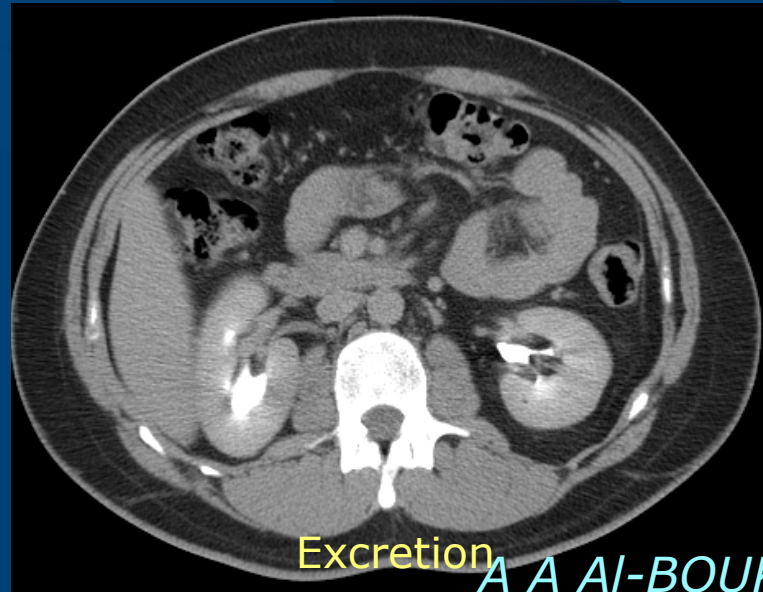
Non-contrast



Arterial = Cortical



Venous = Parenchymal



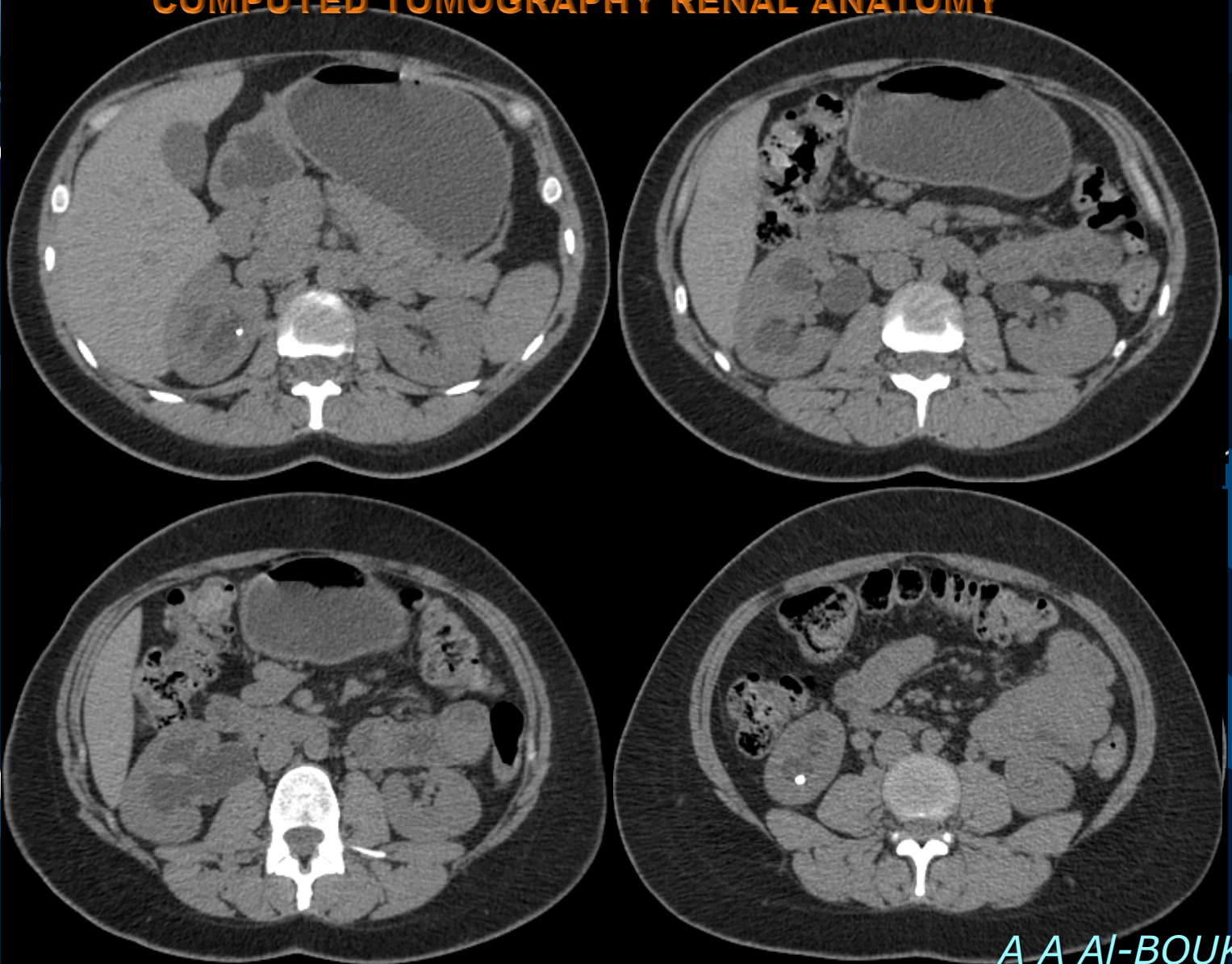
Excretion

A A AI-BOUKAI-



CASE NO. 2

COMPUTED TOMOGRAPHY RENAL ANATOMY

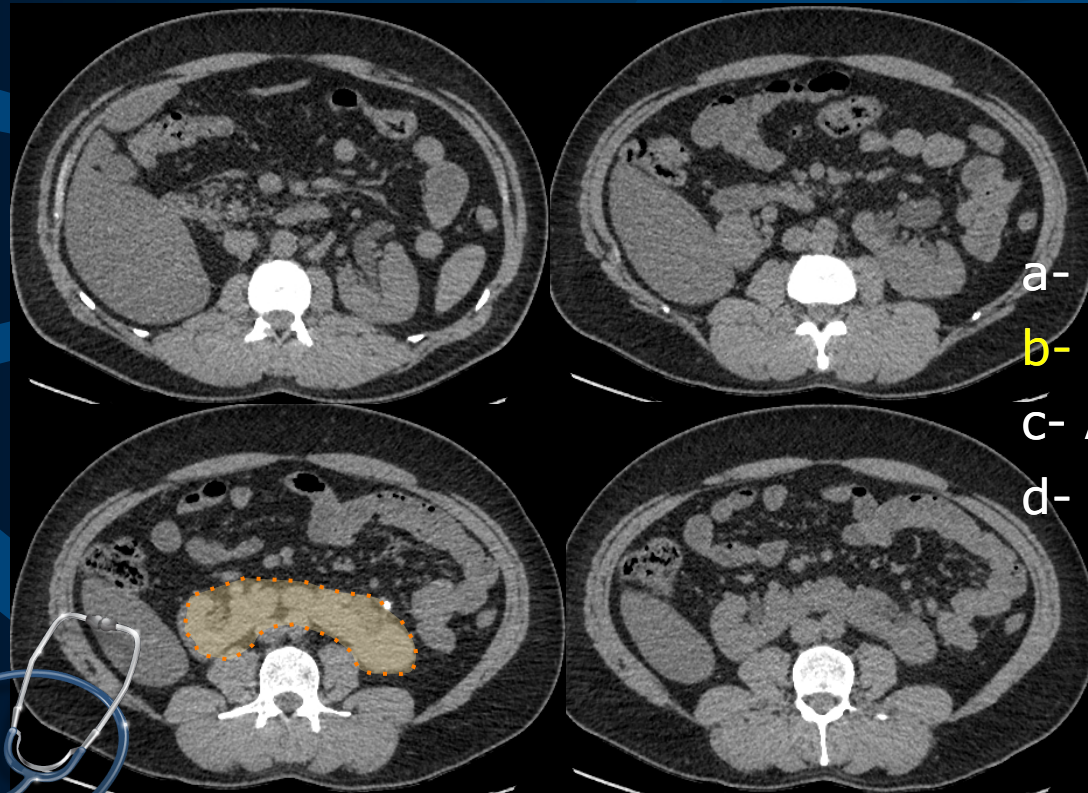


A A AI-BOUKAI-



CASE NO. 3

Young adult presents with left loin pain. CT kidney performed.
What is the abnormality seen in the kidneys?

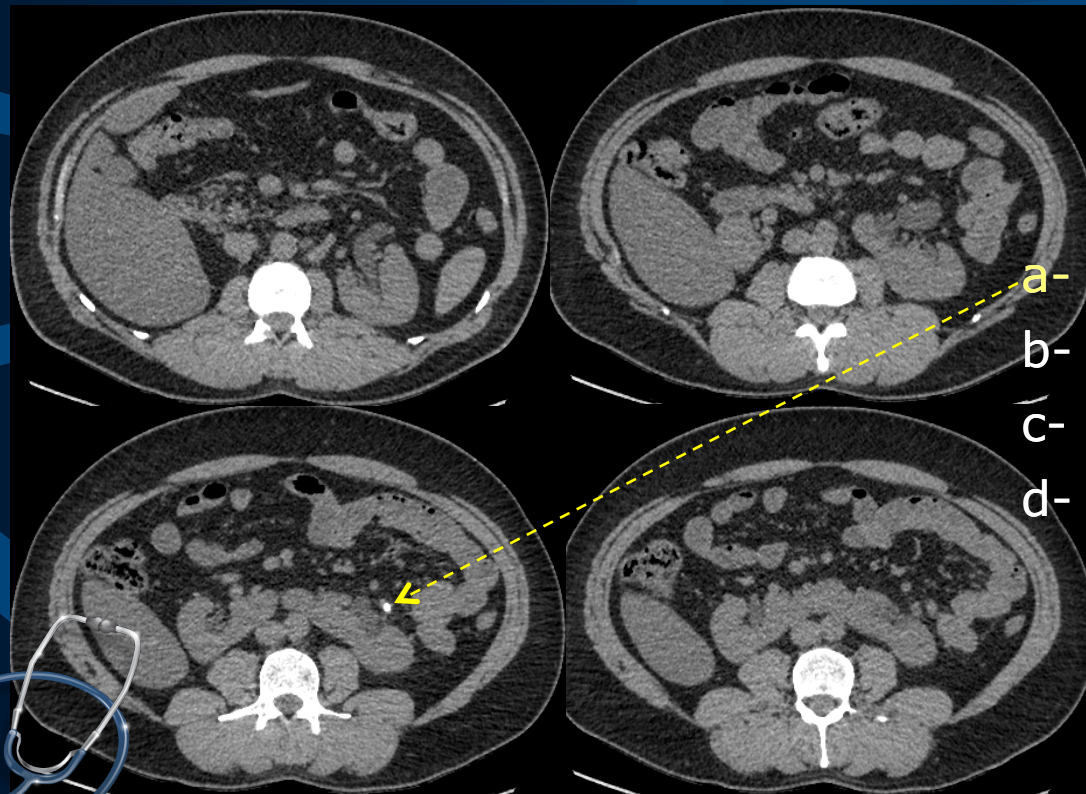


- a- Normal
- b- Horseshoe kidneys.**
- c- Atrophied kidneys.
- d- Cross fused ectopic kidneys.



CASE NO. 3

Young adult presents with left loin pain. CT kidney performed.
What is the likely cause of the pain?



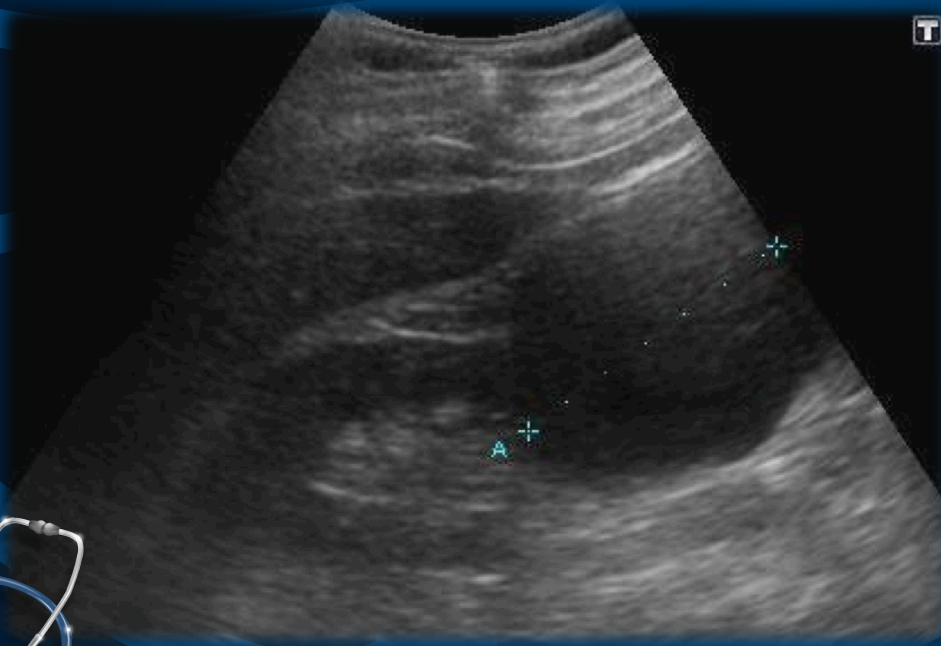
- a- Stone
- b- Horseshoe kidneys.
- c- Hemorrhage.
- d- Cross fused ectopic kidneys.





CASE NO. 4

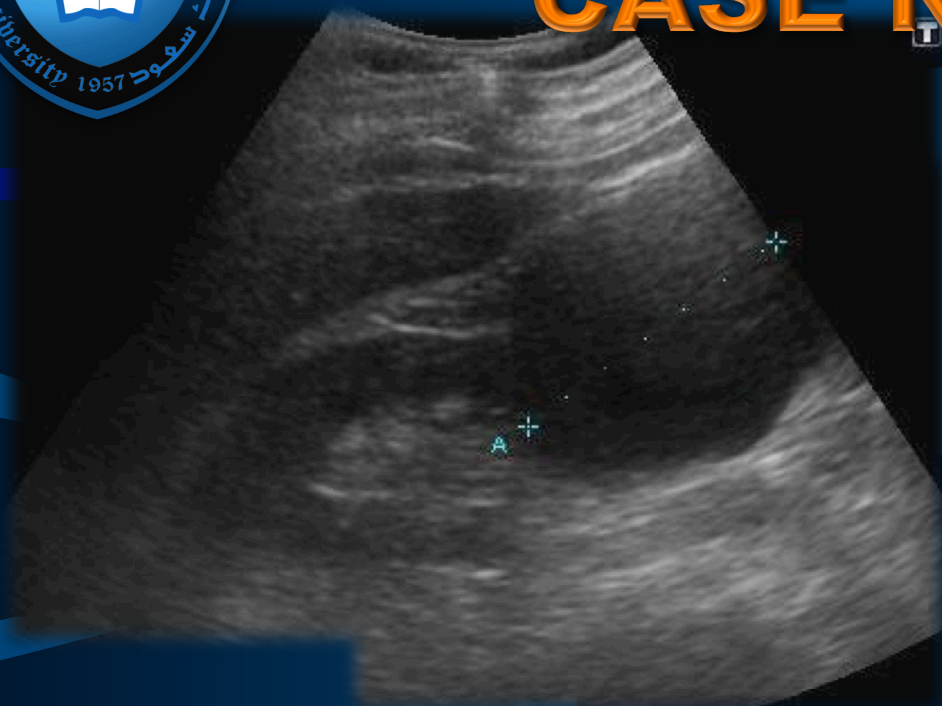
Female patient presented with right loin pain and hematuria. Ultrasound Exam was performed. Which of the following is the likely finding?



- a- Normal.
- b- Hydronephrosis.
- c- Renal cyst.
- d- Lower pole renal stone.



CASE NO. 4



Information needed

- Grey => Sonolucent, echo void = Fluid.
- White => Hypoechoic = ST lesion
- White => Hyperechoic = Stone...

Posterior shadow:

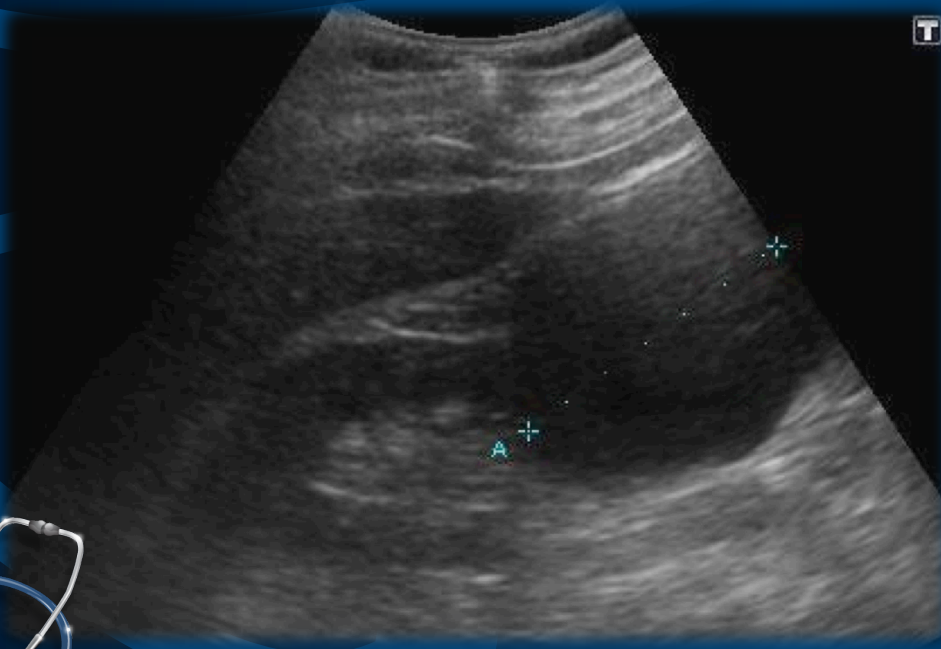
- Acousting enhancement. White-> Fluid
- Acousting shadowing. Black-> Stone....





CASE NO. 4

Female patient presented with right loin pain and hematuria. Ultrasound Exam was performed. Which of the following is the likely finding?



- a- Normal.
- b- Hydronephrosis.
- c- Renal cyst.
- d- Lower pole renal stone.





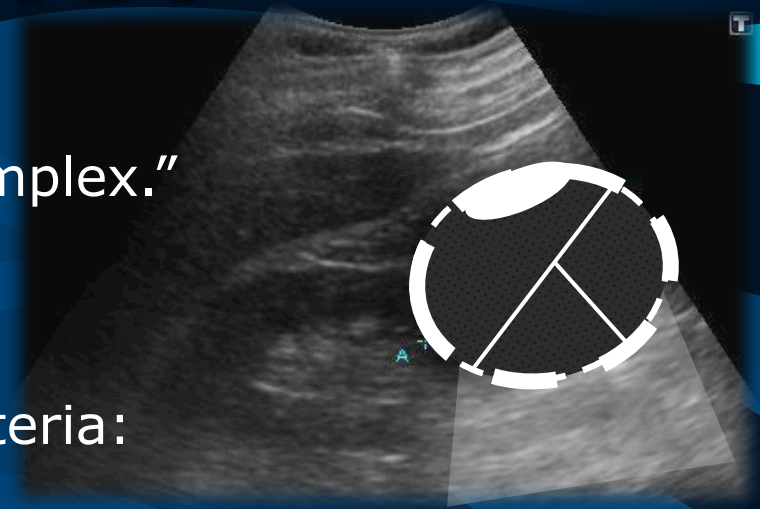
RENAL CYST

Generally classified as "simple" or "complex."

Simple Cysts:

are best defined using sonographic criteria:

- (1) Hyperechoic bright signal
 - (2) Septa posterior walls.
 - (3) Multiple internal echoes.
 - (4) Posterior enhancement.
- Nodularity / wall thickening



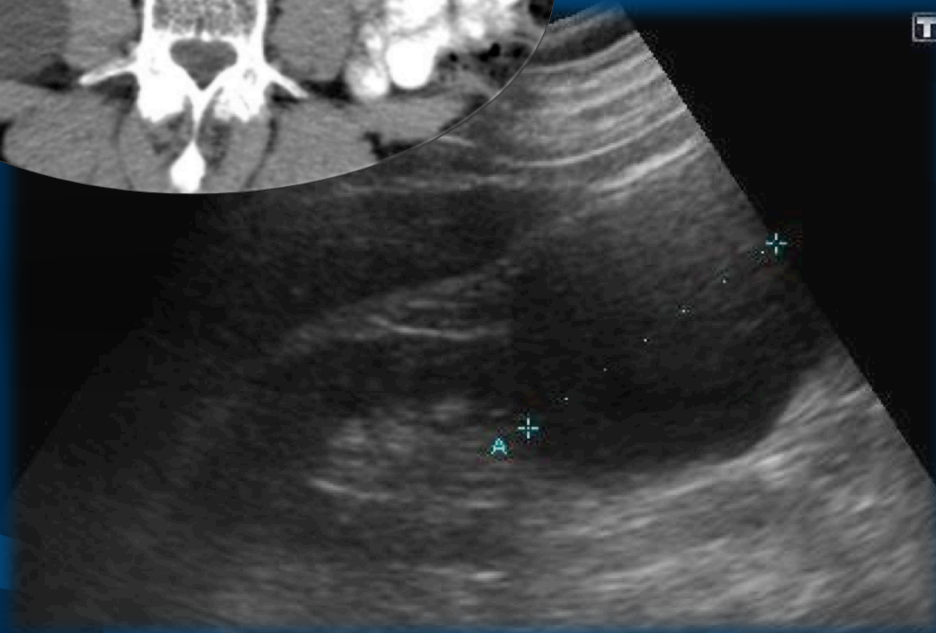
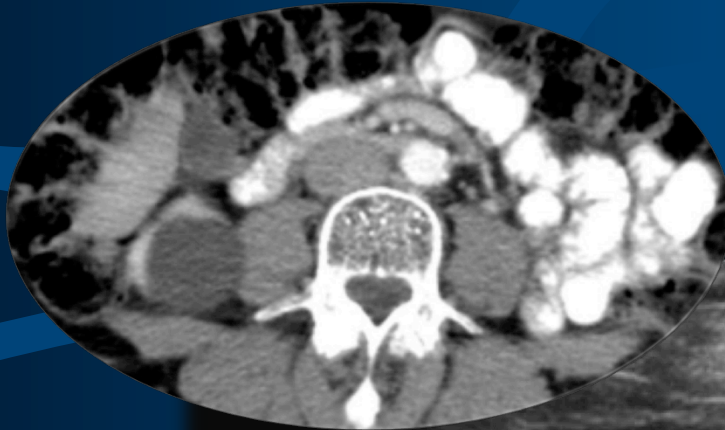
THE BOSNIAK CLASSIFICATION OF RENAL CYSTS





RENAL CYST

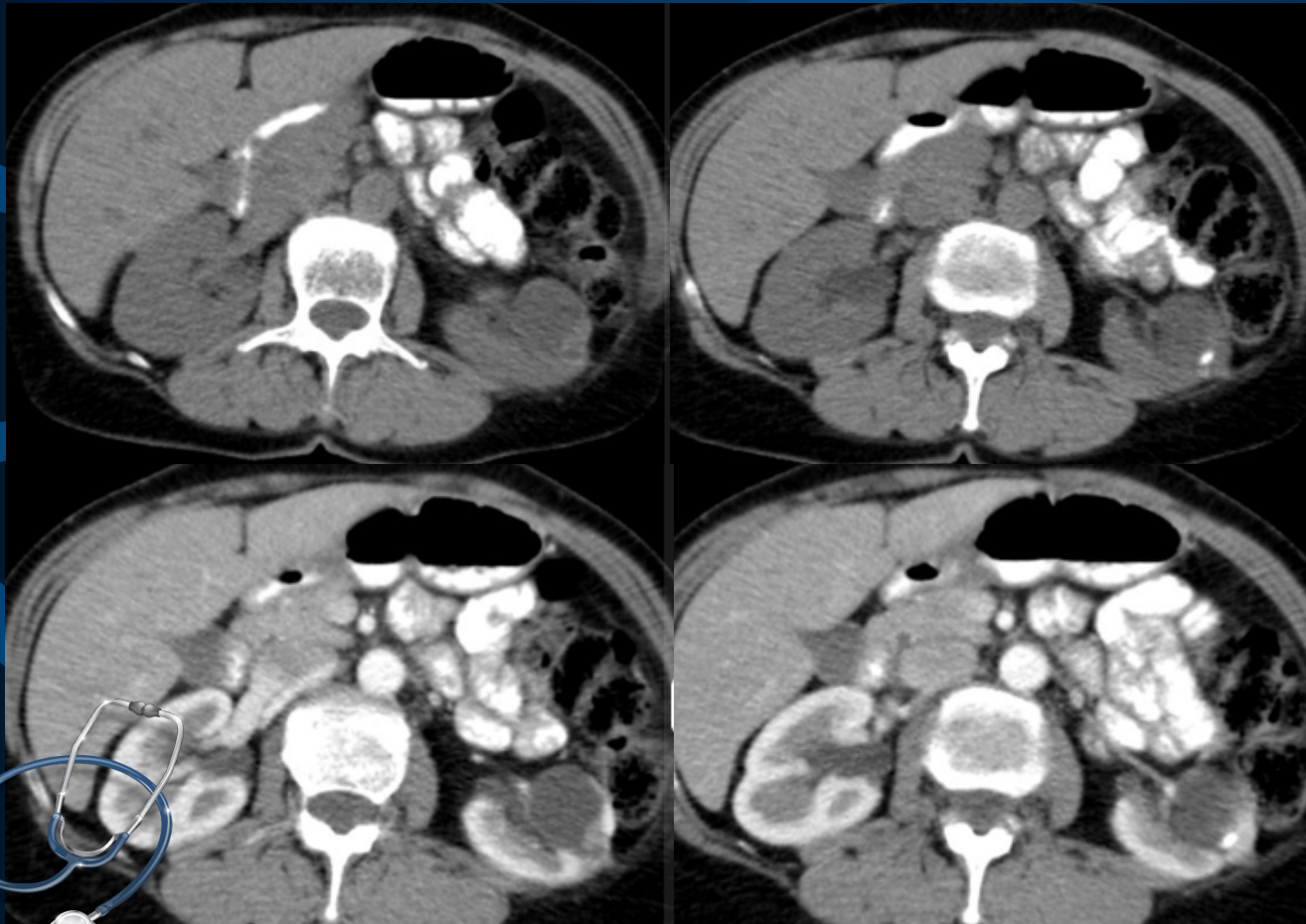
SIMPLE RENAL CYST





RENAL CYST

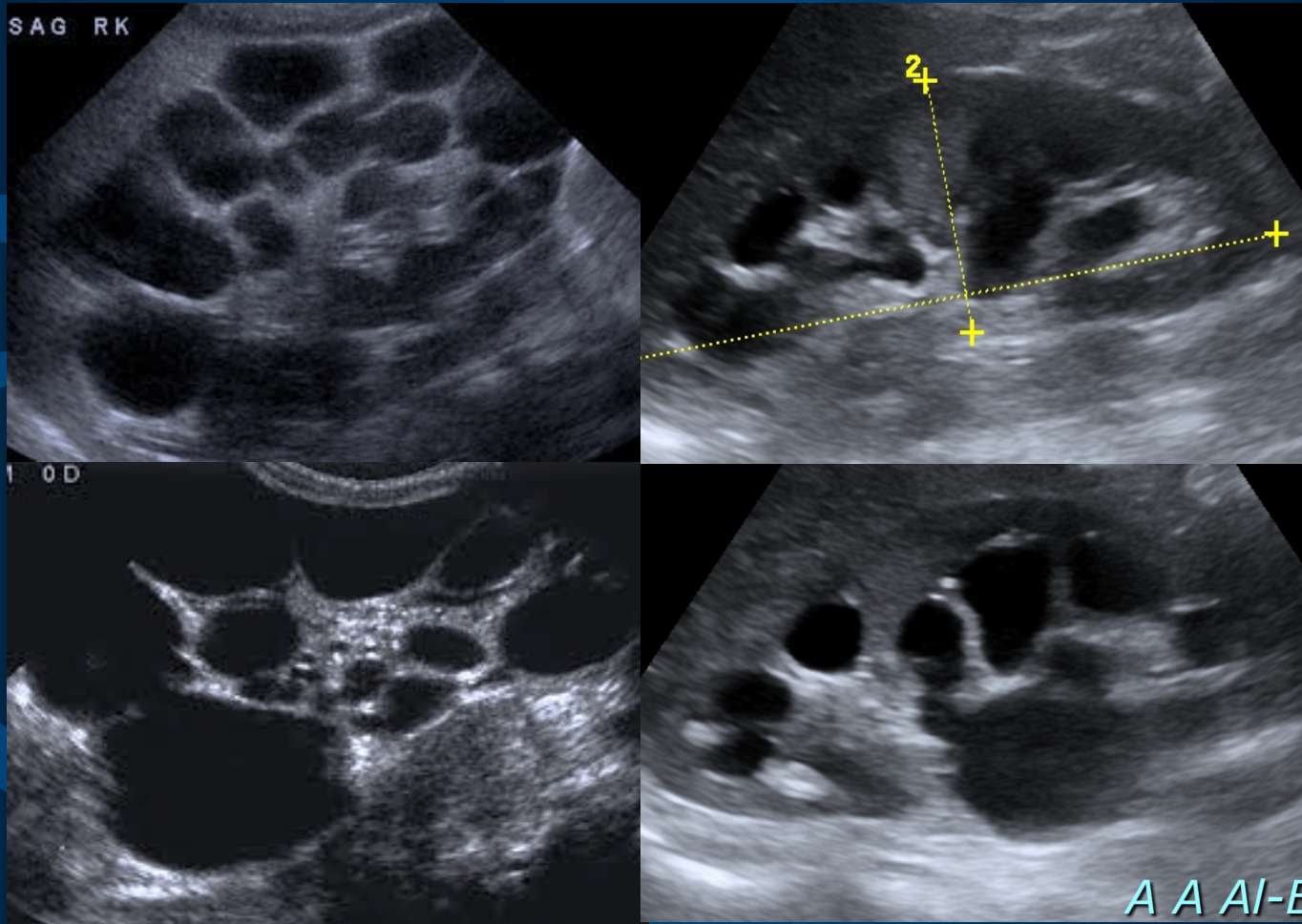
NON-SIMPLE RENAL CYST





RENAL CYST

RENAL CYSTS VS HYDRONEPHROSIS





CASE NO. 5

Female patient presented with painless hematuria.

Ultrasound Exam heterogeneous lesion.

Which of the following is the likely finding?

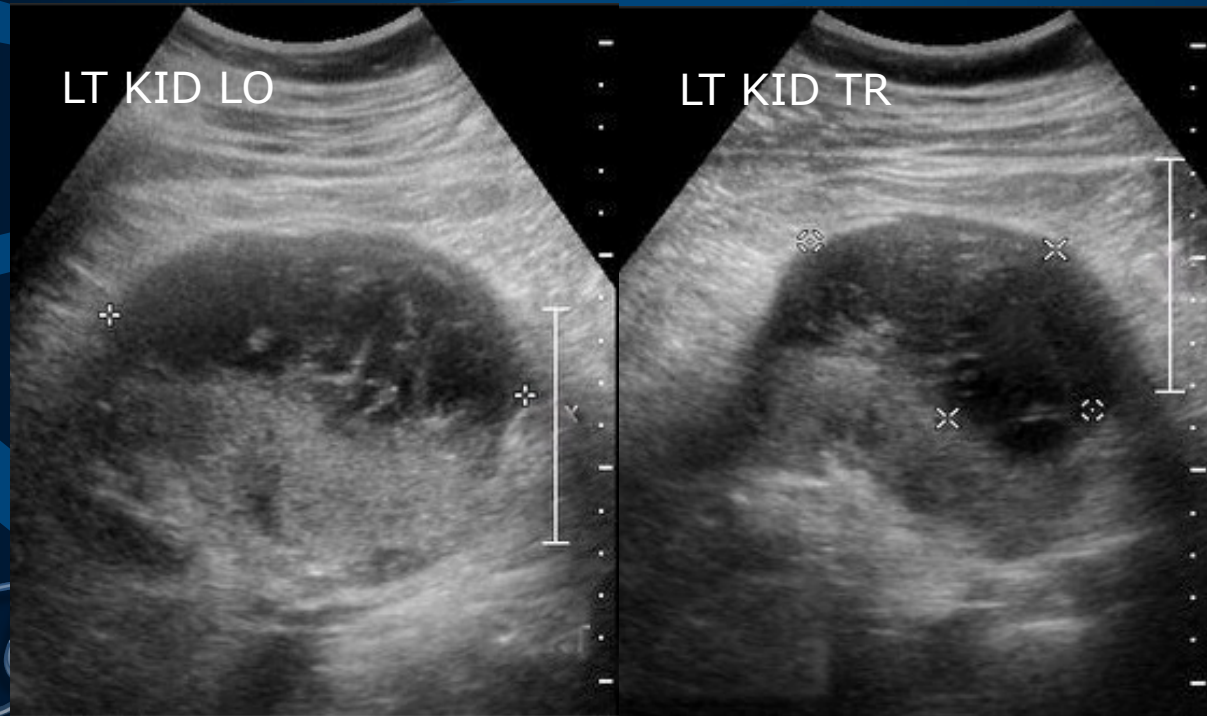
- a- Right lower pole cyst.
- b- Right lower pole hydronephrosis.
- c- Right renal stone.
- d- Right renal cell carcinoma.**
- e- Right subcapsular hematoma.



CASE NO. 6

54 YO presented with aggravating left flank pain and gross hematuria after ESWL.

Which of the following is the likely cause of his presentation?



- a- Hydronephrosis
- b- Renal cyst.
- c- Renal mass.
- d- Renal hematoma.



CASE NO. 6

54 YO presented with aggravating left flank pain and gross hematuria after ESWL.

LT KID LO

What would be your next step?

SUBCAPSULAR RENAL HAEMATOMA

LT KID LO

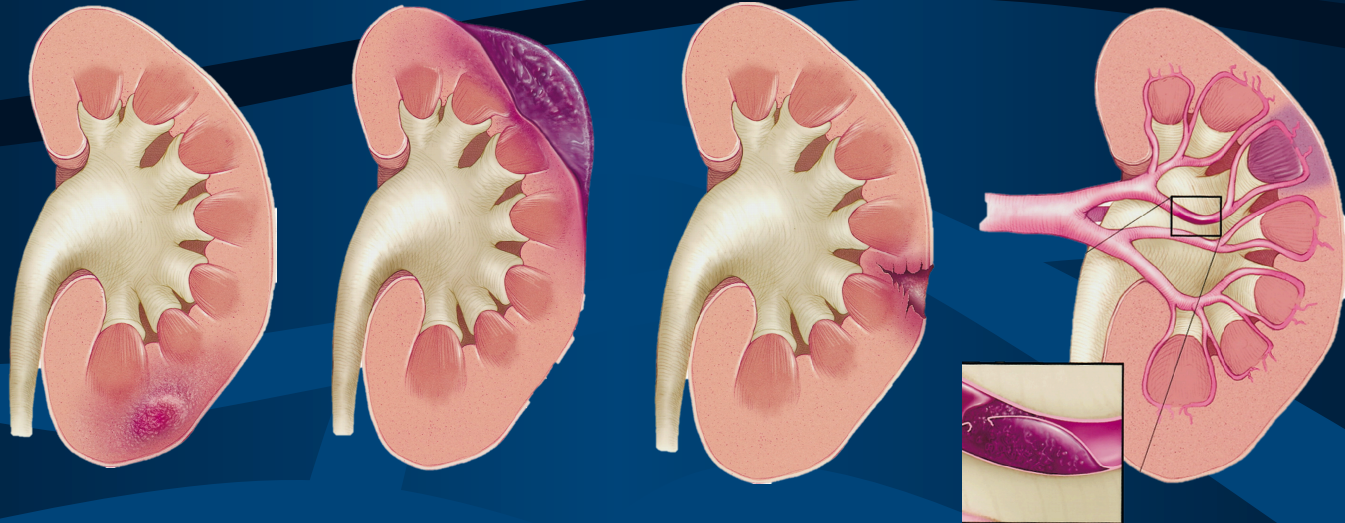
LT KID TR



- a- Do KUB CT+ study.
- b- Do DMSA scan.
- c- Do renal angiogram.
- d- Do MRU.



RENAL TRAUMA

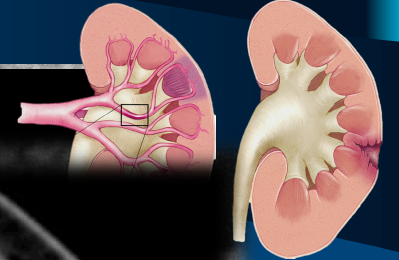
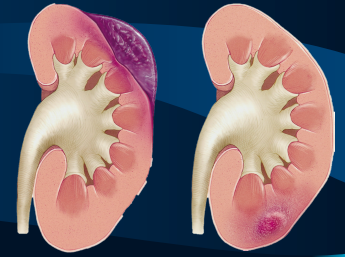


- ✓ 90% due blunt trauma – 10% penetrating
- ✓ CT is the technique of choice.
- ✓ Hematuria is the major indication.
- ✓ Evaluation of
 - Renal parenchyma
 - Renal vascular injuries
 - Renal collecting system injuries

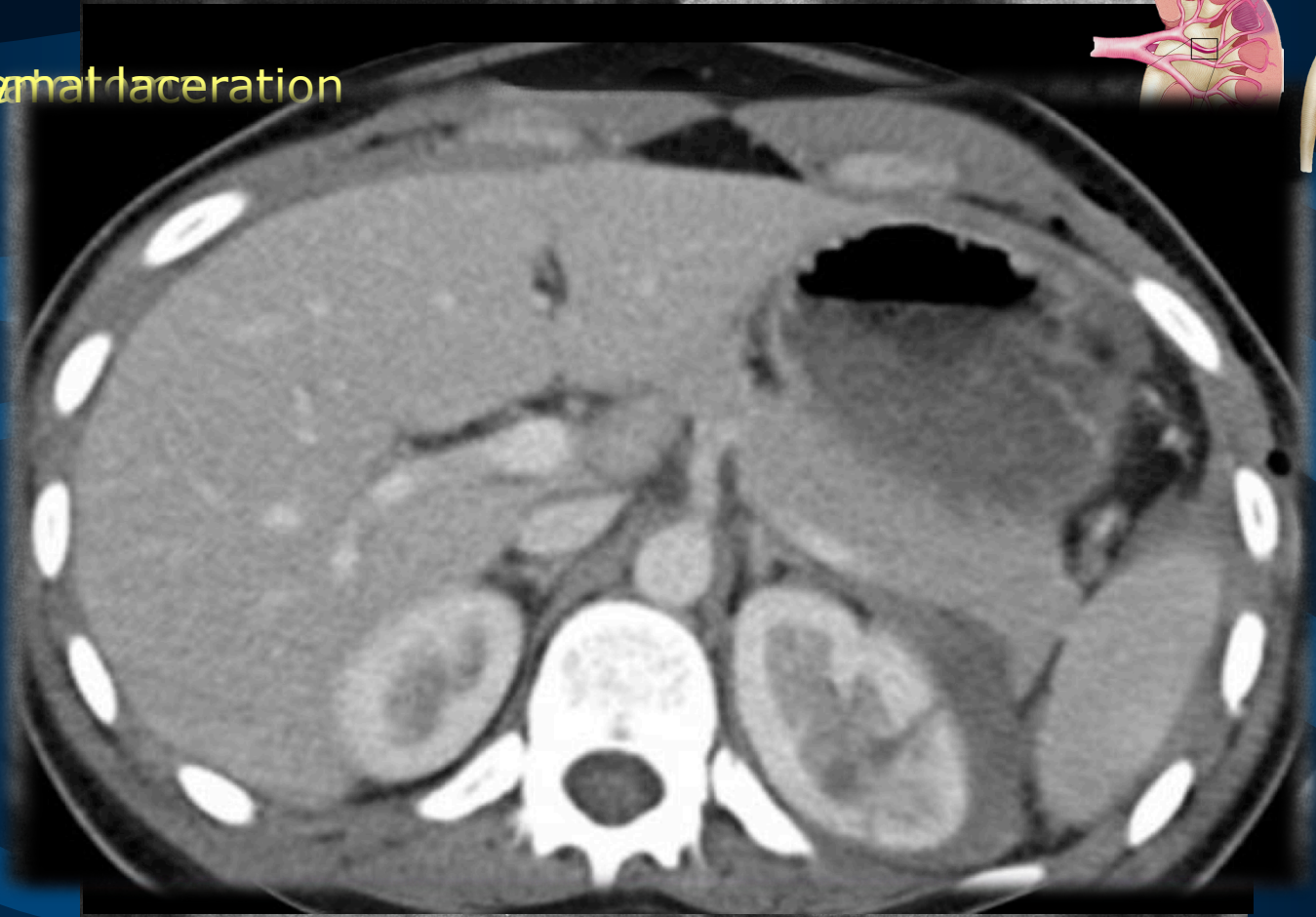




RENAL TRAUMA

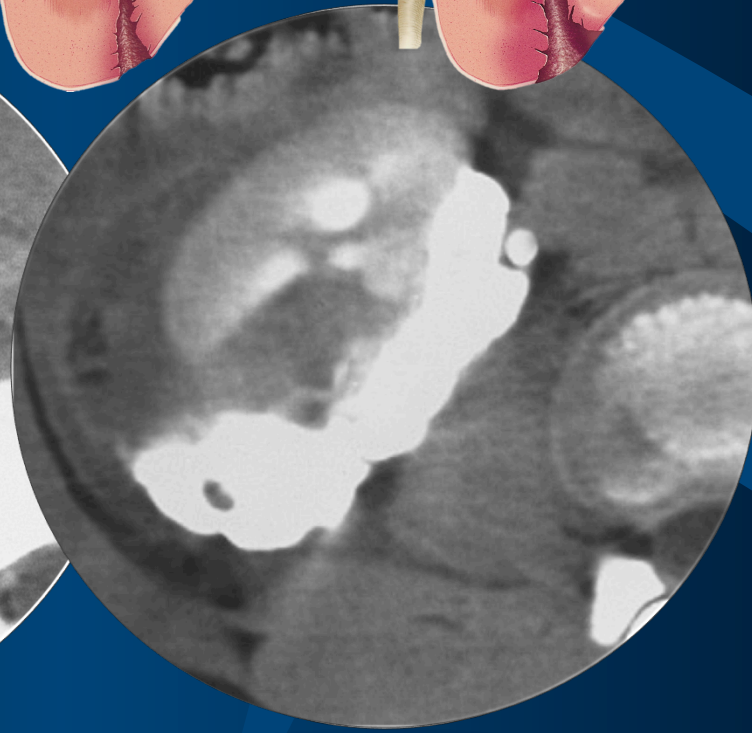
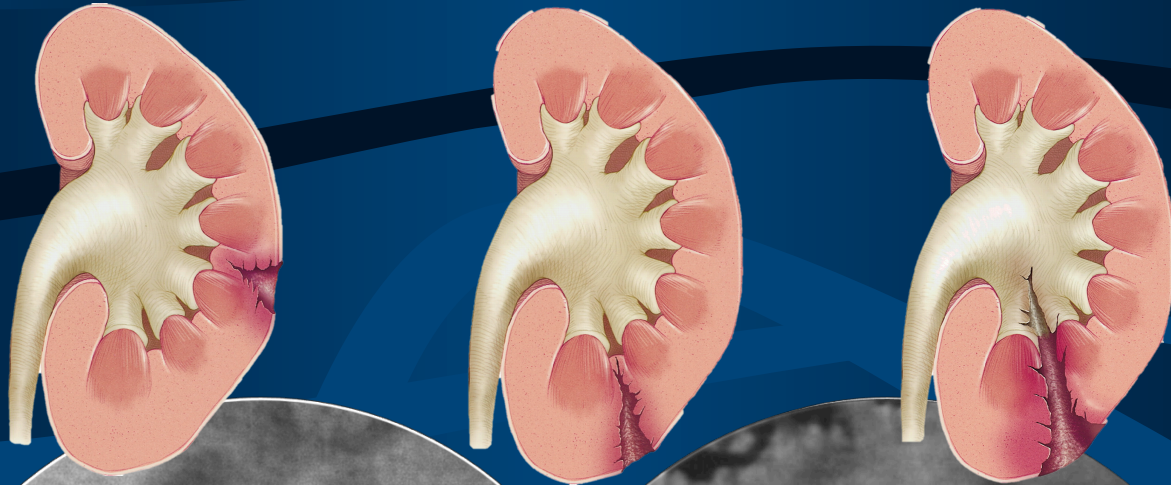


Subcapsular hemorrhage and laceration





RENAL TRAUMA





THANKS



A A AI-BOUKAI-50