



UROGENITAL TRACT IMAGING

Interactive session

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Assistant Professor & Consultant

CASE (1)

Young Adult presented with right loin pain and microscopic 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

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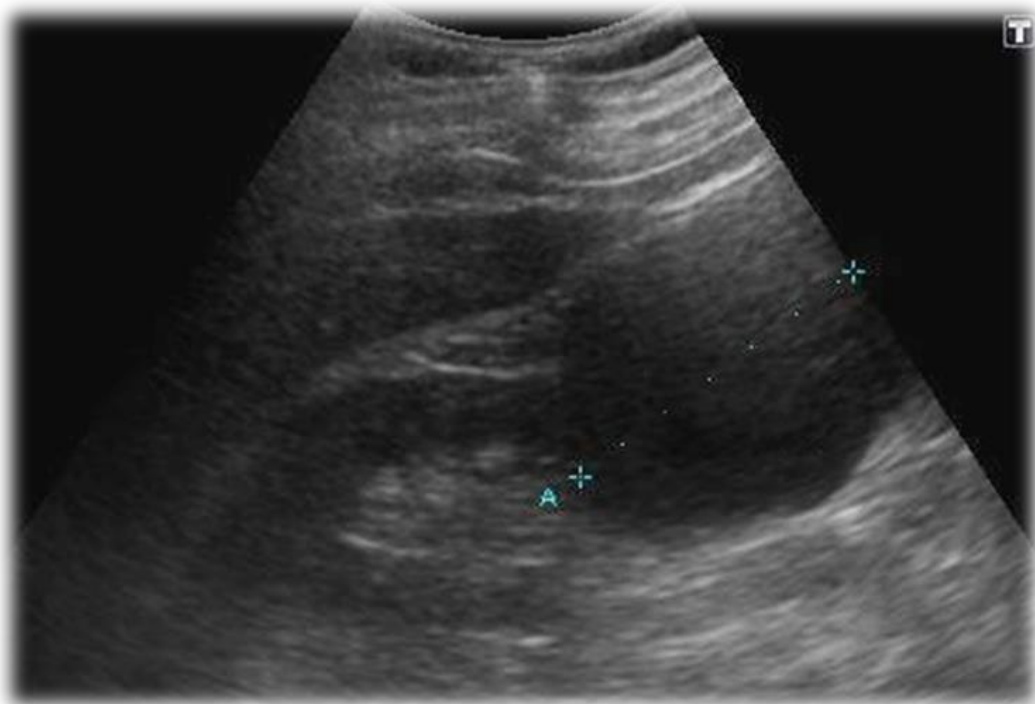
c- Renal mass

d- Upper pole renal stone

Case (2)

Young Adult presented with right loin pain. Ultrasound Exam was performed.

Which of the following is the likely finding?

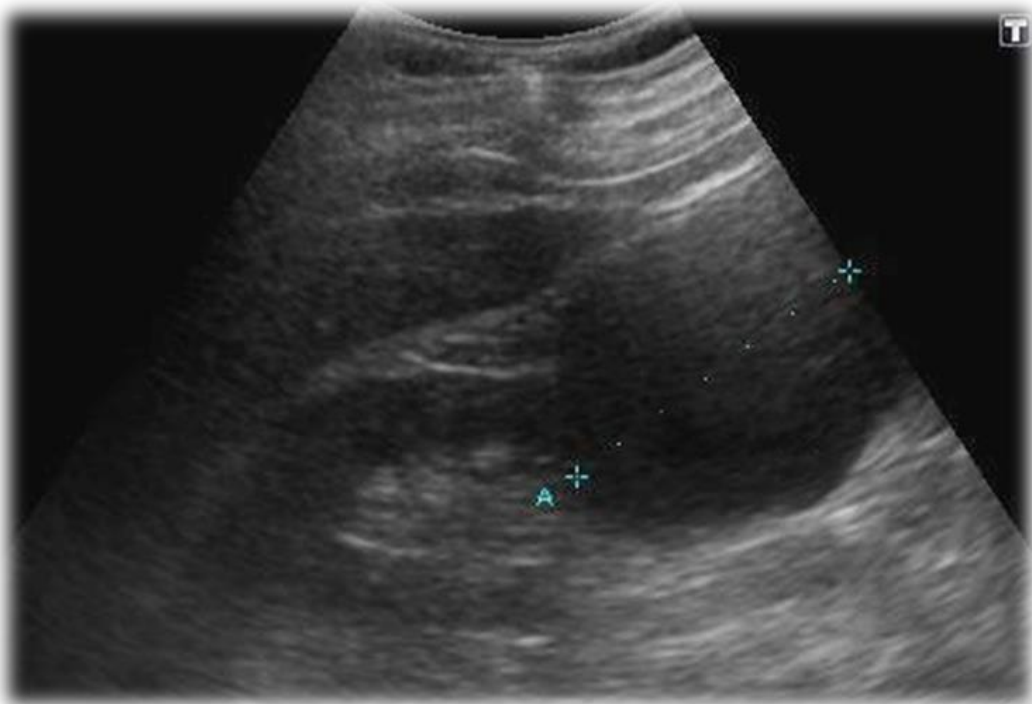


- a- Normal
- b- Hydronephrosis
- c- Renal cyst
- d- Lower pole renal stone

Case (2)

Young Adult presented with right loin pain. Ultrasound Exam was performed.

Which of the following is the likely finding?

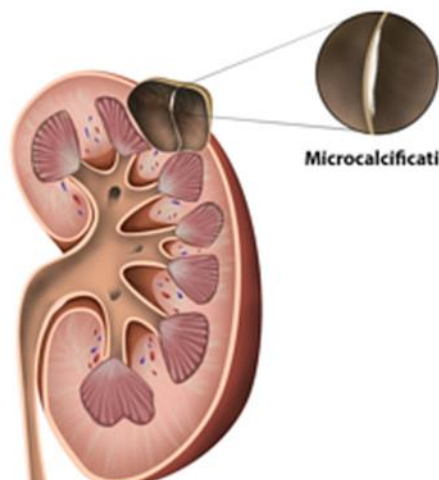


- a- Normal
- b- Hydronephrosis
- c- Renal cyst**
- d- Lower pole renal stone

Bosniak classification of renal cysts



1 ~0% are malignant

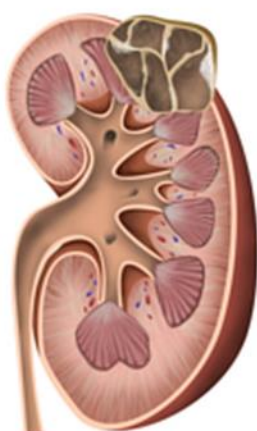


Microcalcification

2 ~0% are malignant



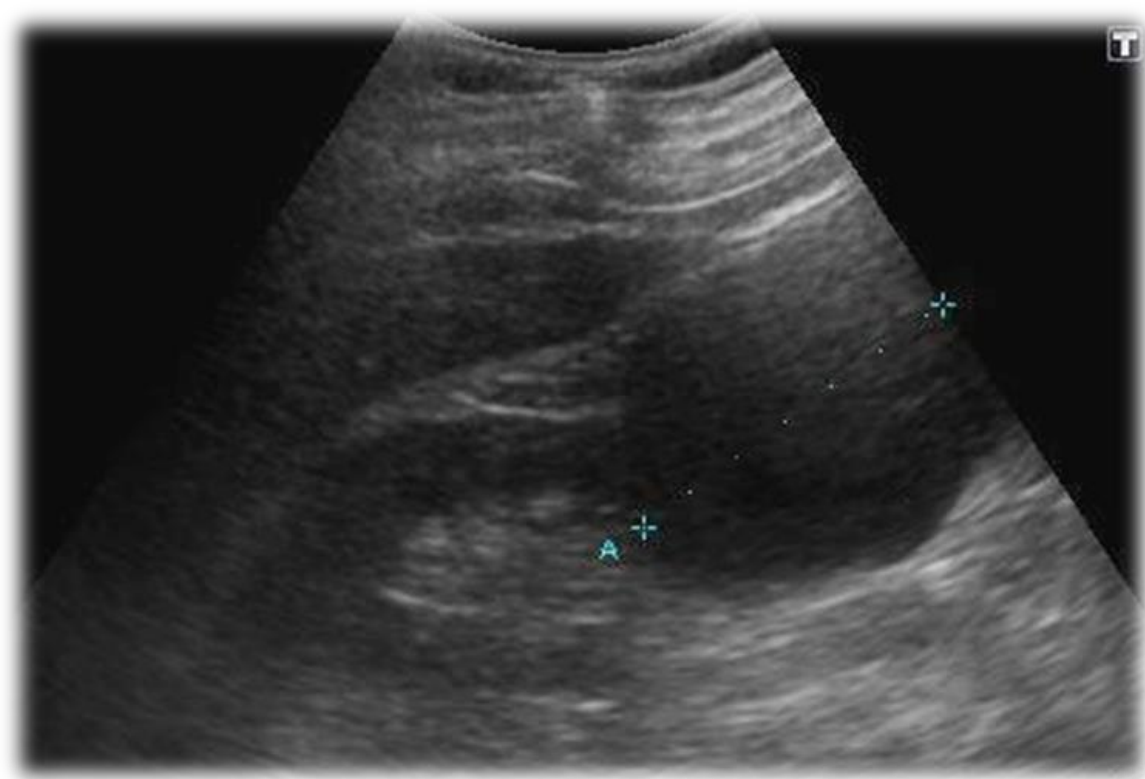
2F ~5% are malignant



3 ~50% are malignant



4 ~100% are malignant



Case (3)

29 y/o female presented to the ER c/o sudden acute left flank pain radiated to the groin associated with hematuria

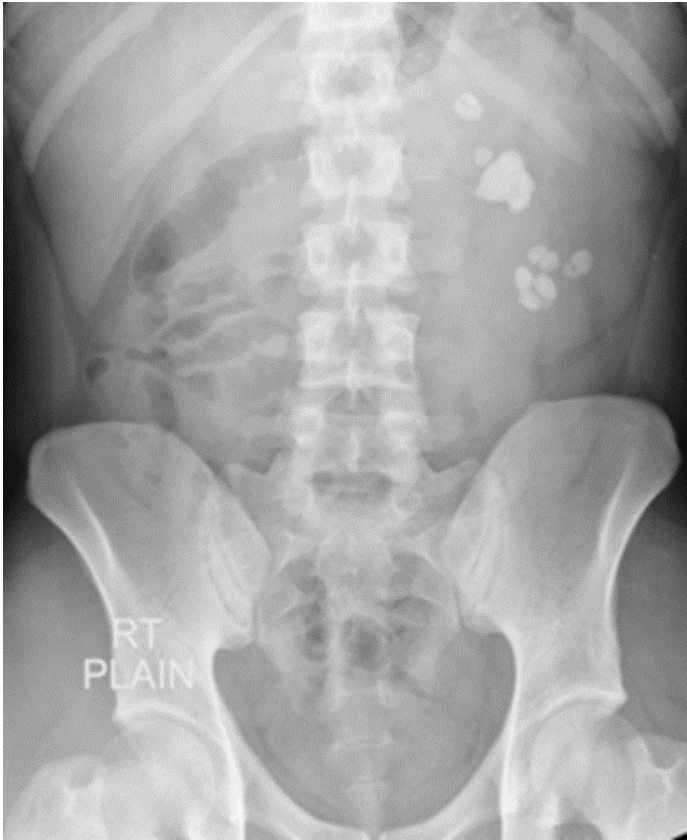


What is the name of the exam presented?

- a- IVU
- b- KUB
- c- Double contrast exam
- d- Single contrast exam

Case (3)

29 y/o female presented to the ER c/o sudden acute left flank pain radiated to the groin associated with hematuria



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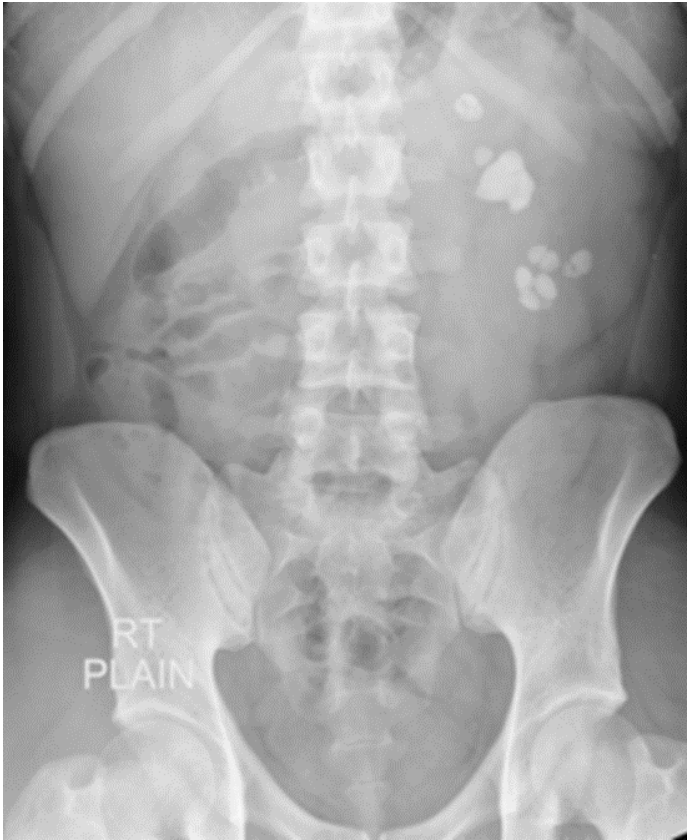
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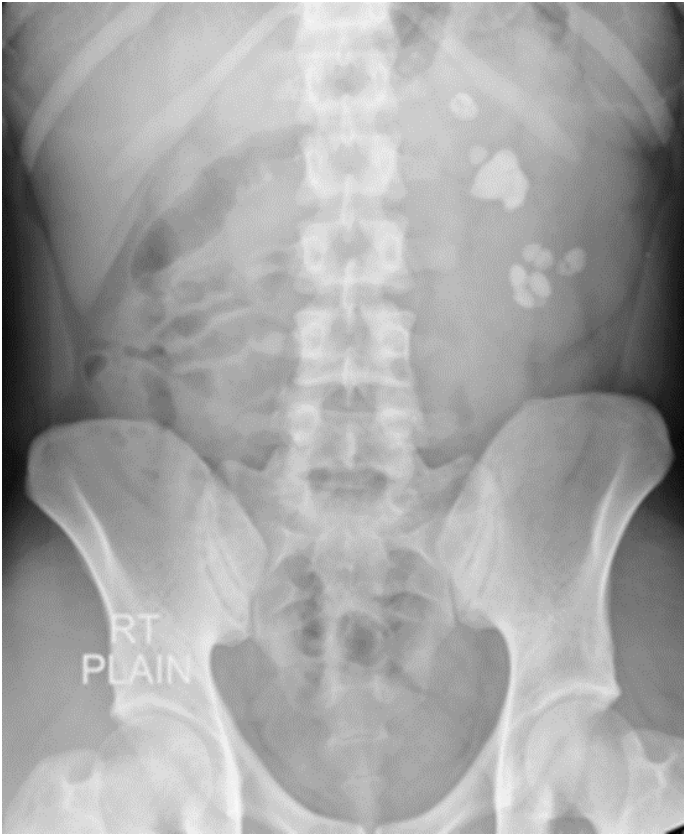


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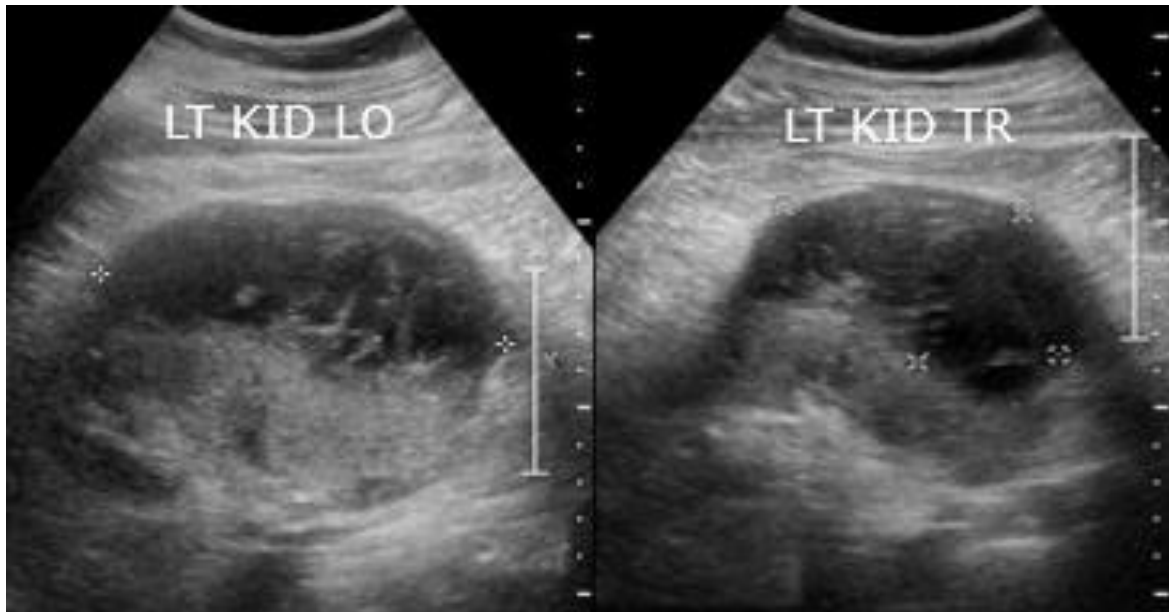
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Case (4)

36 y/o male presented to the ER c/o acute sudden left flank pain radiated to the groin associated with hematuria post RTA. US was performed.

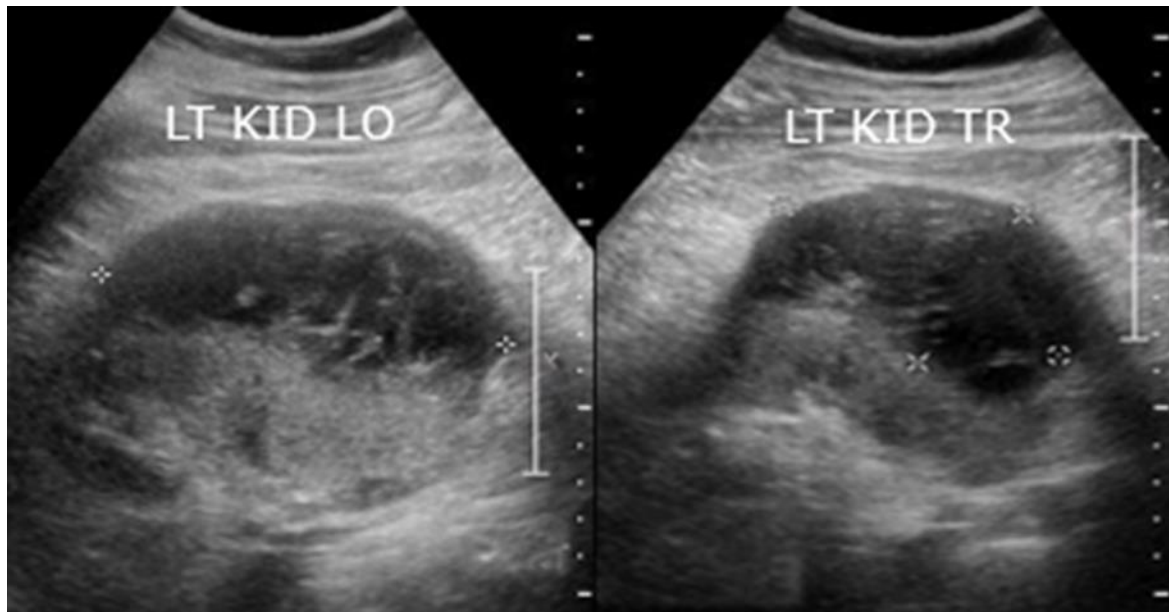


What is the major finding?

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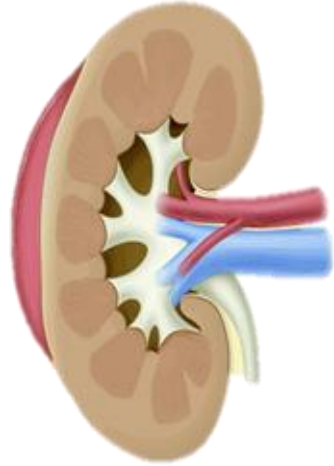
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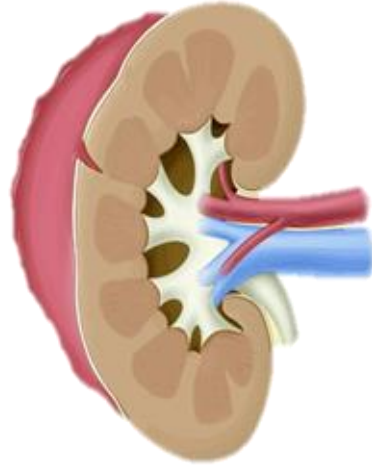


SUBCAPSULAR RENAL HAEMATOMA

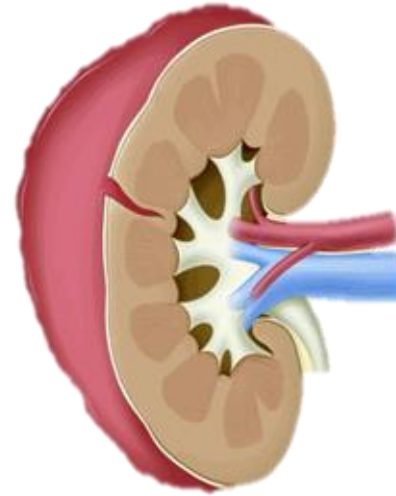
Grade 1



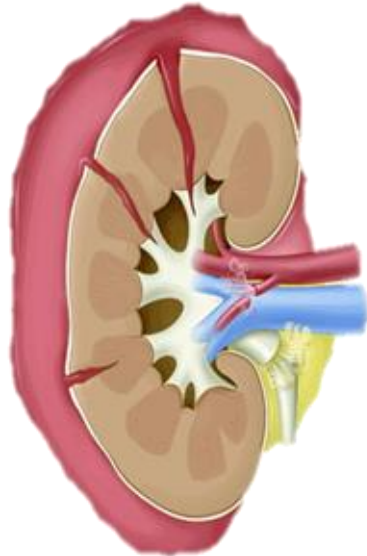
Grade 2



Grade 3



Grade 4



Grade 5

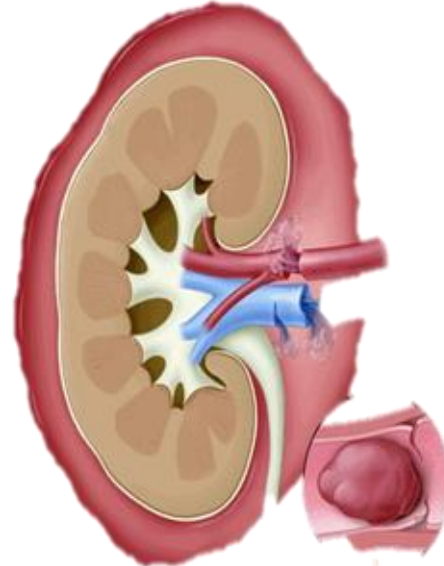
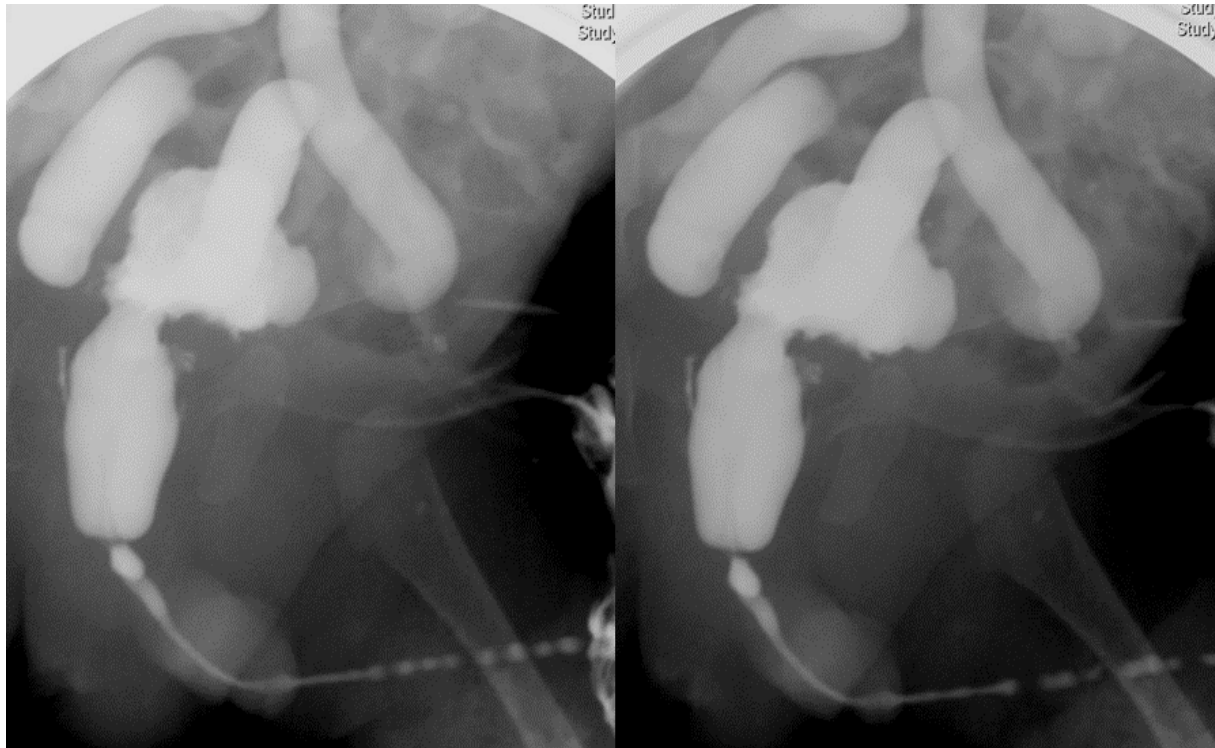


Table 11. Renal Injury Grades

Grade	Extent of renal injury
1	Contusion: microscopic or gross hematuria, no depiction of injury with any imaging method Hematoma: subscapular hematoma with no parenchymal laceration
2	Nonexpanding perirenal hematoma or cortical laceration less than 1 cm deep with no urinary extravasation
3	Parenchymal laceration extending greater than 1 cm into the cortex with no urinary extravasation
4	Parenchymal laceration extending through the cortico-medullary junction and into the collecting system
5	Multiple major lacerations resulting in a shattered kidney or avulsion of renal hilum that devascularizes the kidney

Case (5)

One month old boy with recurrent UTI.

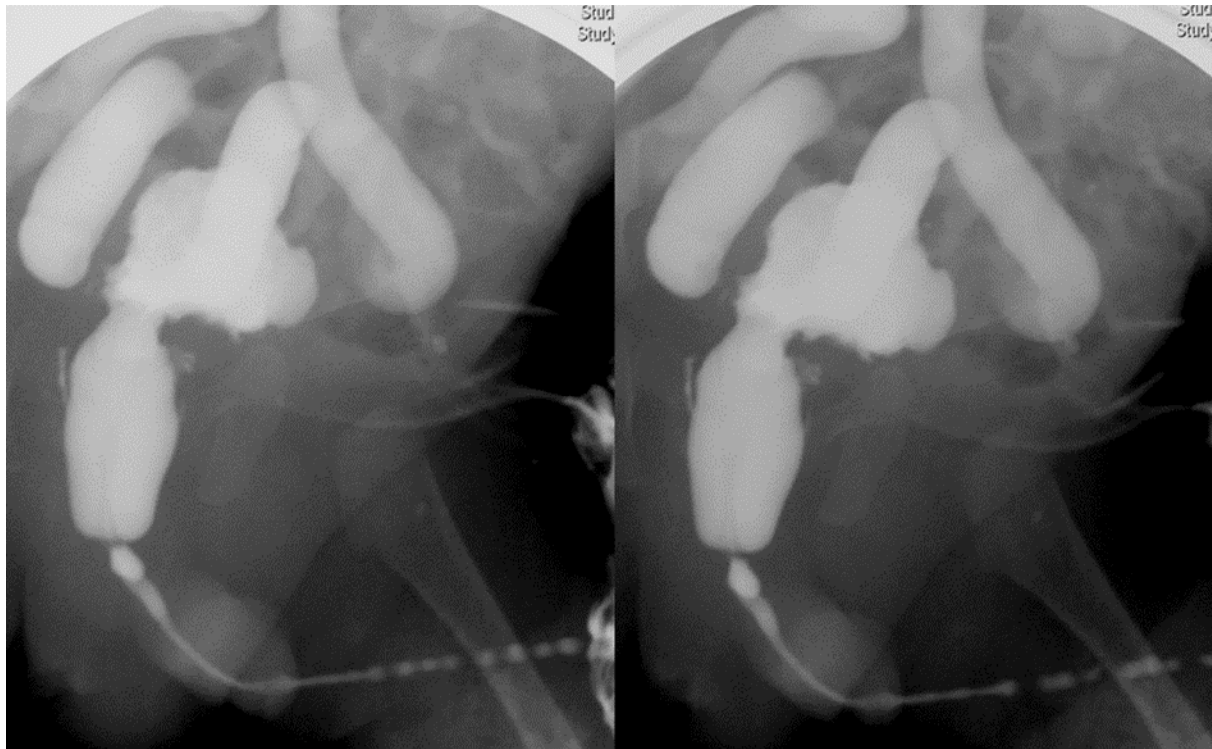


What type of imaging is this?

- a- Intravenous urography (IVU)
- b- CT with IV contrast
- c- Voiding cystourethrogram
- d- scintigraphy

Case (5)

One month old boy with recurrent UTI.

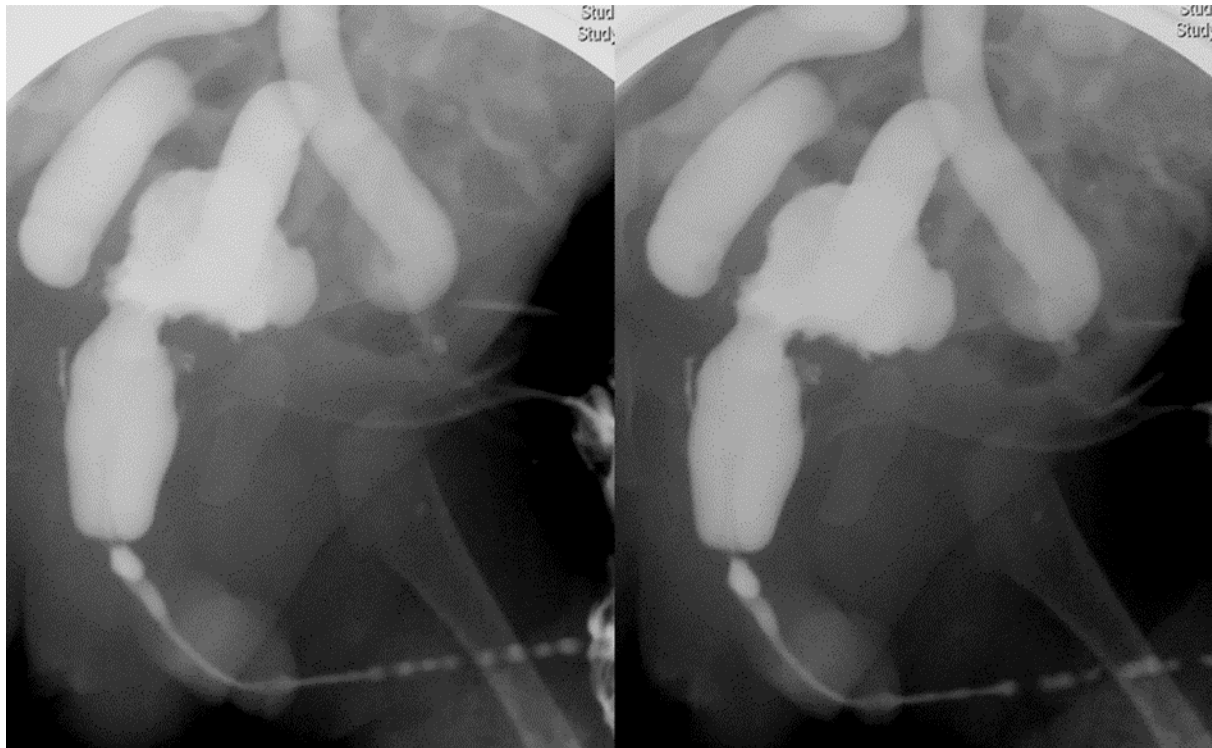


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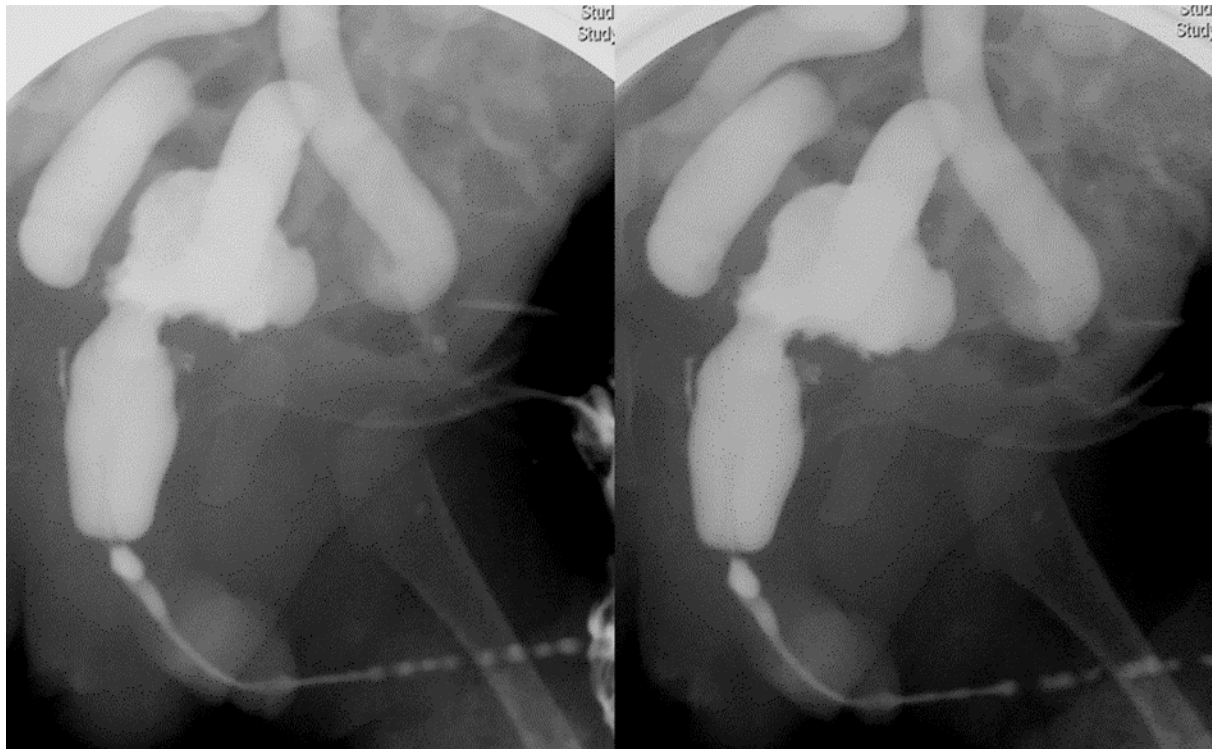


What is the abnormality seen?

- a- Normal VCUG
- b- Vesico-colonic fistula
- c- Beaded urethral strictures
- d- Vesicoureteric reflux

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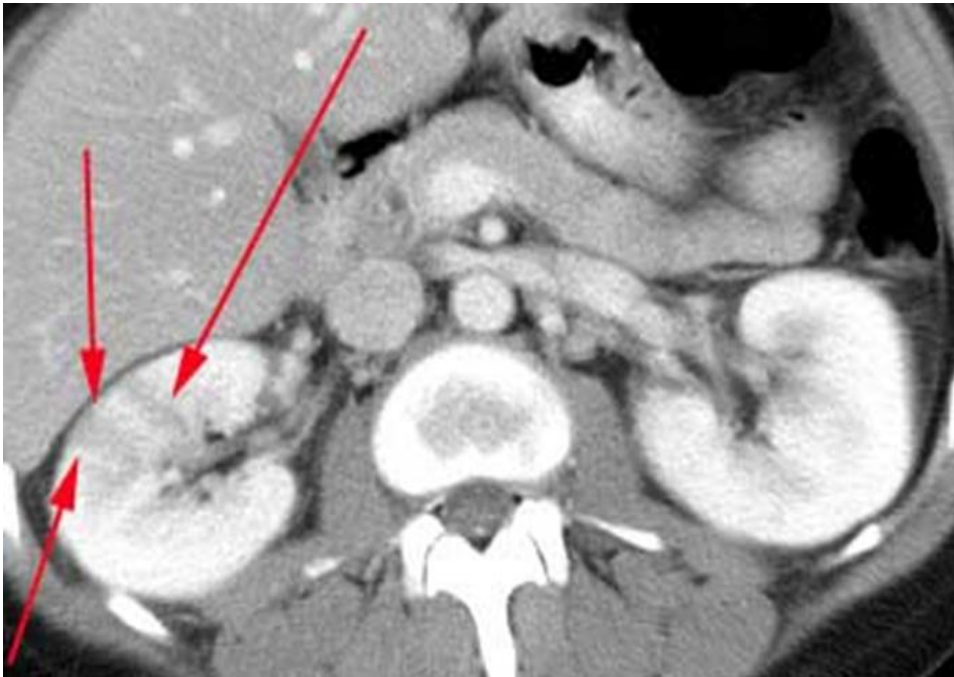


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Case (6)

31 y/o female patient came to ER with high grade fever, right flank pain and vomiting. In addition, she has urinary frequency since 3 days.

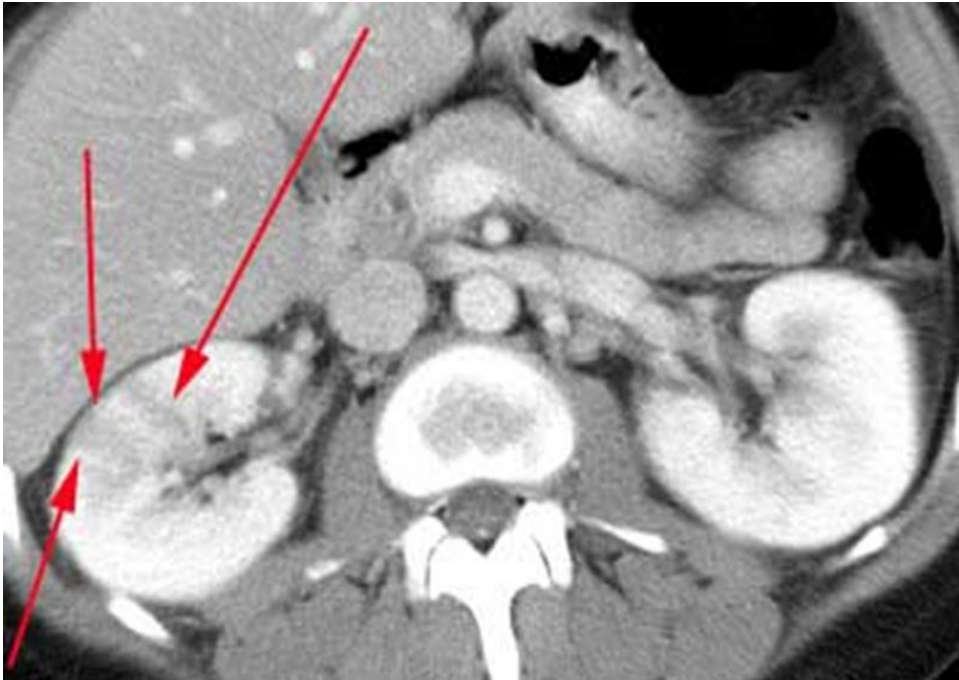


What is this imaging modality?

- a- MRI with contrast
- b- MRI without contrast
- c- CT with contrast
- d- CT without contrast

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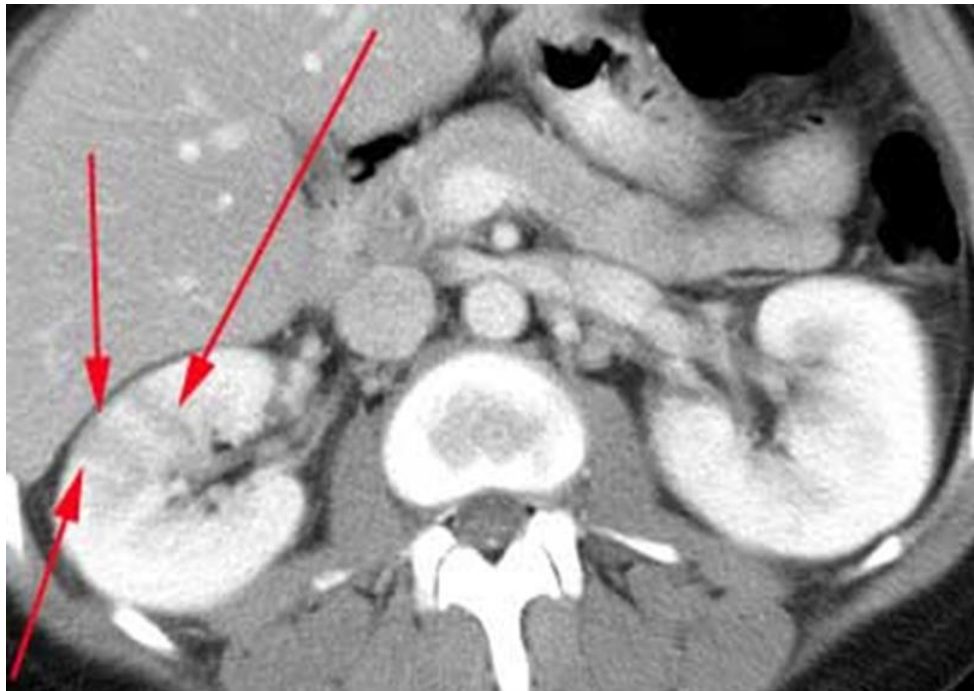


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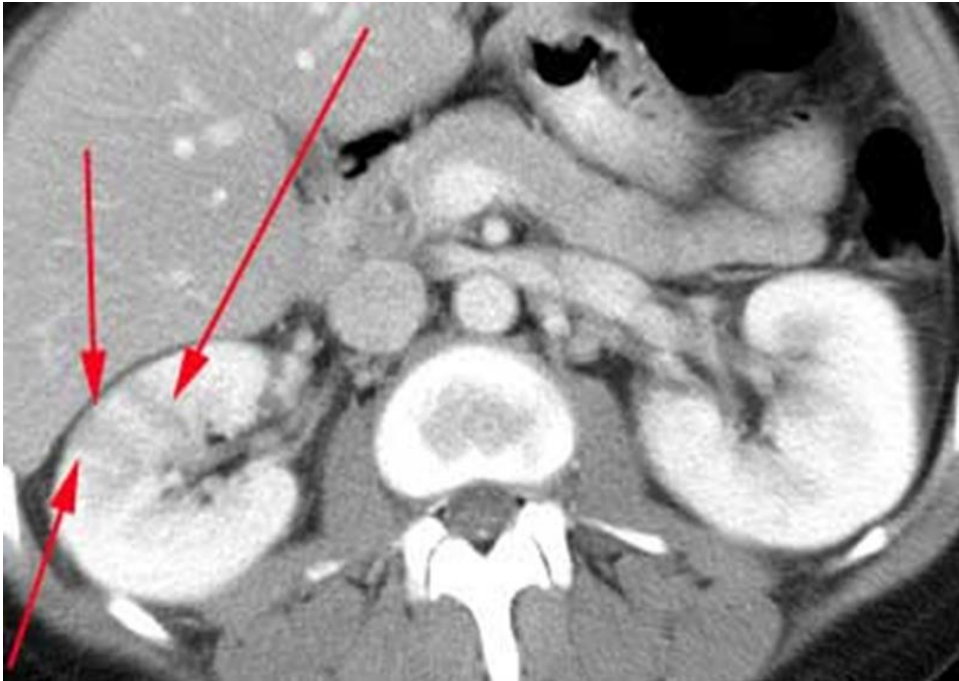


How do you describe this abnormality?

- A- cortical mass
- B- pelvicalicial dilatation
- C- hypo perfused lesion
- D- perirenal hematoma

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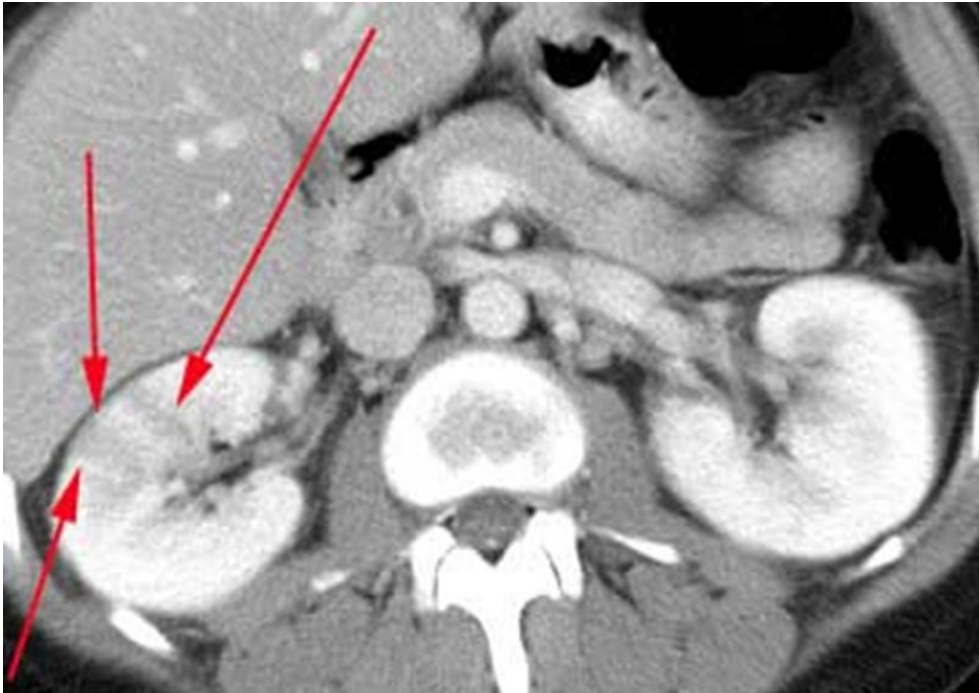


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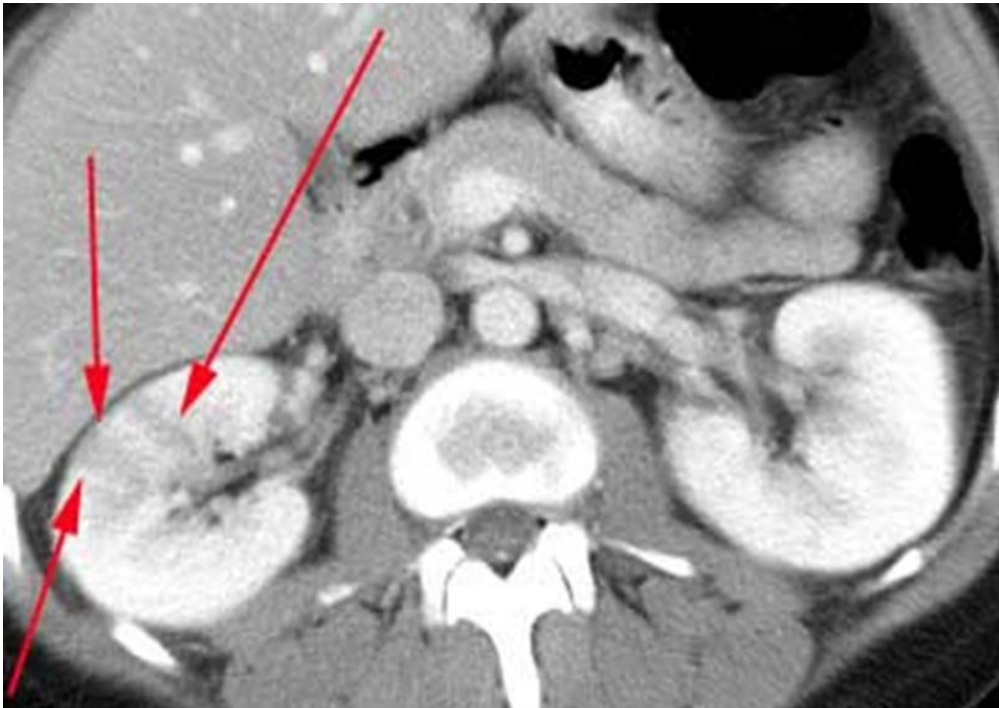


What is the most likely diagnosis?

- A- renal carcinoma
- B- pyelonephritis
- C- type I cyst
- D- traumatic lesion

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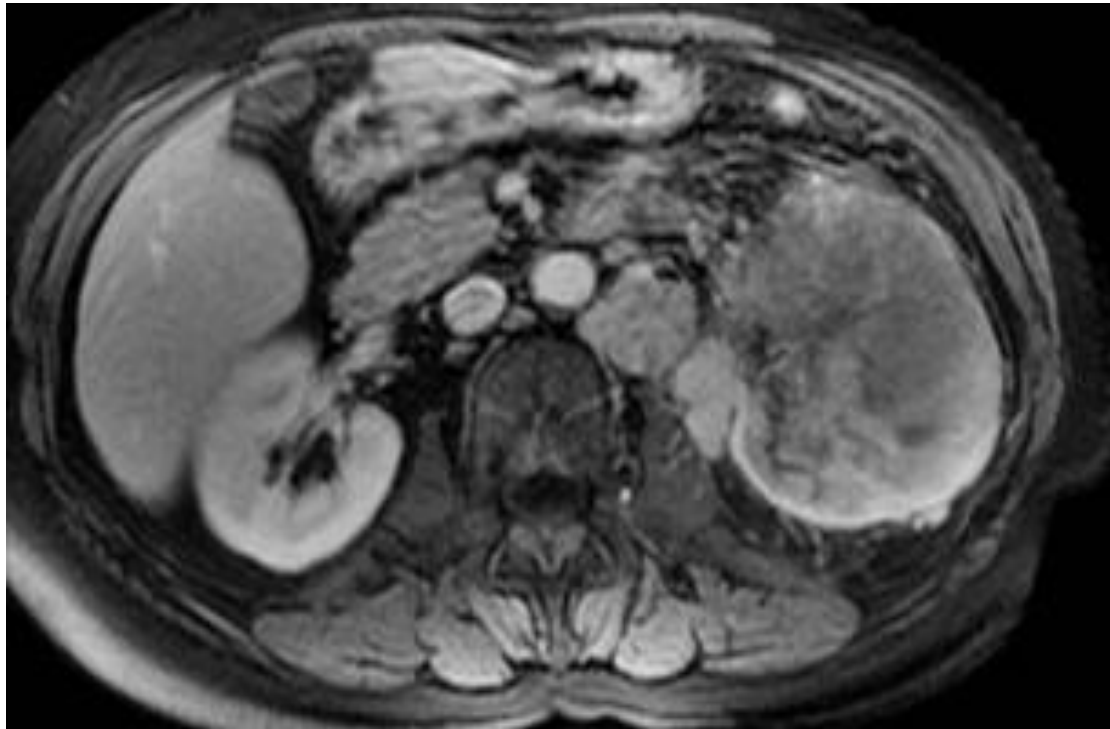


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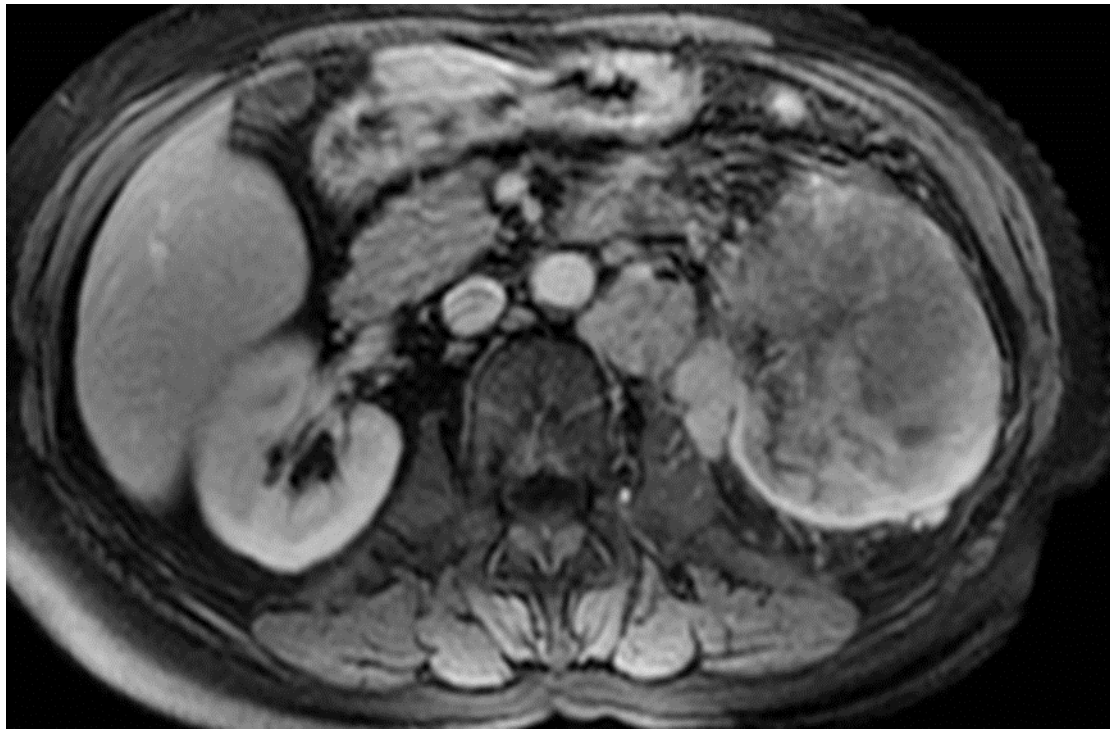
76 y/o male patient presented with painless hematuria and weight loss.



How do you describe this lesion?

Case (7)

76 y/o smoker male patient presented with painless hematuria and weight loss.

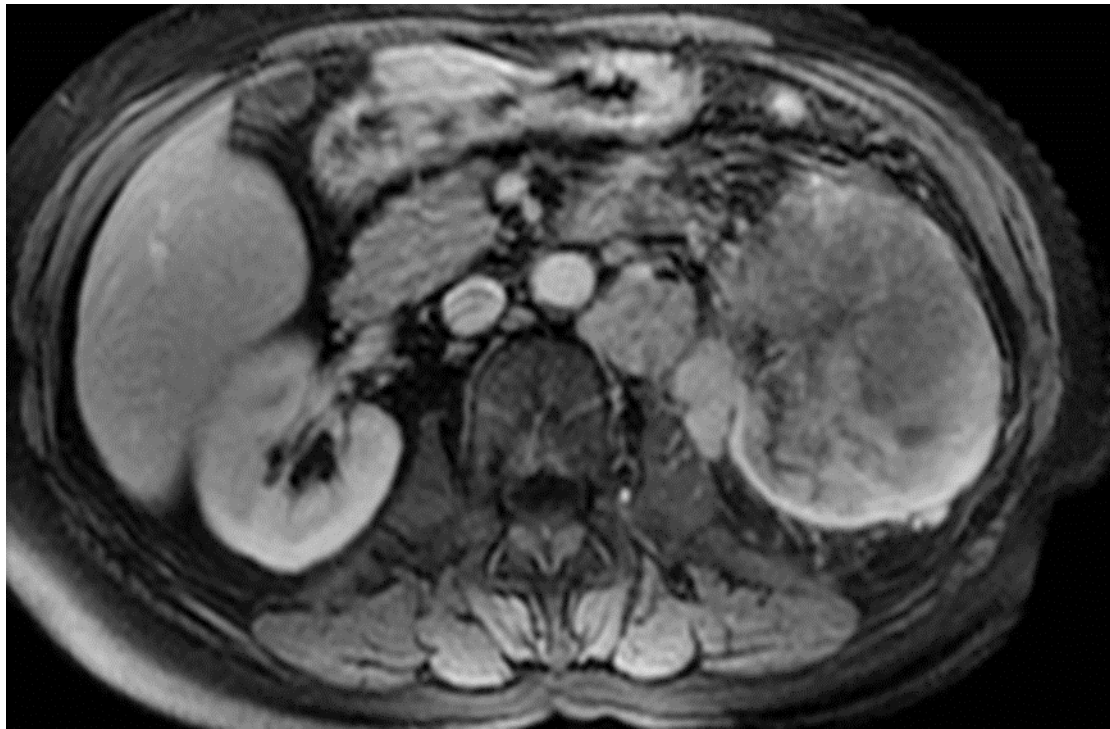


What is the most likely diagnosis?

- A- pyelonephritis
- B- renal adenocarcinoma
- C- transitional cell carcinoma
- D- angiomyolipoma

Case (7)

76 y/o male patient presented with painless hematuria and weight loss.



What is the most likely diagnosis?

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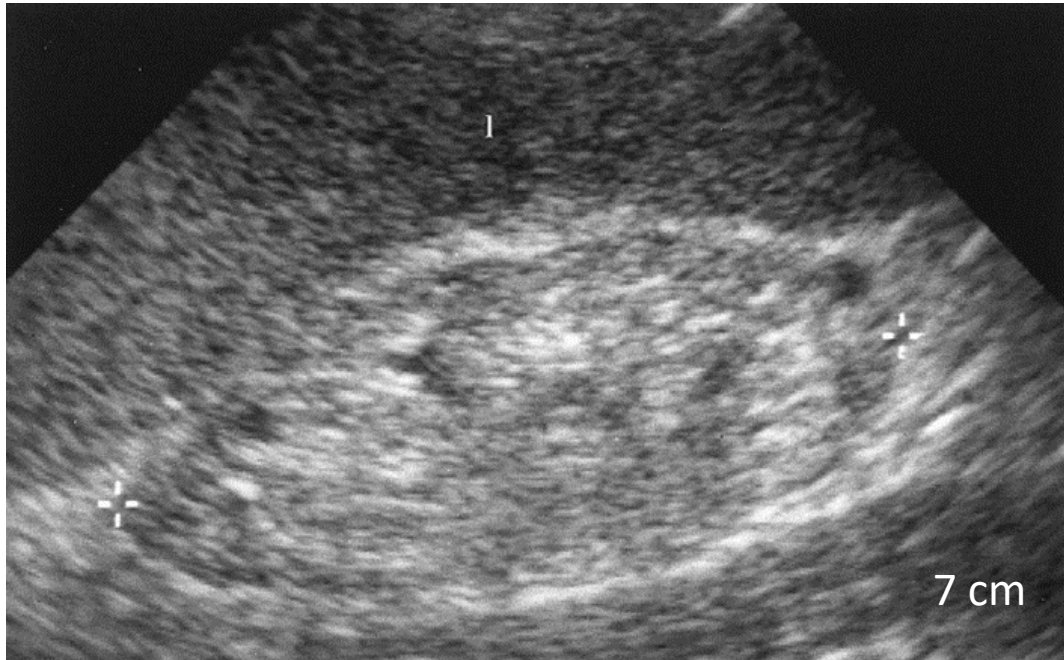
B- renal adenocarcinoma

C- transitional cell carcinoma

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Case (8)

81 y/o female diabetic patient came to clinic with general fatigue, itching, loss of appetite and easy bruising. Initial lab works show a creatinine level of 180 $\mu\text{mol/L}$.

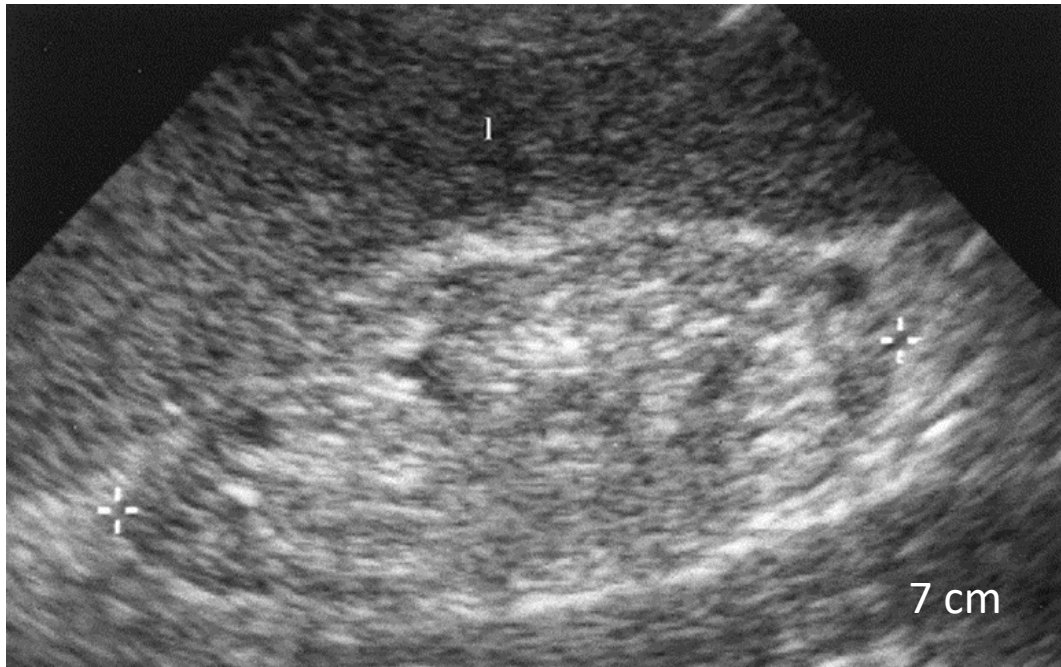


What does US show?

- A- normal kidney
- B- hypoechogenic kidney
- C- atrophic undifferentiated kidney
- D- atrophic kidney with normal cortico-medullary differentiation

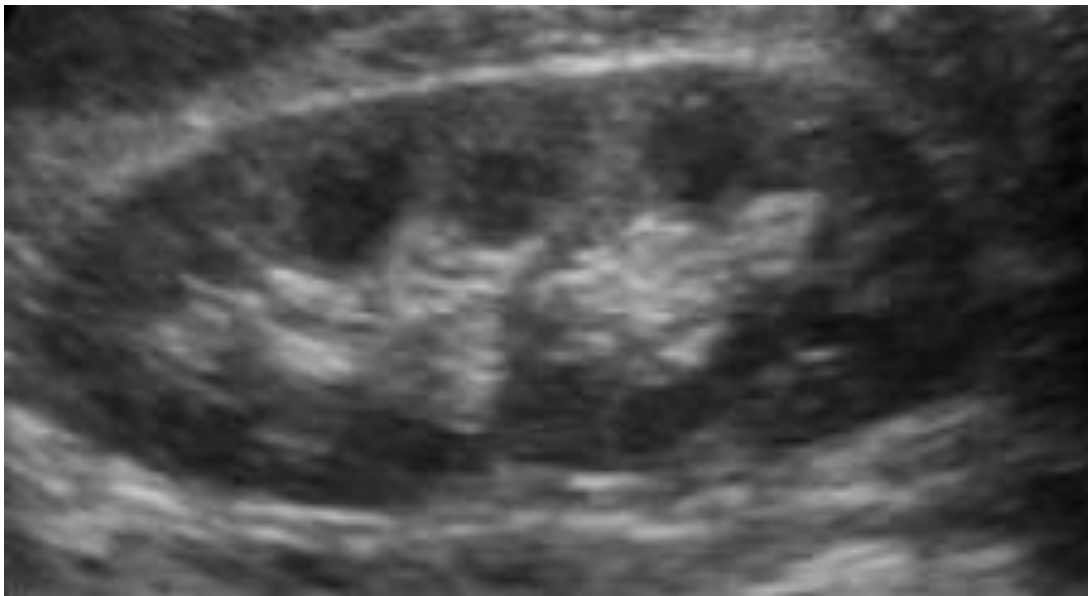
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Case (9)

67 y/o male patient came to ER with worsening hematuria.



What is this exam?

A- KUB

B- IVP

C- CT: coronal section

D- scintigraphy

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Case (9)

67 y/o male patient came to ER with worsening hematuria



What is the major finding?

- A- normal
- B- left pelvicalicial dilatation
- C- right ureteral dilatation
- D- filling defect in urinary bladder

Case (9)

67 y/o male patient came to ER with worsening hematuria



What is the major finding?

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Case (10)

73 y/o female came with painless hematuria & general fatigue

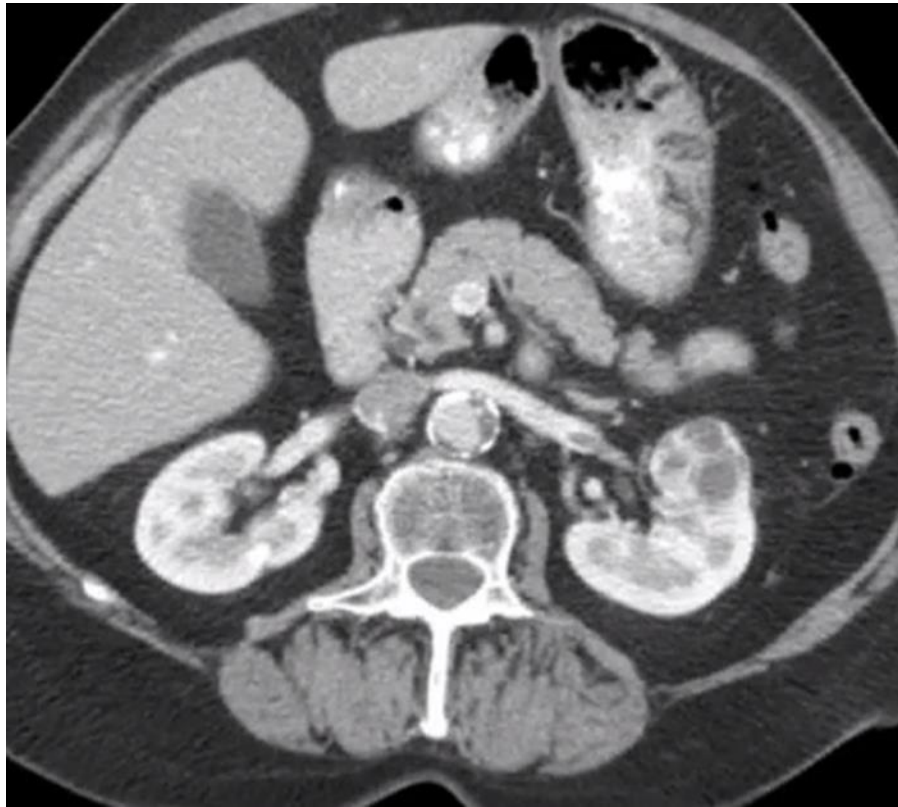


What is the major finding?

- A- Bosniak type II renal cyst
- B- malignant tumor
- C- focus of pyelonephritis
- D- normal

Case (10)

73 y/o female came with painless hematuria & general fatigue



What is the major finding?

A- Bosniak type II renal cyst

B- malignant tumor

C- focus of pyelonephritis

D- normal

Case (10)

73 y/o female came with painless hematuria & general fatigue



What other secondary finding do you observe?

- A- perirenal hemorrhage
- B- mass effect on pancreas
- C- renal vein filling defect
- D- pelvicalicial dilatation

Case (10)

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Case (11)

Middle aged diabetic male patient came to ER with a history of worsening fever and right abdominal pain since 2 weeks



How do you describe the lesion in right kidney?

Case (11)

Middle aged diabetic male patient came to ER with a history of worsening fever and right abdominal pain since 2 weeks



What is the most likely diagnosis in the right kidney?

- A- pyelonephritis
- B- renal abscess
- C- simple cyst
- D- pelvicalicial dilatation

Case (11)

Middle aged diabetic male patient came to ER with a history of worsening fever and right abdominal pain since 2 weeks



What is the most likely diagnosis in the right kidney?

- A- pyelonephritis
- B- renal abscess**
- C- simple cyst
- D- pelvicalicial dilatation

The first preliminary imaging modality in emergency department for a renal colic patient to generally assess renal stones is one of the following:

A- Intravenous urography (IVU)

B- Plain X-ray (KUB)

C- CT scan

D- ultrasound

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One of the following is a common site of urinary stone obstruction:

A- proximal ureter

B- mid ureter

C- junction of mid-distal ureter

D- vesico-ureteric junction

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One of the following is a relative contraindication for CT with contrast :

A- intracranial aneurysm clip

B- renal failure

C- cardiac pacemaker

D- high grade fever

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Which imaging modality is used to measure the renal split function? (one correct answer)

A- Ultrasound

B- Magnetic resonance imaging

C- Scintigraphy

D- Voiding cystourethrogram

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A- Ultrasound

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Thank you

