



UROGENITAL TRACT IMAGING

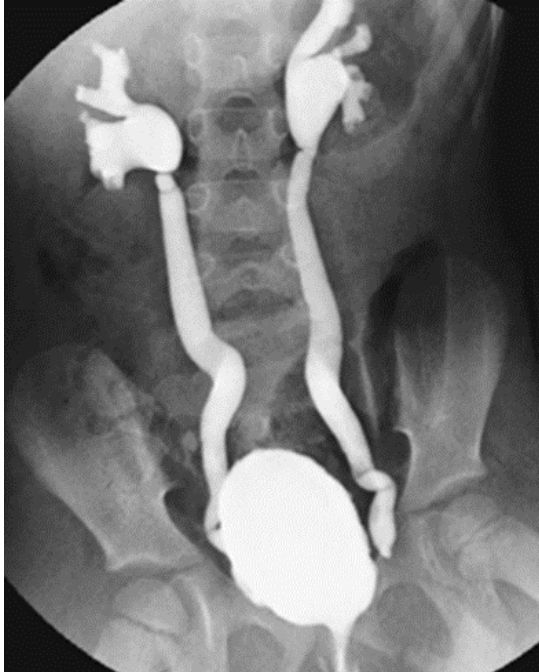
Interactive session

Dr. Husain Alturkistani

Assistant Professor & Consultant

CASE (1)

A 2-year-old girl presented with repeated urinary tract infection (UTI). A voiding cystourethrogram (VCUG) is performed and shown below.



What is the main radiological finding?

- a. Normal kidneys
- b. Bilateral vesicoureteric reflux (VUR)
- c. Bilateral nephrocalcinosis
- d. Right ureteral stricture

A 2-year-old girl presented with repeated urinary tract infection (UTI). A voiding cystourethrogram (VCUG) is performed and shown below.



What is the main radiological finding?

- a. Normal kidneys
- b. Bilateral vesicoureteric reflux (VUR)**
- c. Bilateral nephrocalcinosis
- d. Right ureteral stricture

CASE (2)

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

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

Which of the following is the likely finding?

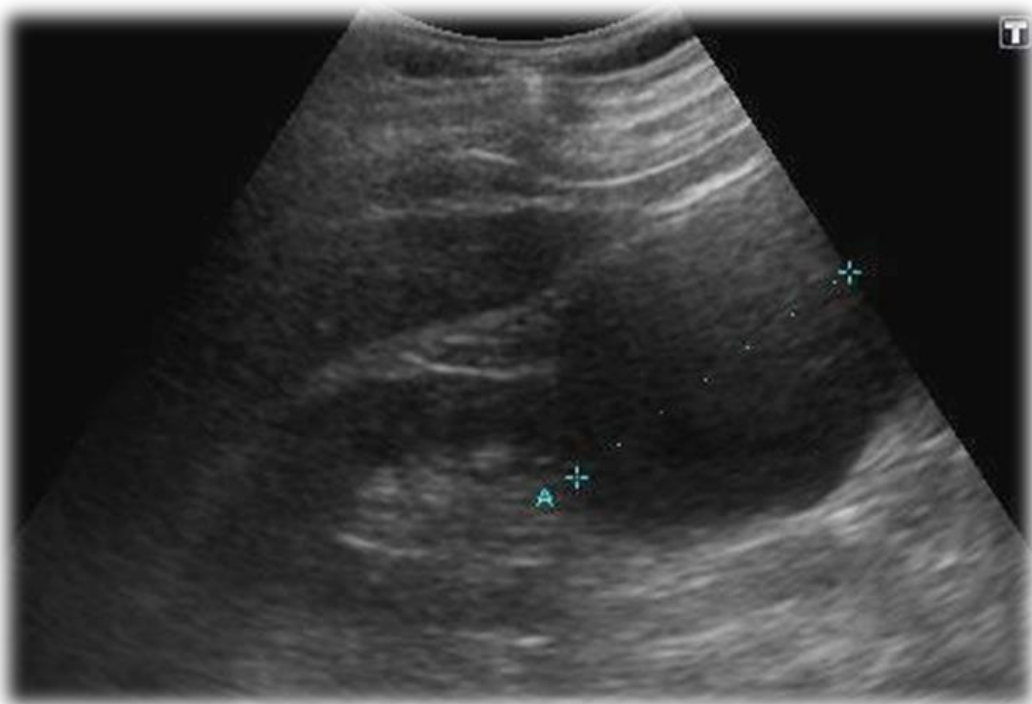


- a- Hydronephrosis
- b- Normal**
- c- Renal mass
- d- Upper pole renal stone

Case (3)

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

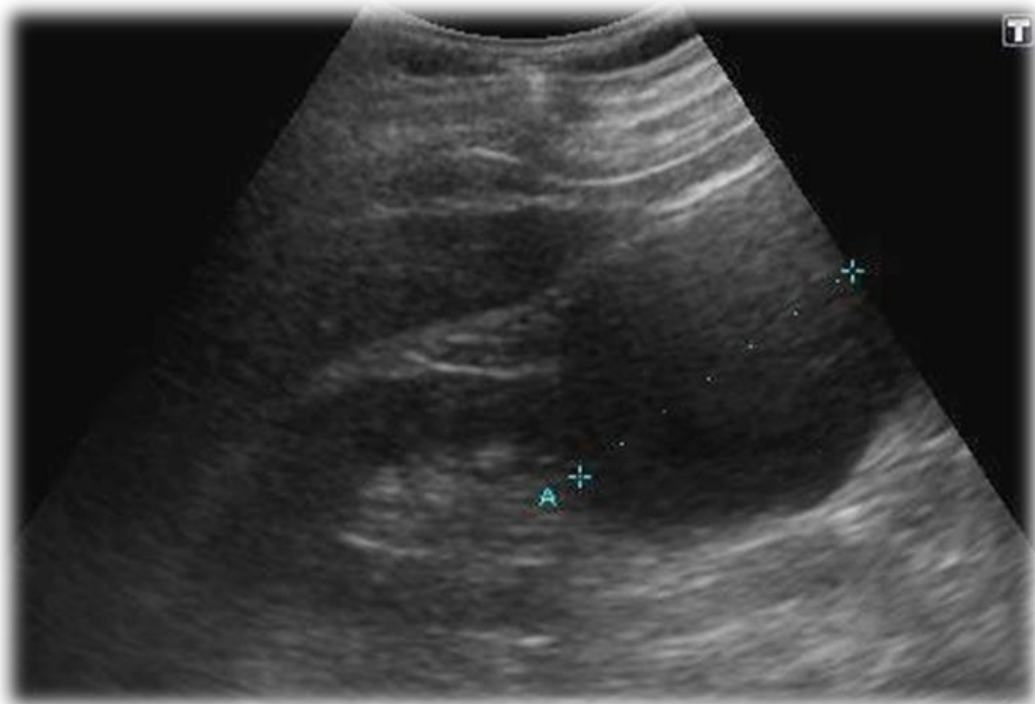
Which of the following is the likely finding?



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

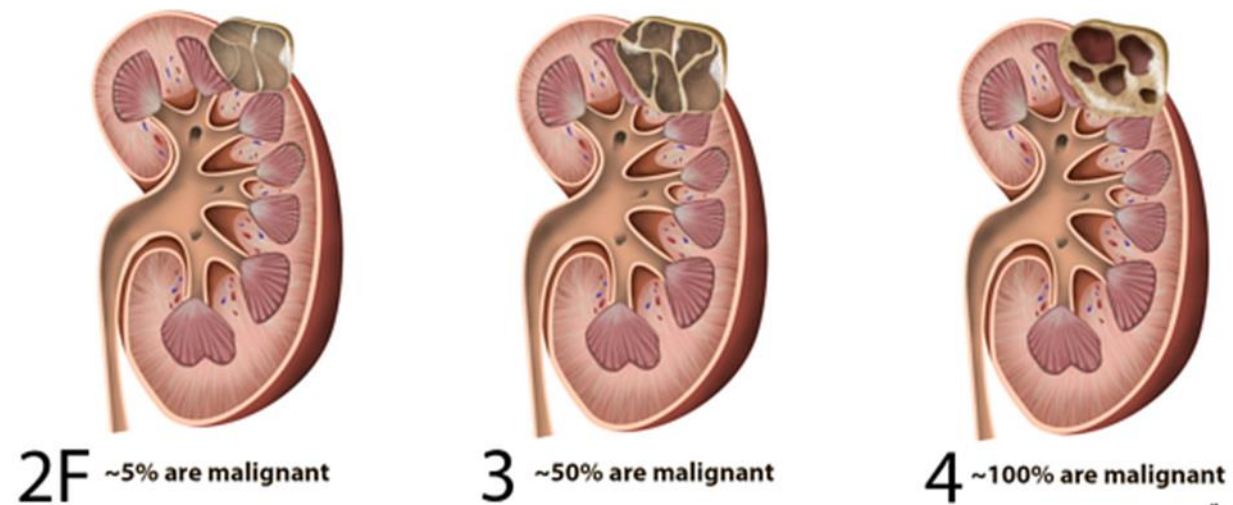
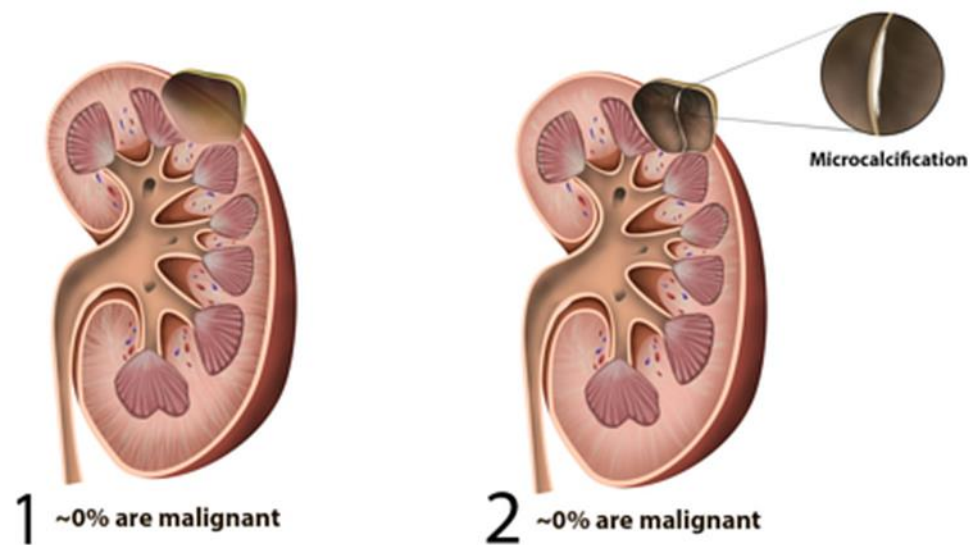
Young Adult presented with right loin pain. Ultrasound Exam was performed.

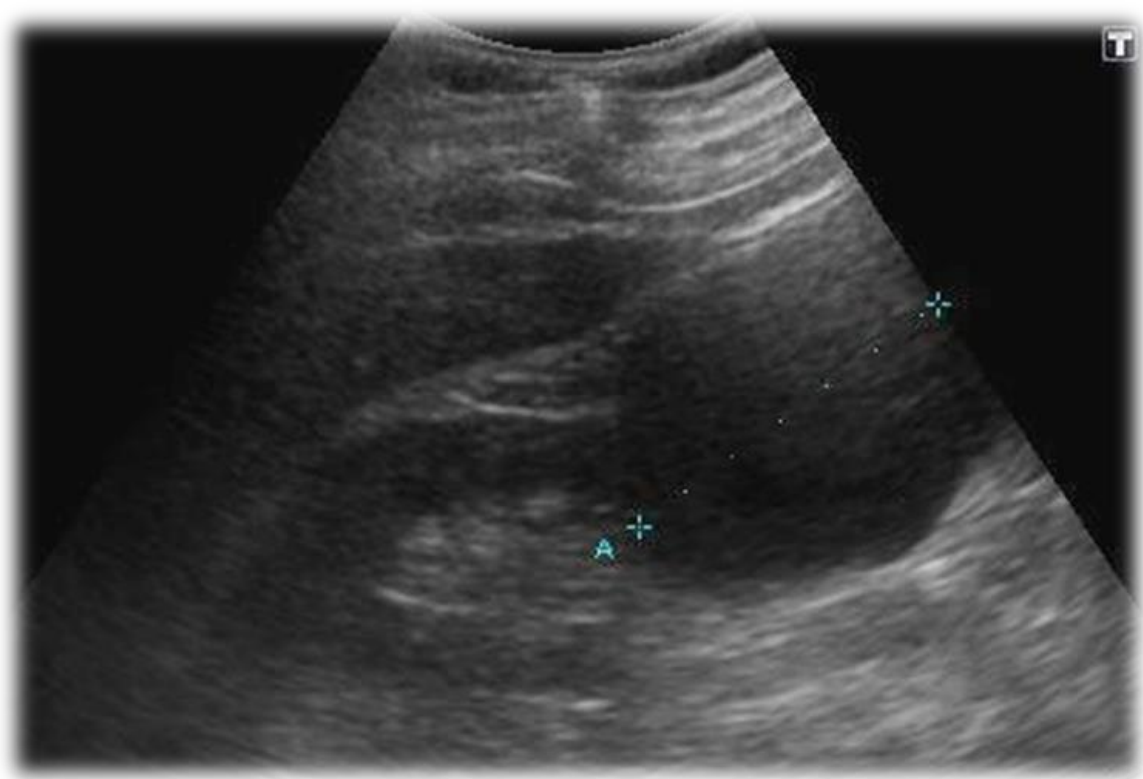
Which of the following is the likely finding?



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

Bosniak classification of renal cysts





Case (4)

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

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?

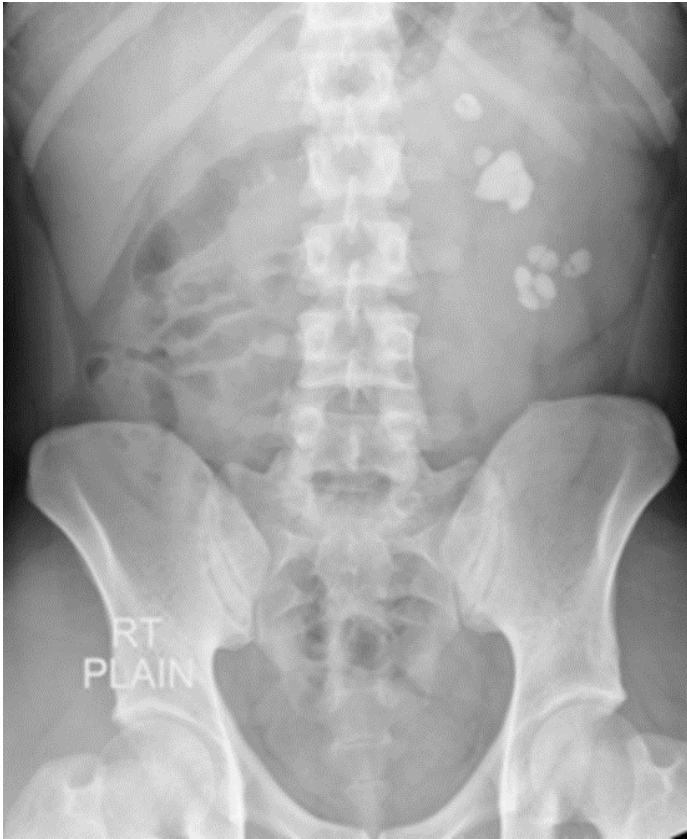
a- IVU

b- KUB

c- Double contrast exam

d- Single contrast exam

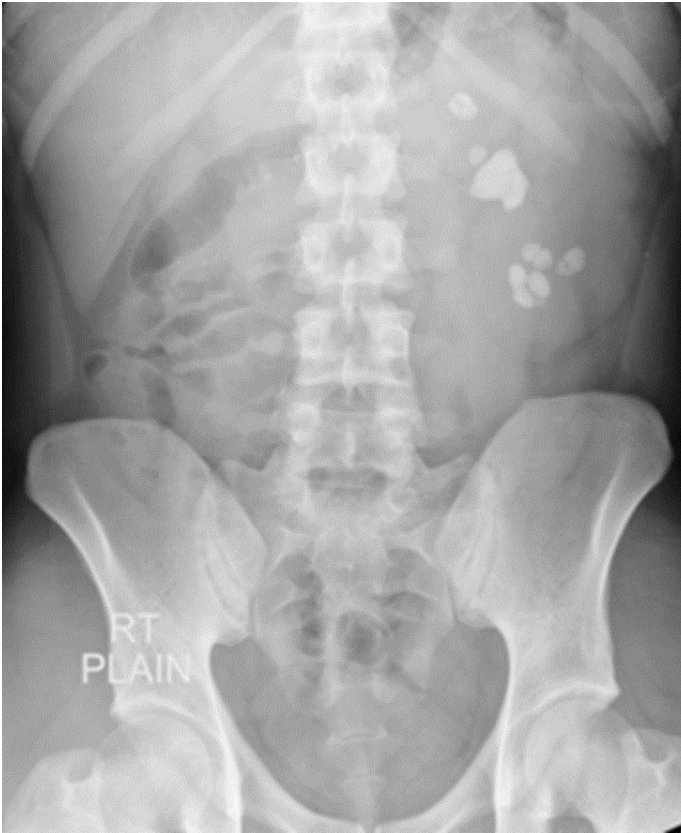
29 y/o female presented to the ER c/o sudden acute left flank pain radiated to the groin associated with hematuria



What is the major finding?

- a- Renal mass
- b- Renal cyst
- c- Renal stone
- d- Renal hemorrhage

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



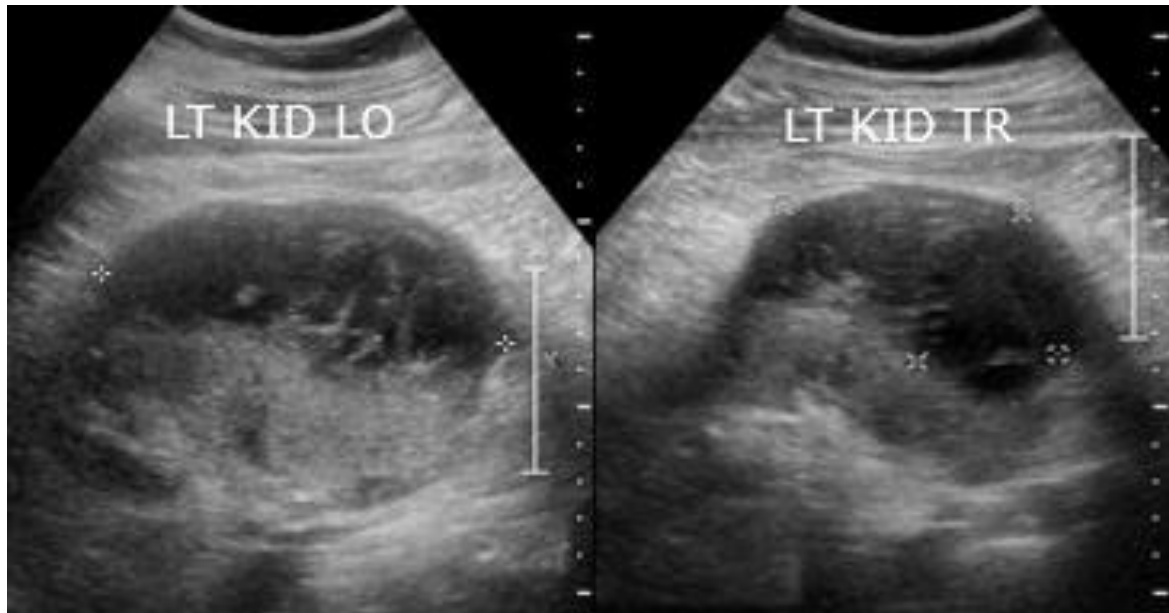
What is the major finding?

- a- Renal mass
- b- Renal cyst
- c- Renal stone
- d- Renal hemorrhage



Case (5)

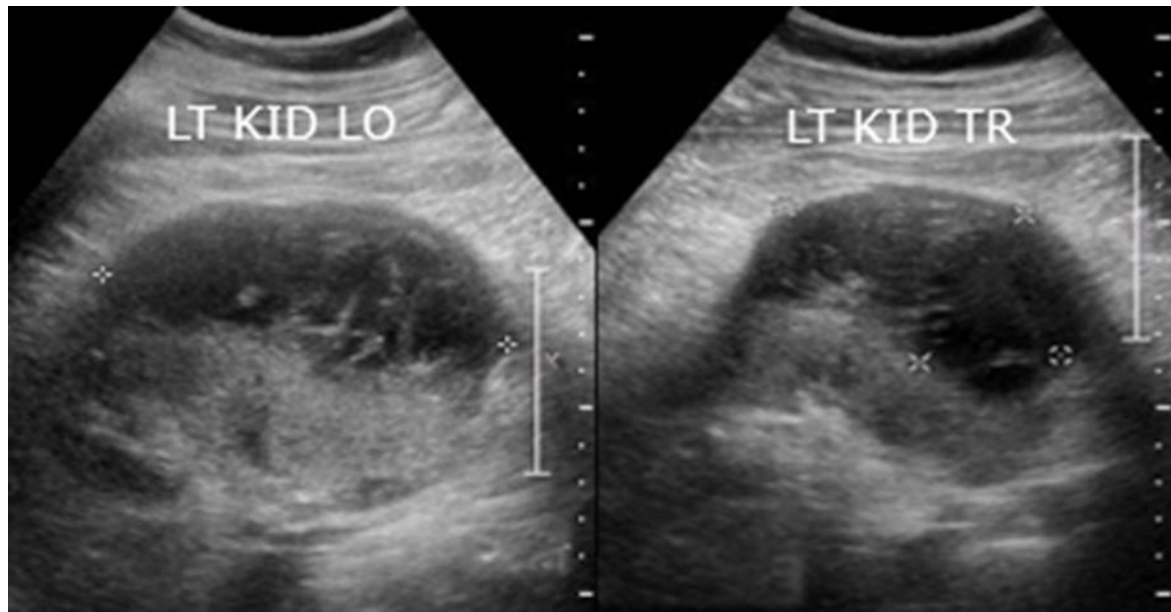
36 y/o male presented to the ER c/o acute sudden left flank pain radiated to the groin associated with hematuria post RTA. US was performed.



What is the major finding?

- a- Renal mass
- b- Renal cyst
- c- Renal abscess
- d- Renal hemorrhage

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.



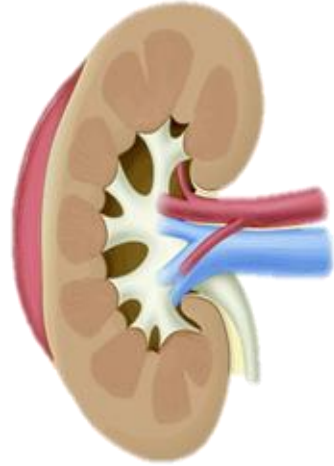
What is the major finding?

- a- Renal mass
- b- Renal cyst
- c- Renal abscess
- d- Renal hemorrhage

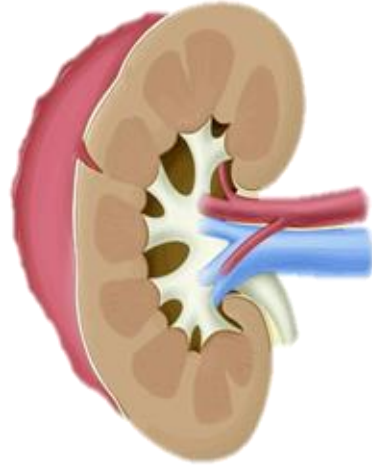


SUBCAPSULAR RENAL HAEMATOMA

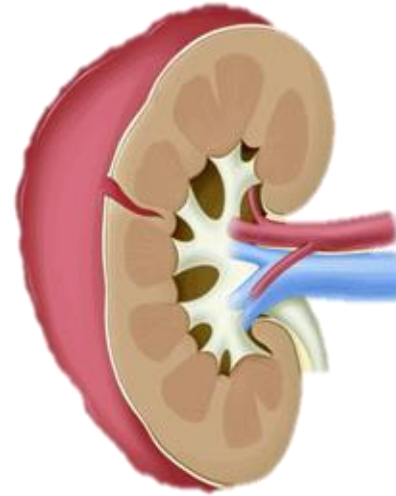
Grade 1



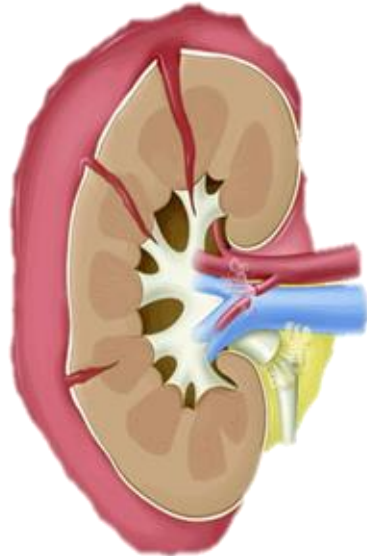
Grade 2



Grade 3



Grade 4



Grade 5

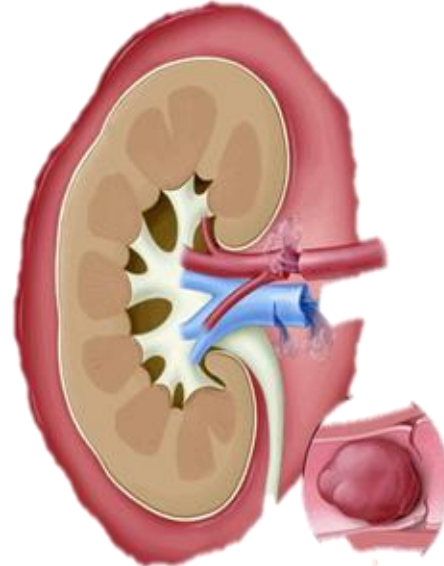
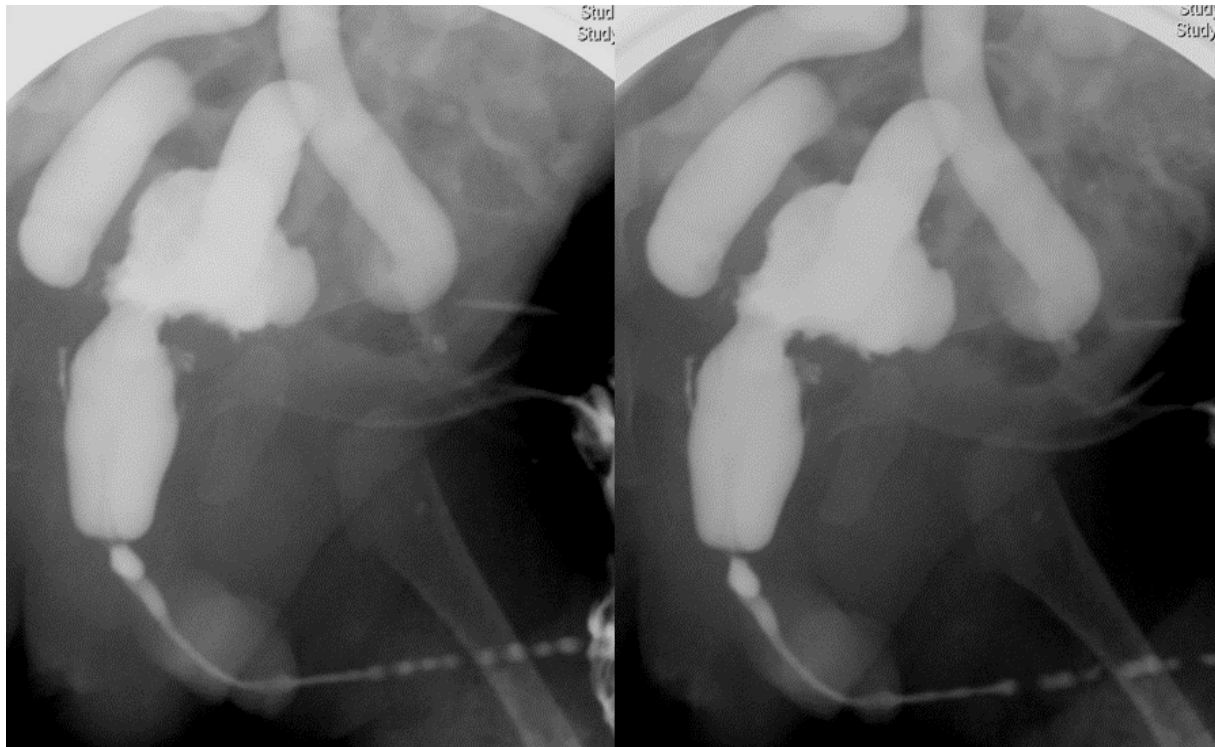


Table 11. Renal Injury Grades

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 (6)

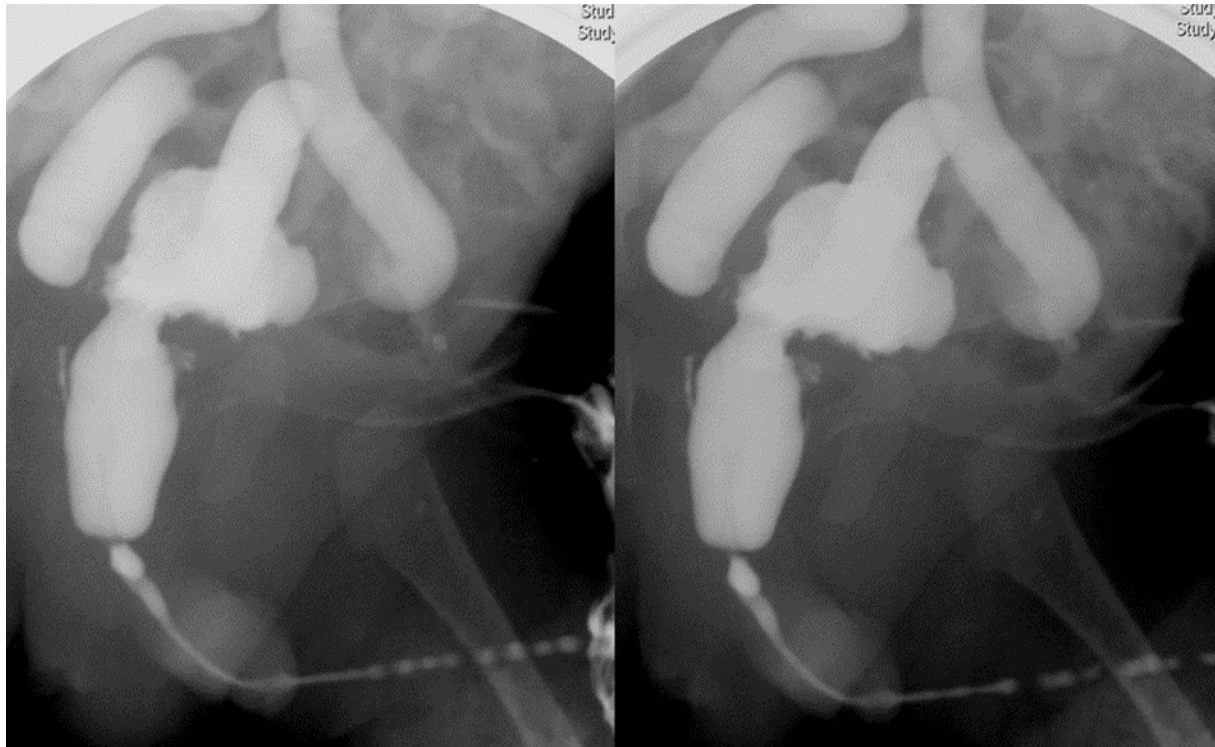
One month old boy with recurrent UTI.



What type of imaging is this?

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

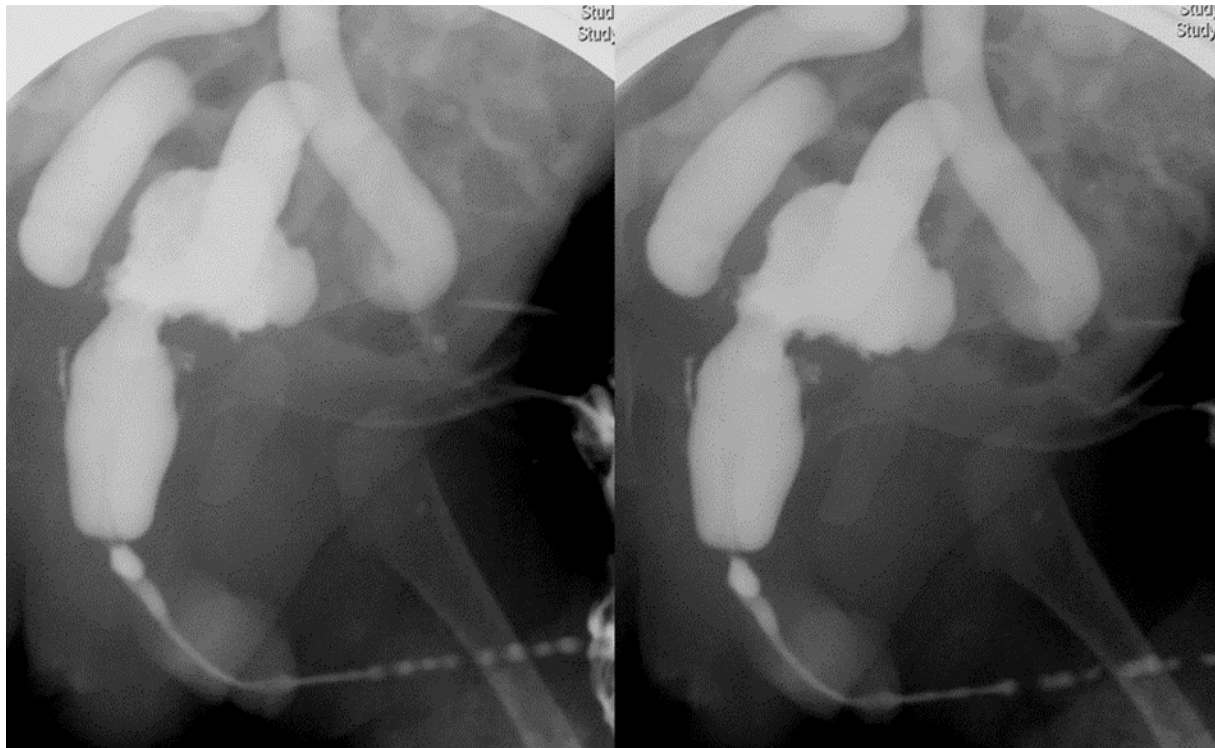
One month old boy with recurrent UTI.



What type of imaging is this?

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

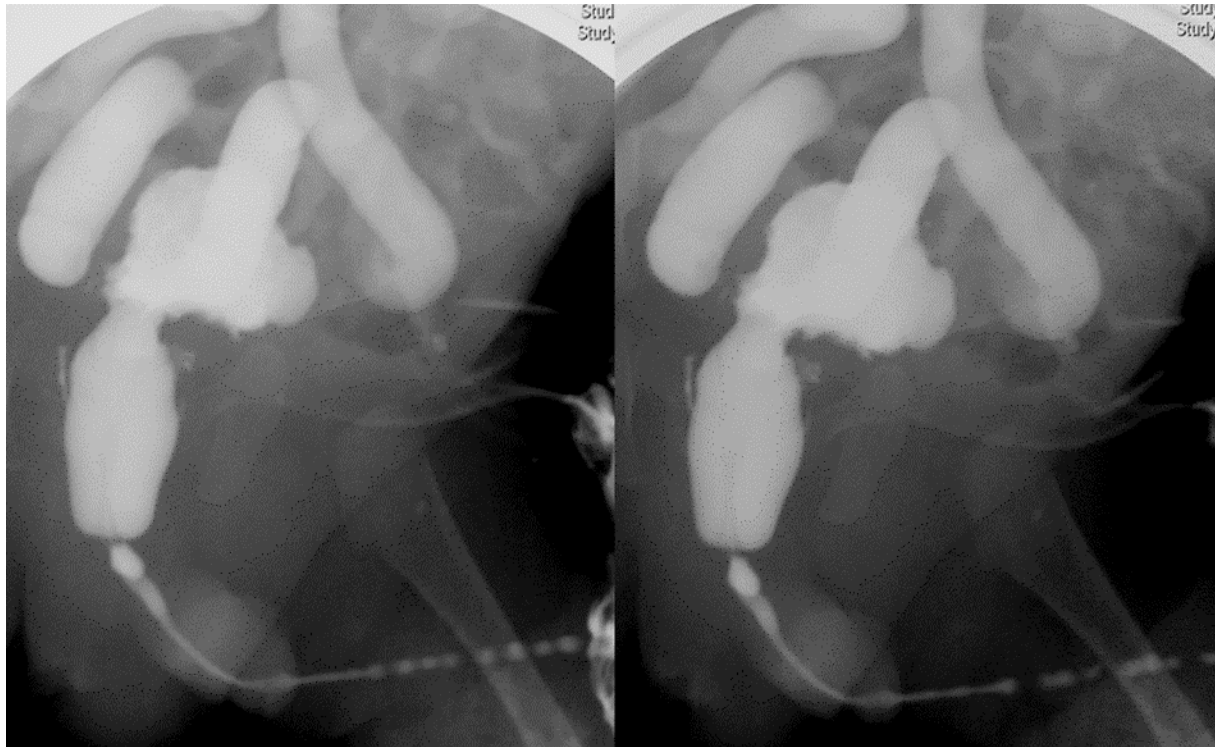
One month old boy with recurrent UTI.



What is the abnormality seen?

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

One month old boy with recurrent UTI.



What is the abnormality seen?

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

Case (7)

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.

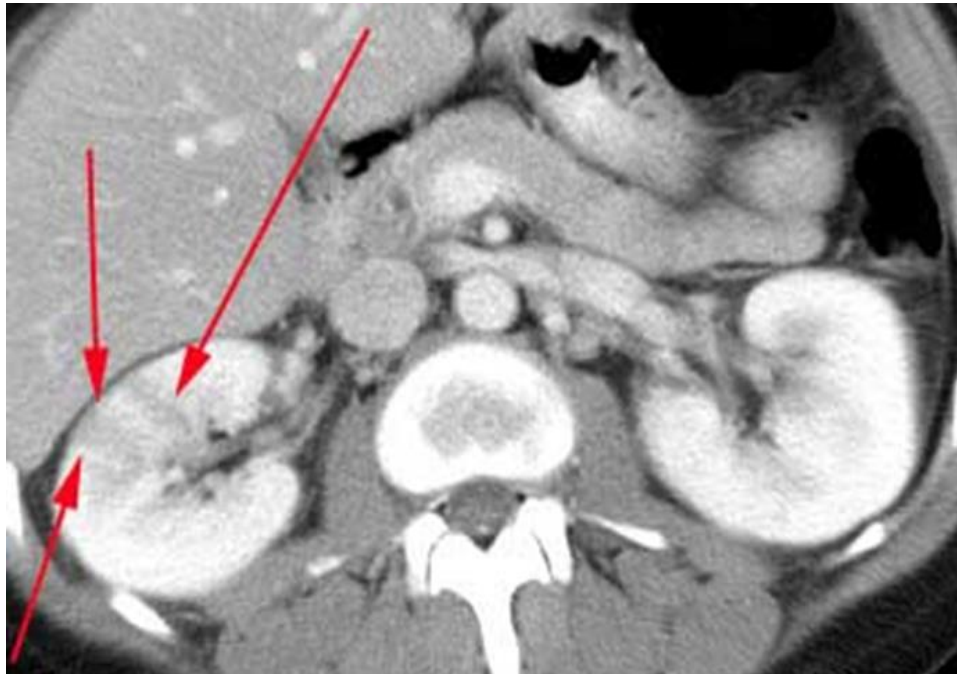
What is the most likely clinical diagnosis?

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 the most likely clinical diagnosis?

Pyelonephritis

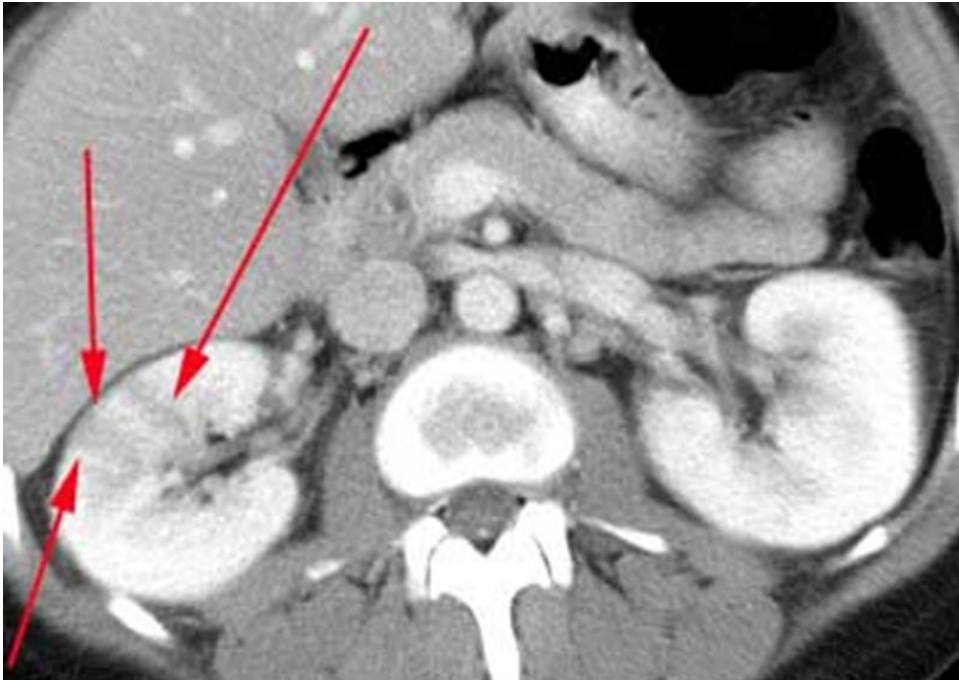
31 y/o female patient came to ER with high grade fever, right flank pain and vomiting. In addition, she has urinary frequency since 3 days.



What is this imaging modality?

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

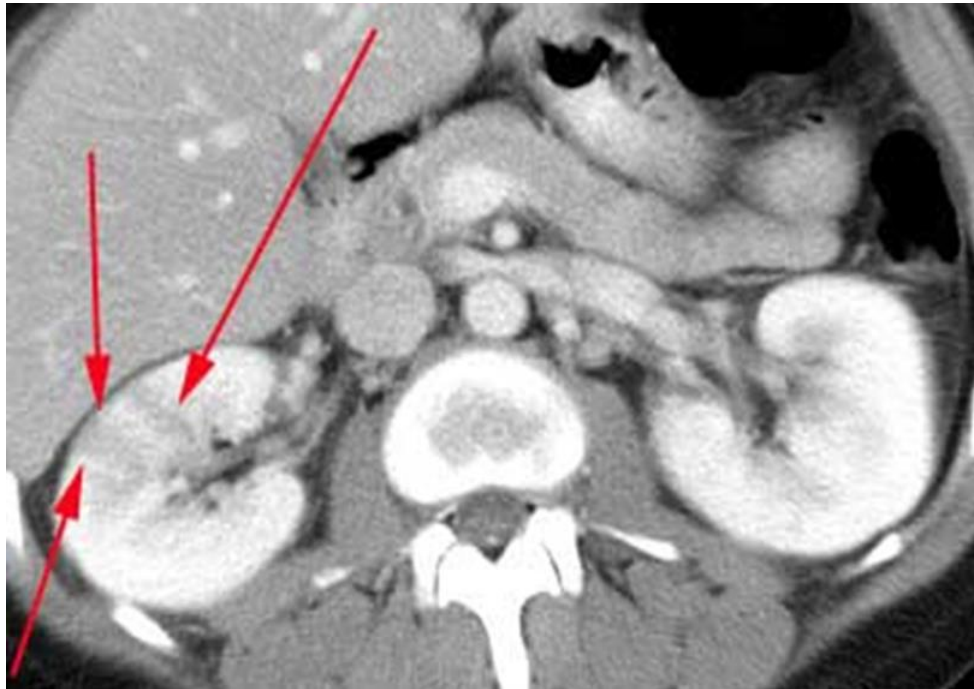
31 y/o female patient came to ER with high grade fever, right flank pain and vomiting. In addition, she has urinary frequency since 3 days.



What is this imaging modality?

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

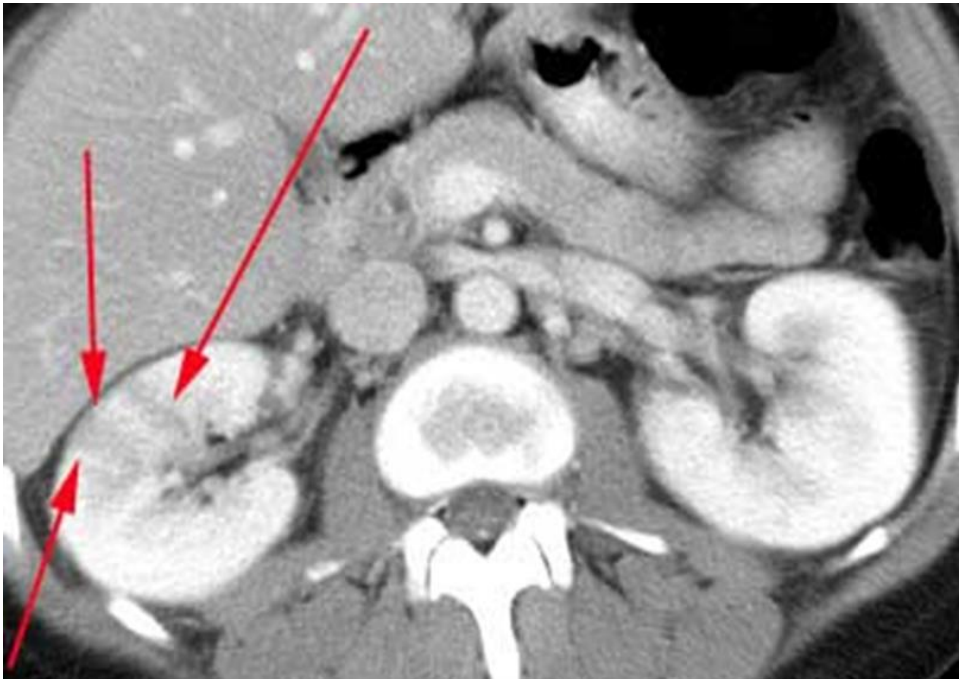
31 y/o female patient came to ER with high grade fever, right flank pain and vomiting. In addition, she has urinary frequency since 3 days.



How do you describe this abnormality?

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

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.

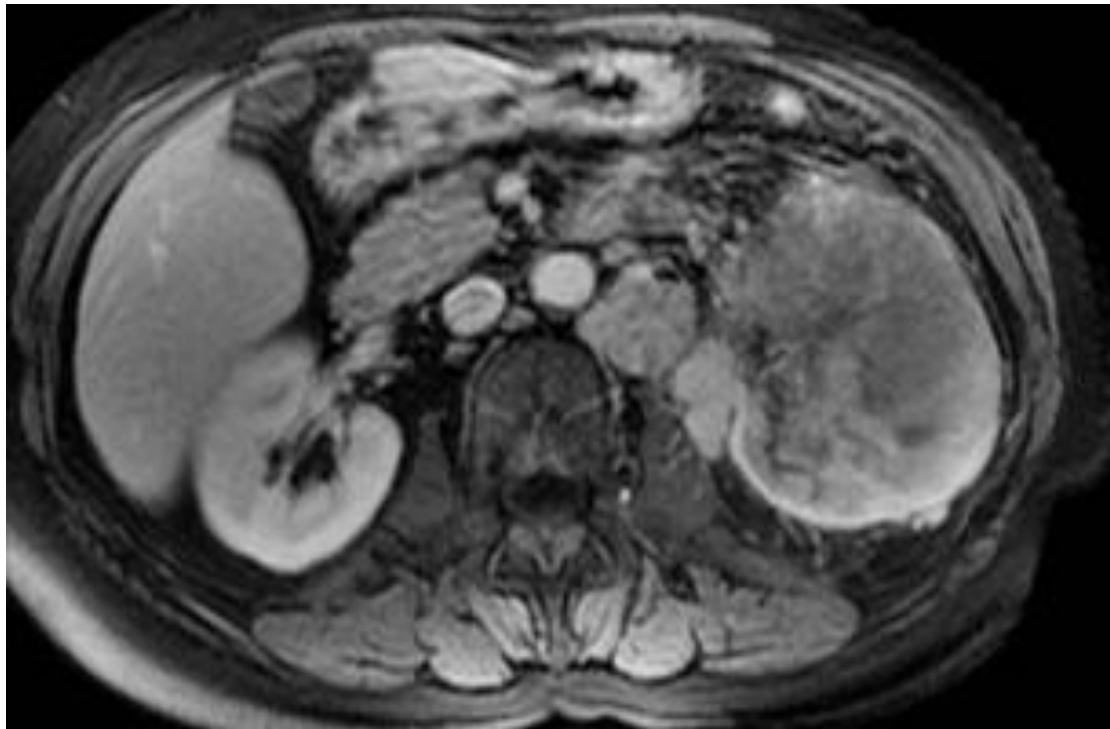


How do you describe this abnormality?

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

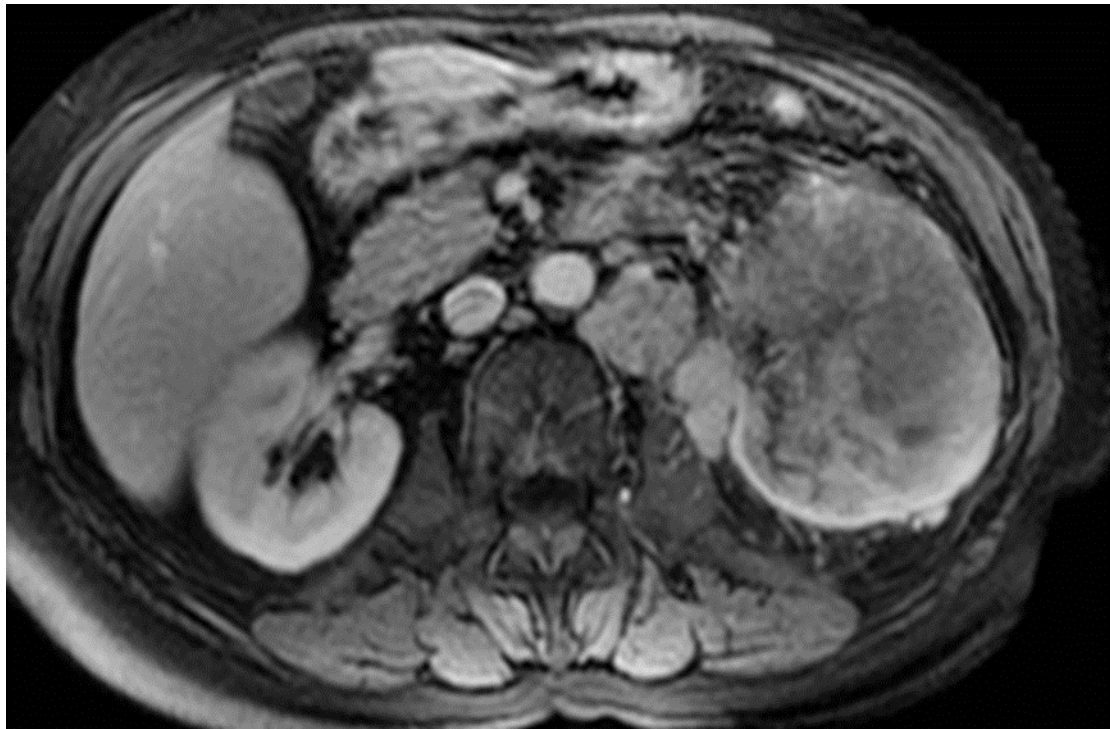
Case (8)

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



How do you describe this lesion?

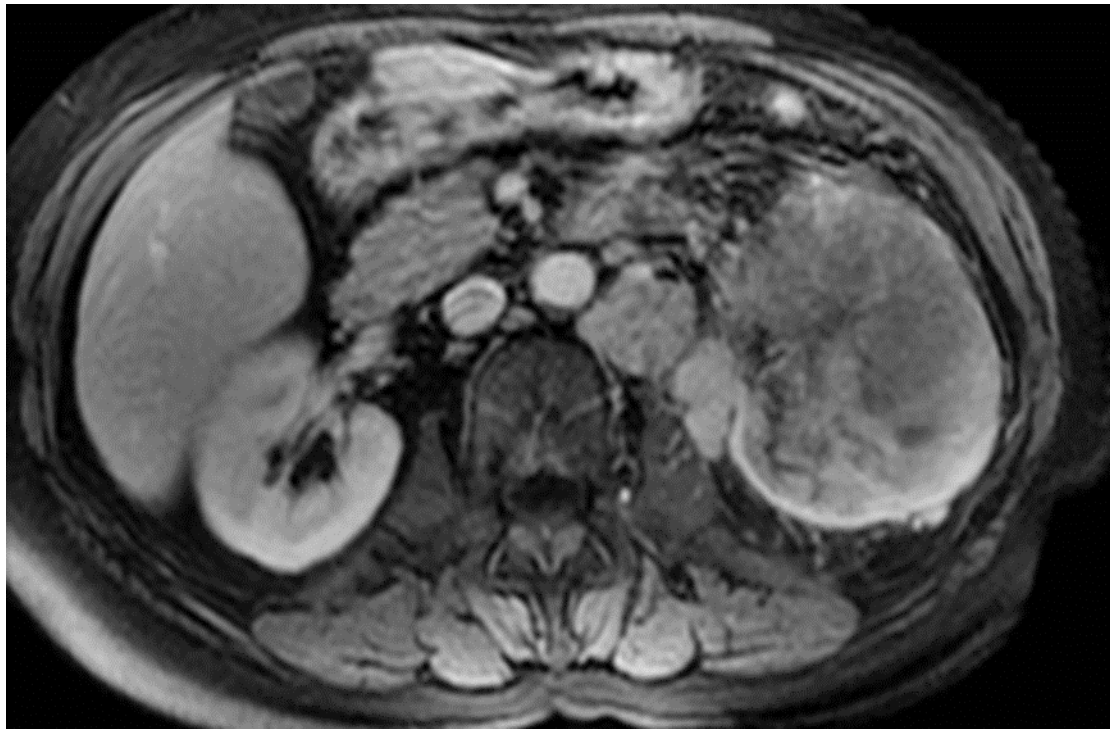
76 y/o male patient presented with painless hematuria and weight loss.



What is the most likely diagnosis?

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

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



What is the most likely diagnosis?

A- pyelonephritis

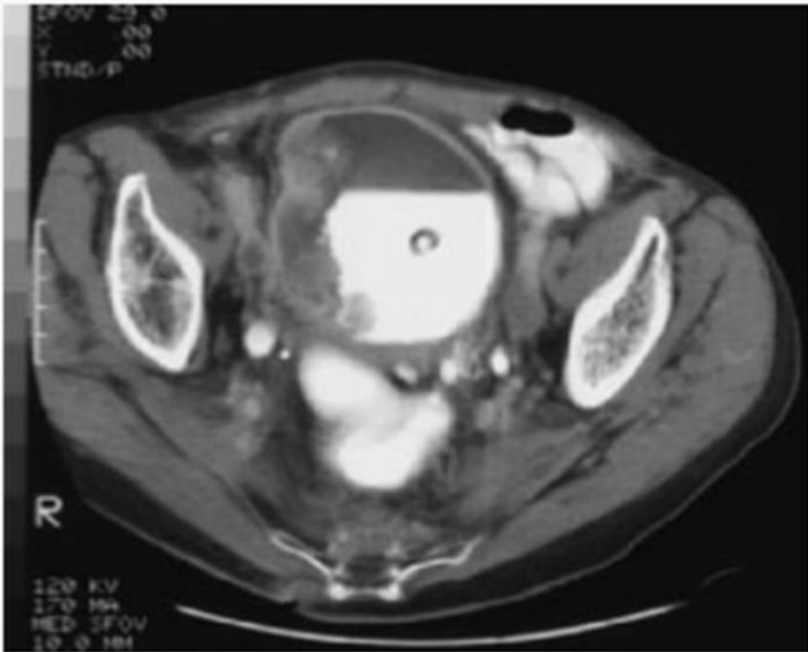
B- renal adenocarcinoma

C- transitional cell carcinoma

D- angiomyolipoma

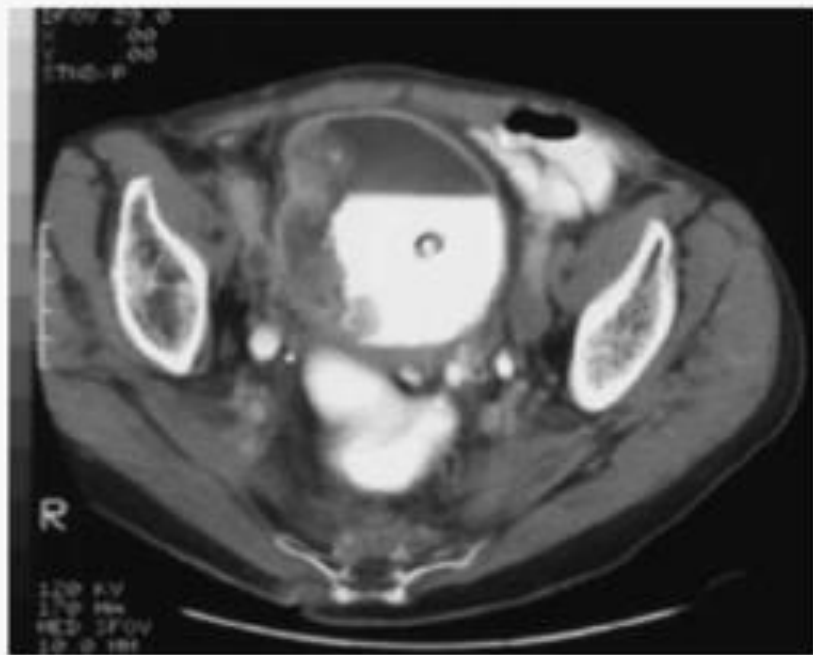
Case (9)

A 68 y/o smoker male presented with hematuria and urinary frequency + urgency. CT urography was done. What is the abnormality seen?



- A- renal mass.
- B- hydronephrosis.
- C- renal stones.
- D- urinary bladder mass.

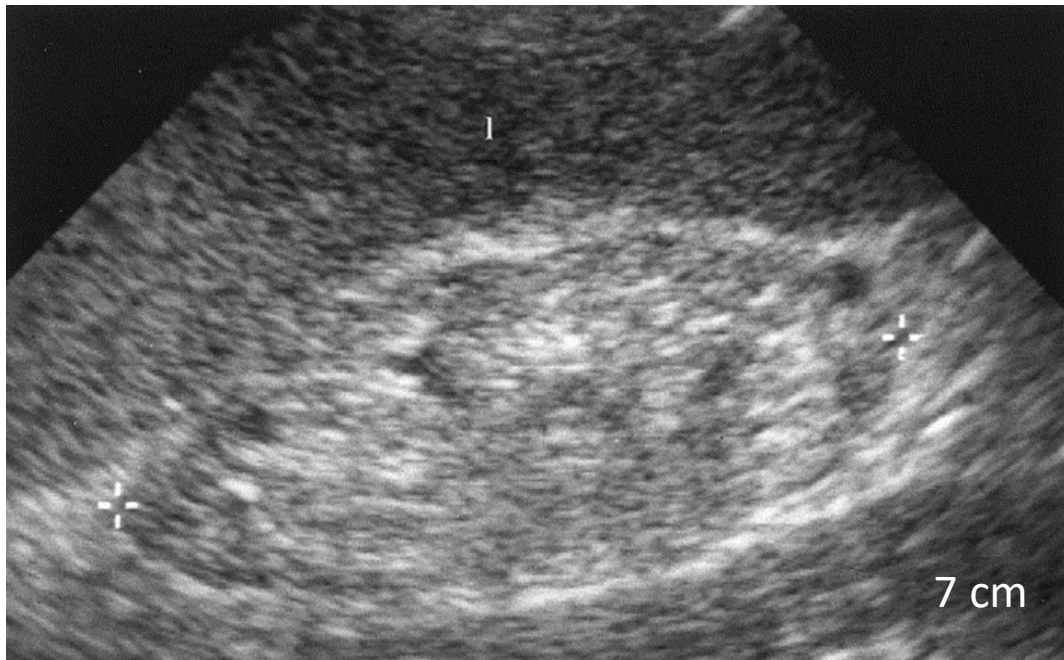
A 68 y/o smoker male presented with hematuria and urinary frequency + urgency. CT urography was done. What is the abnormality seen?



- A- renal mass.
- B- hydronephrosis.
- C- renal stones.
- D- urinary bladder mass.**

Case (10)

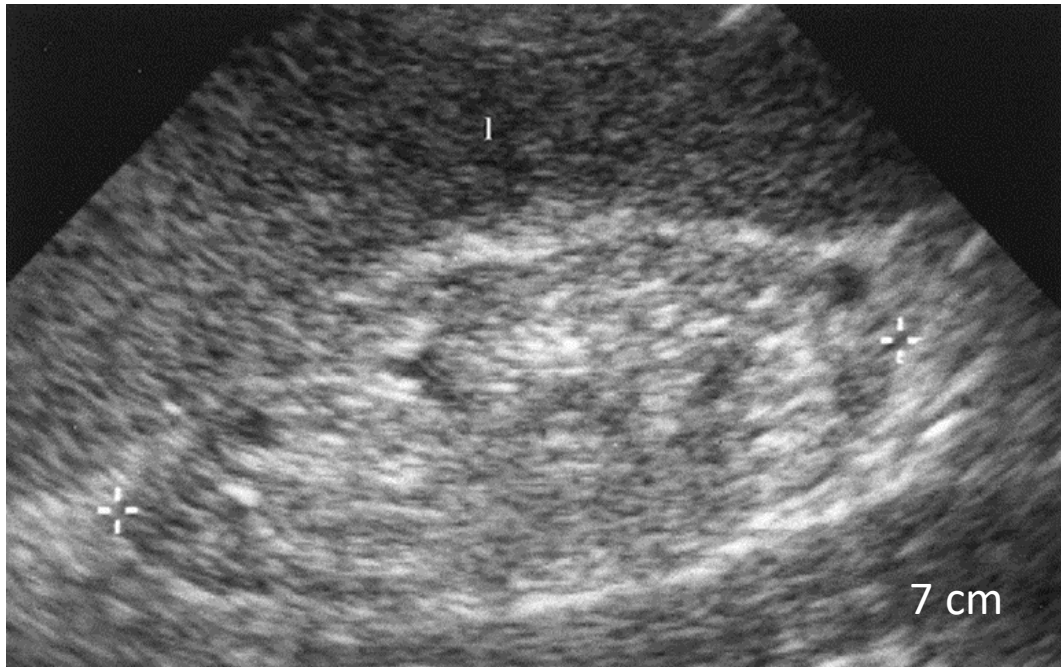
81 y/o female diabetic patient came to clinic with general fatigue, itching, loss of appetite and easy bruising. Initial lab works show a creatinine level of 180 $\mu\text{mol/L}$.



What does US show?

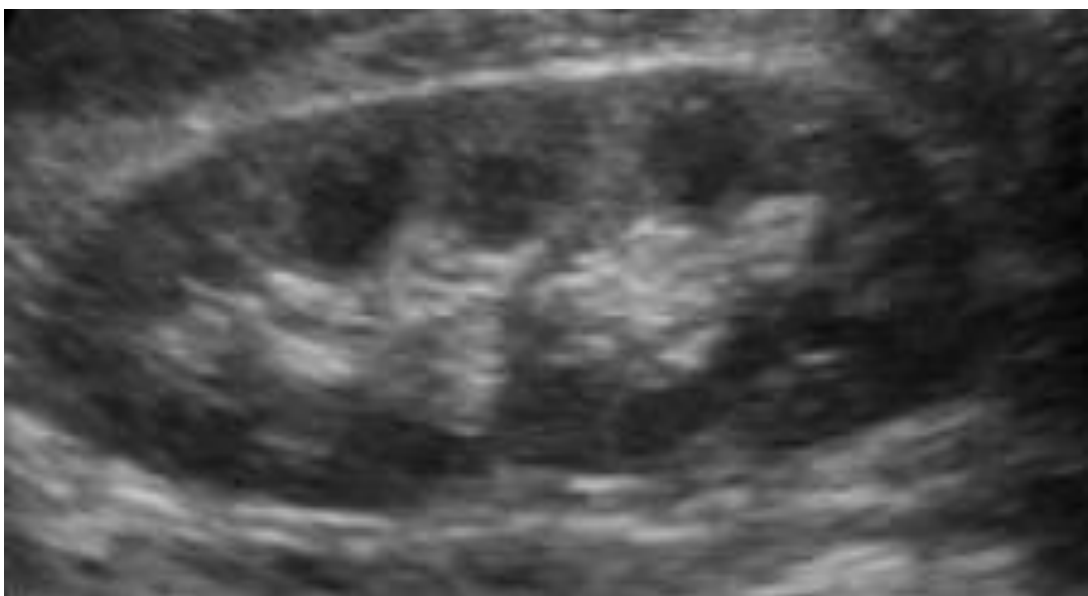
- A- normal kidney
- B- hypoechogenic kidney
- C- atrophic undifferentiated kidney
- D- atrophic kidney with normal cortico-medullary differentiation

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



Case (11)

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

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

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

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 (12)

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

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

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

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 (13)

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?

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

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 14)

A pregnant lady presented with increasing left loin pain and fever for 2 days. What is the abnormality seen in the below shown ultrasound image?

- A- renal mass.
- B- renal cyst.
- C- hydronephrosis.
- D- renal stones.



A pregnant lady presented with increasing left loin pain and fever for 2 days. What is the abnormality seen in the below shown ultrasound image?

- A- renal mass.
- B- renal cyst.
- C- hydronephrosis.
- D- renal stones.



Which one of the following is a cause of a unilateral large kidney?

- a. Radiation nephritis
- b. Tuberculosis
- c. Chronic pyelonephritis
- d. Renal cell carcinoma

Which one of the following is a cause of a unilateral large kidney?

- a. Radiation nephritis
- b. Tuberculosis
- c. Chronic pyelonephritis
- d. Renal cell carcinoma

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

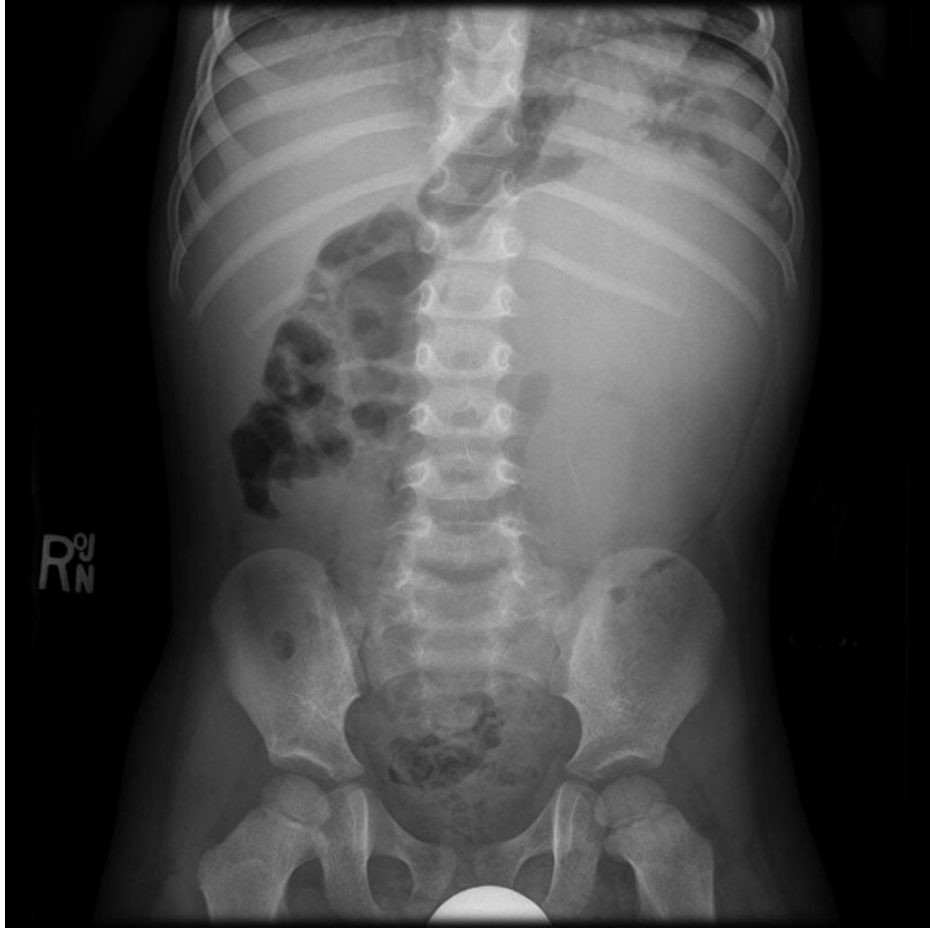
One of the following is a common site of urinary stone obstruction:

A- proximal ureter

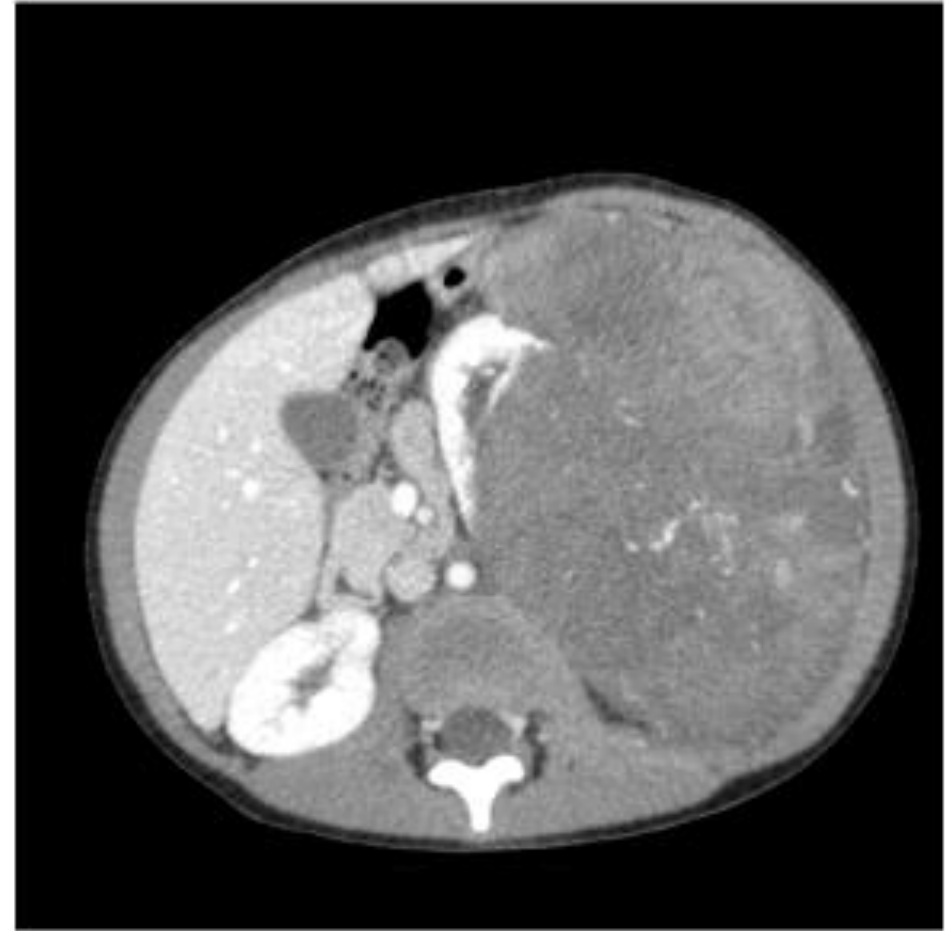
B- mid ureter

C- junction of mid-distal ureter

D- vesico-ureteric junction



Young boy with a left asymptomatic abdominal mass



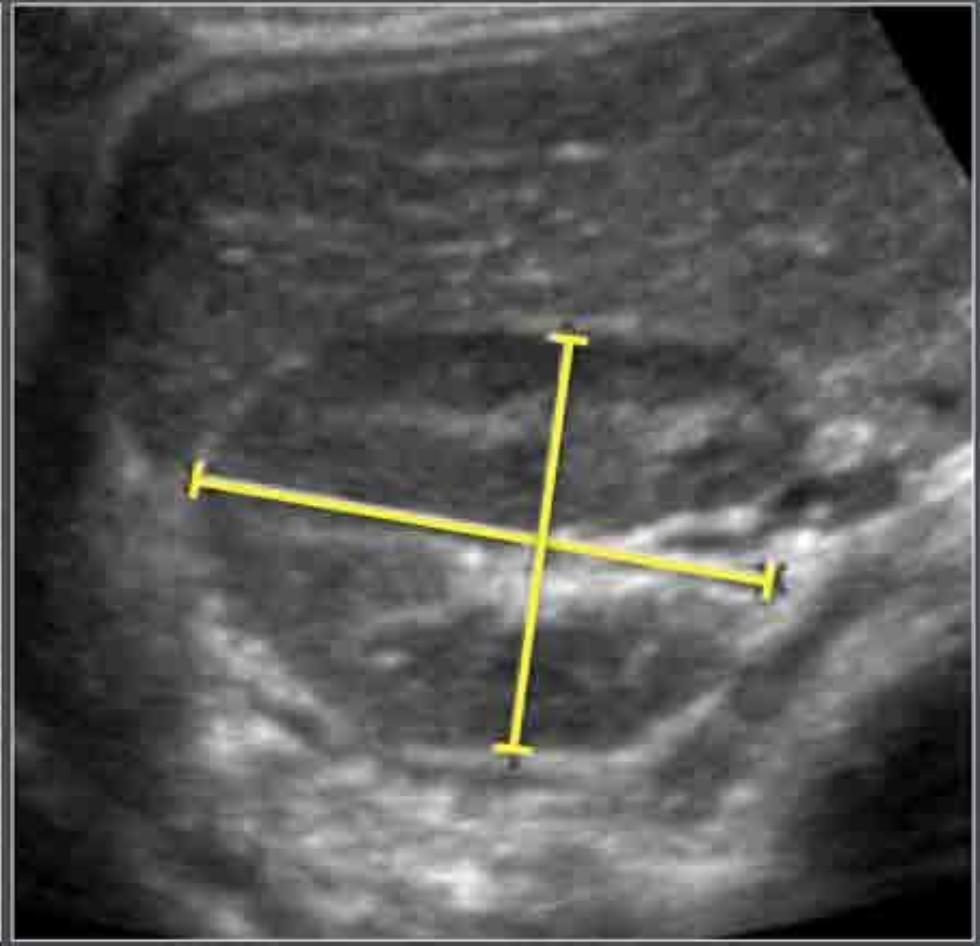
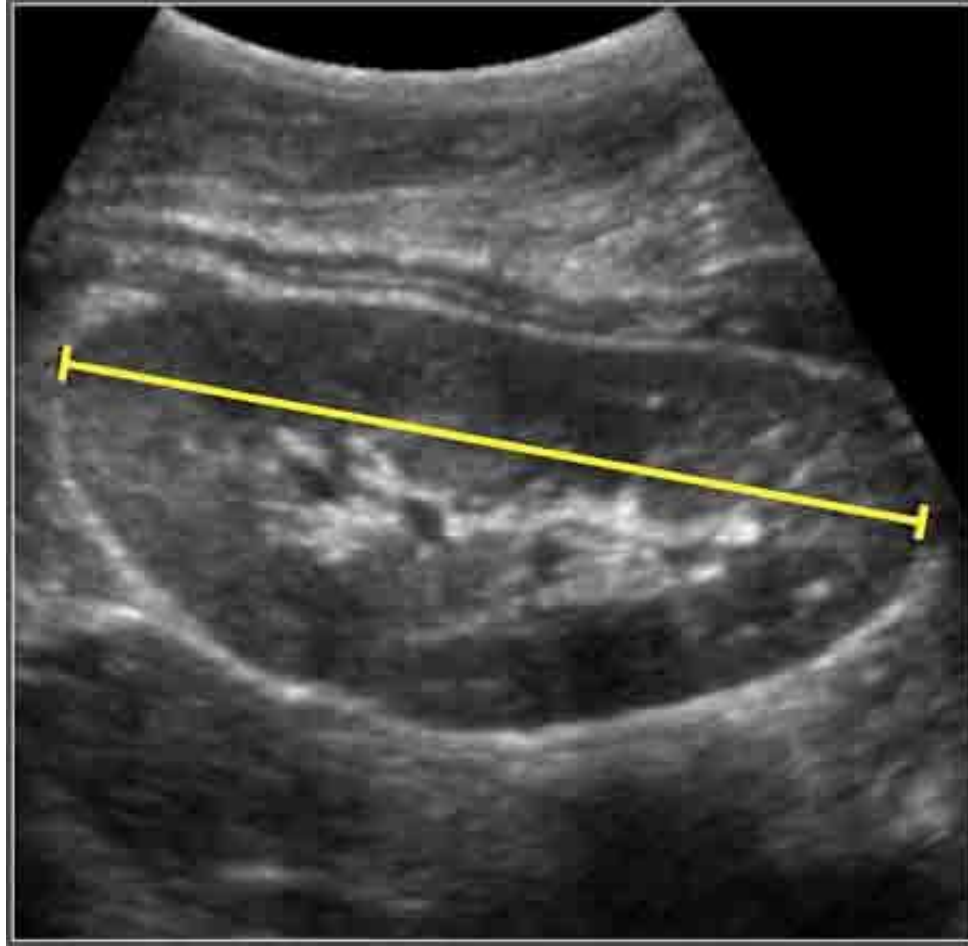
Young boy with a left asymptomatic abdominal mass

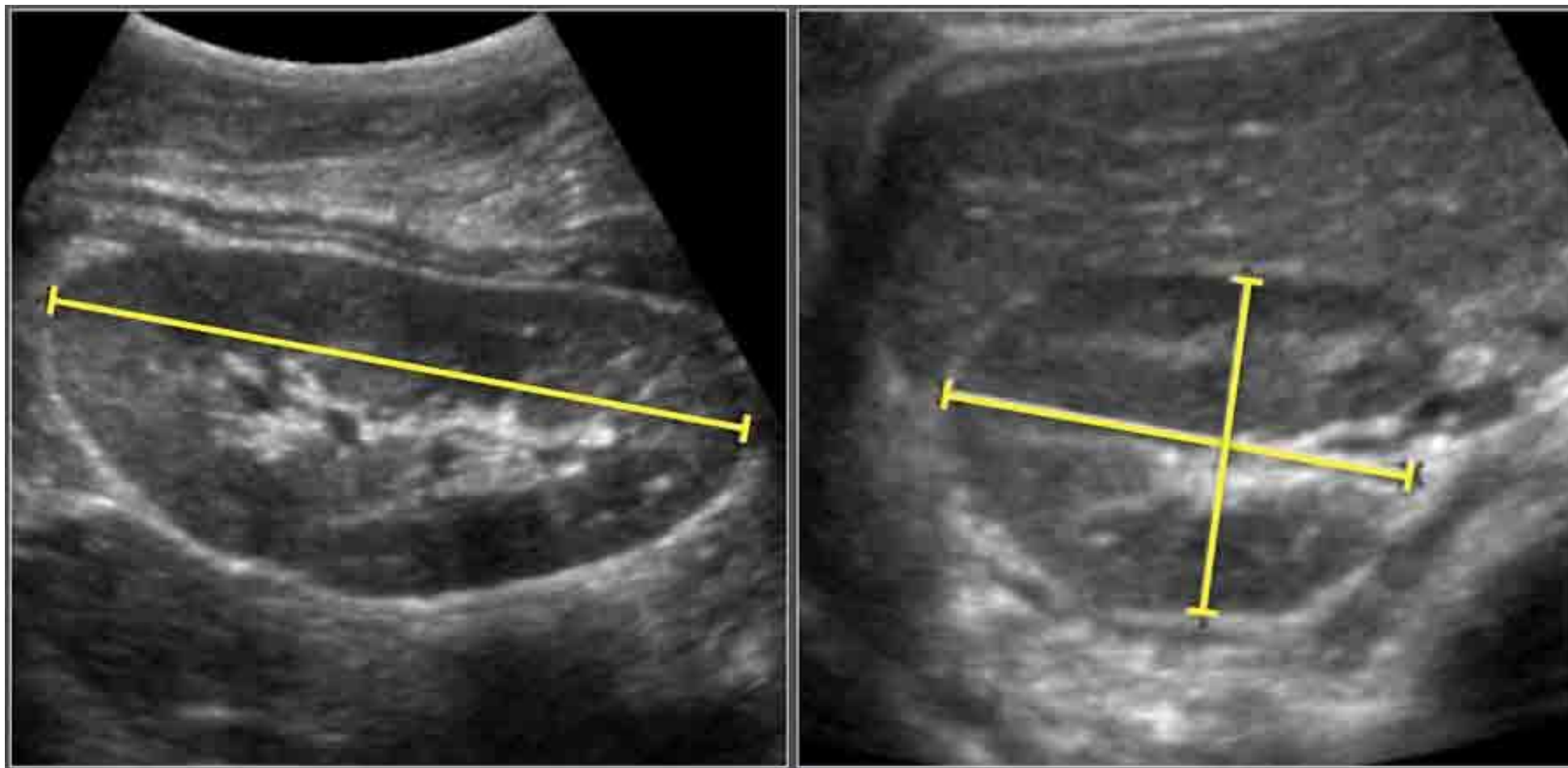
Wilm's tumor



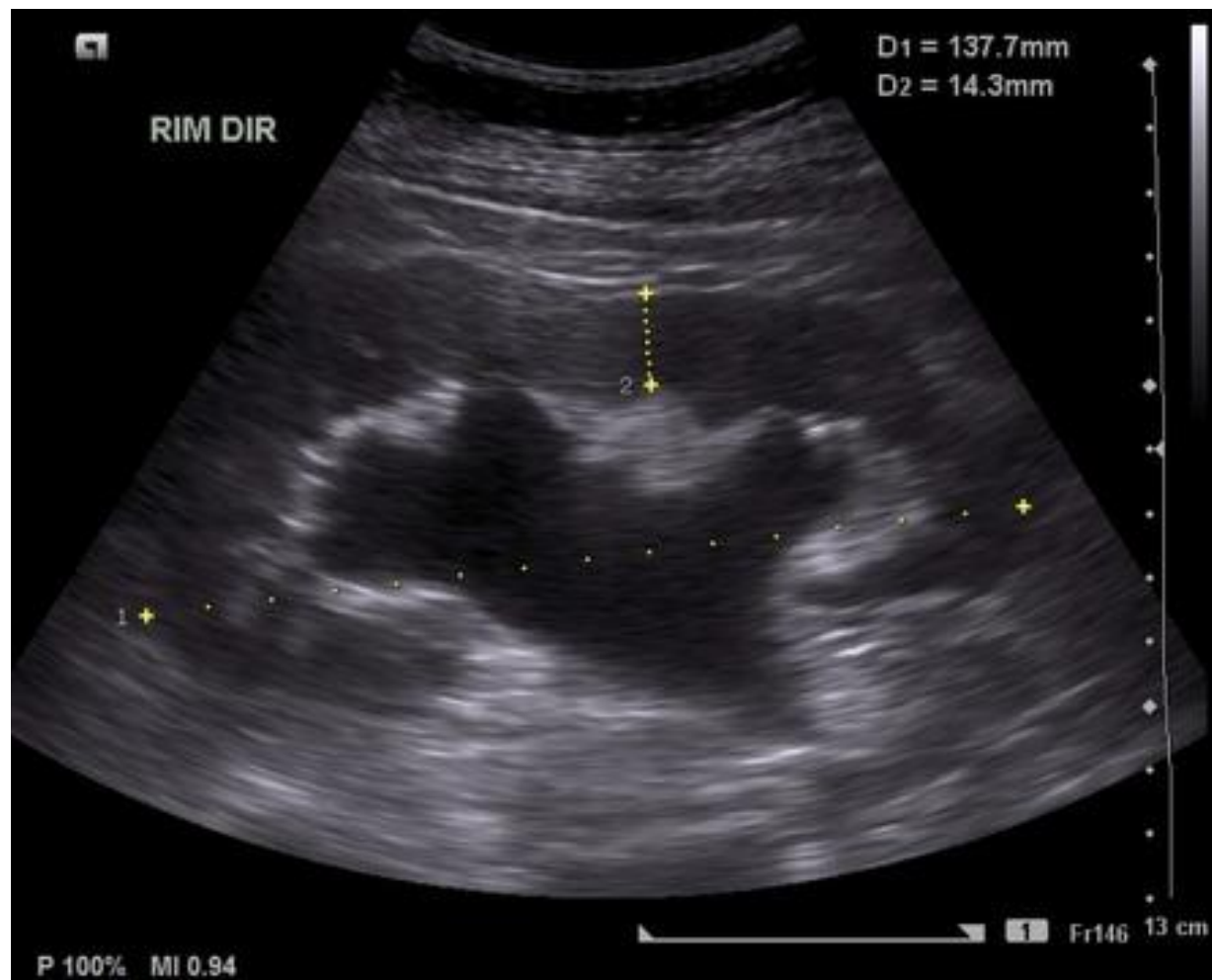


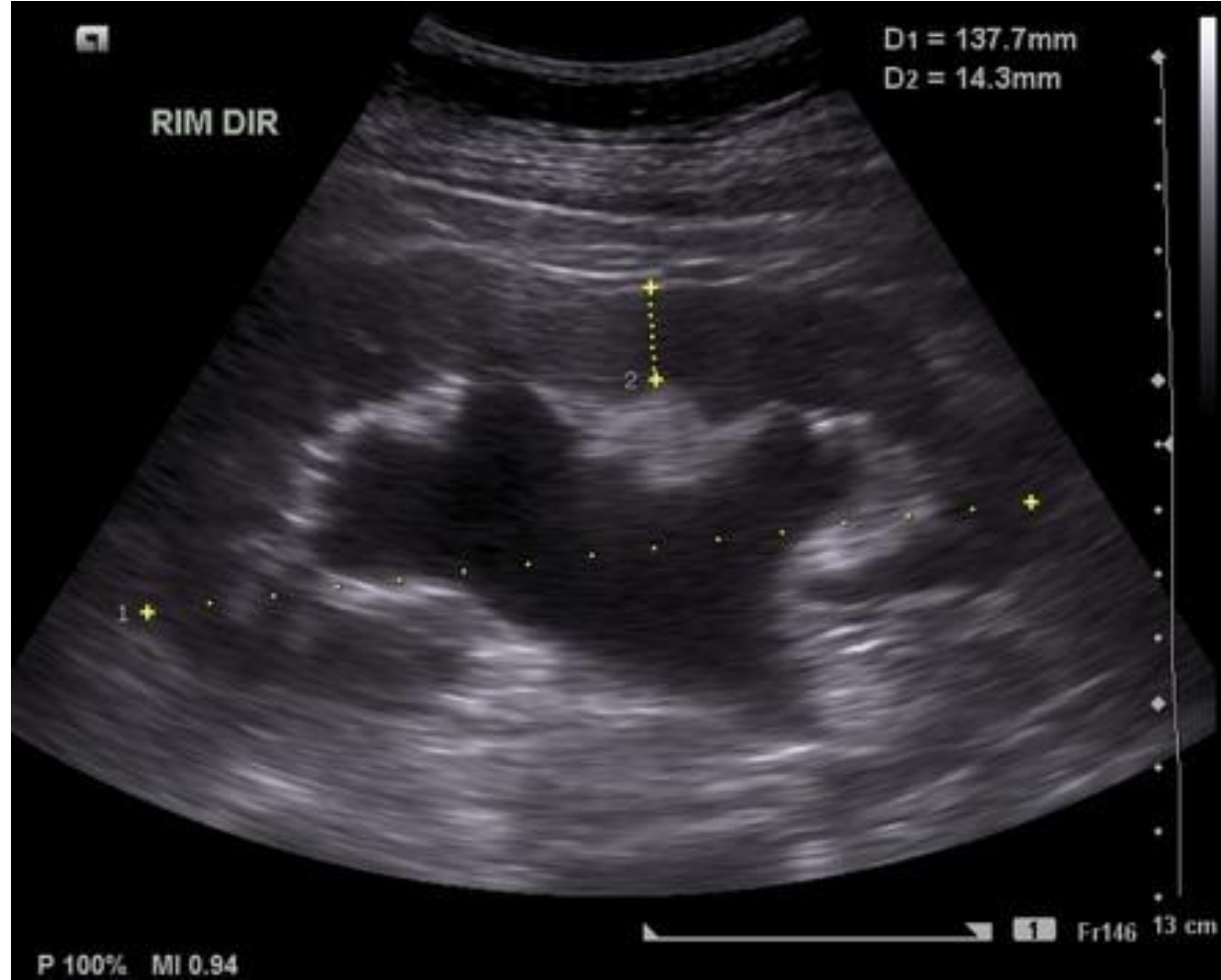
Normal





Normal



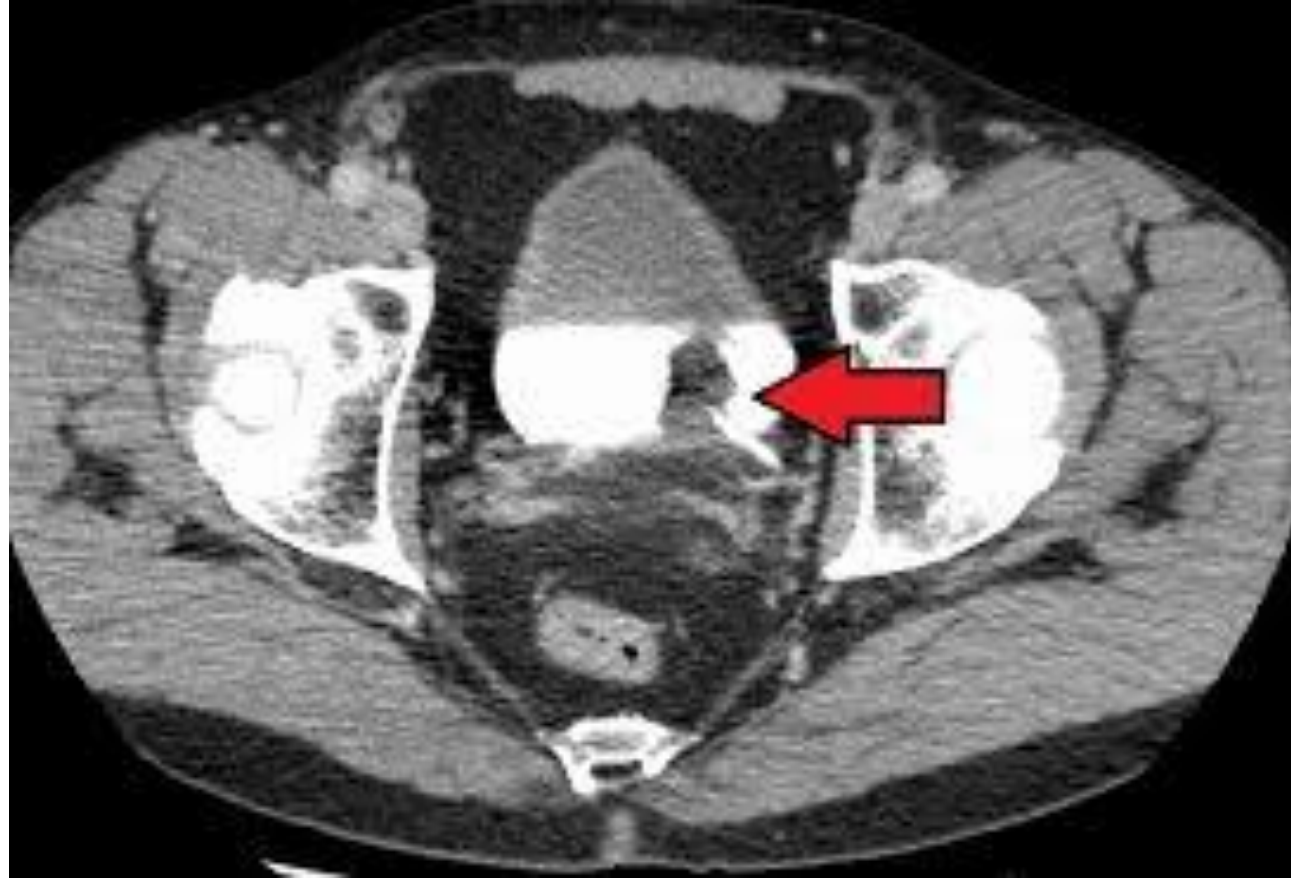


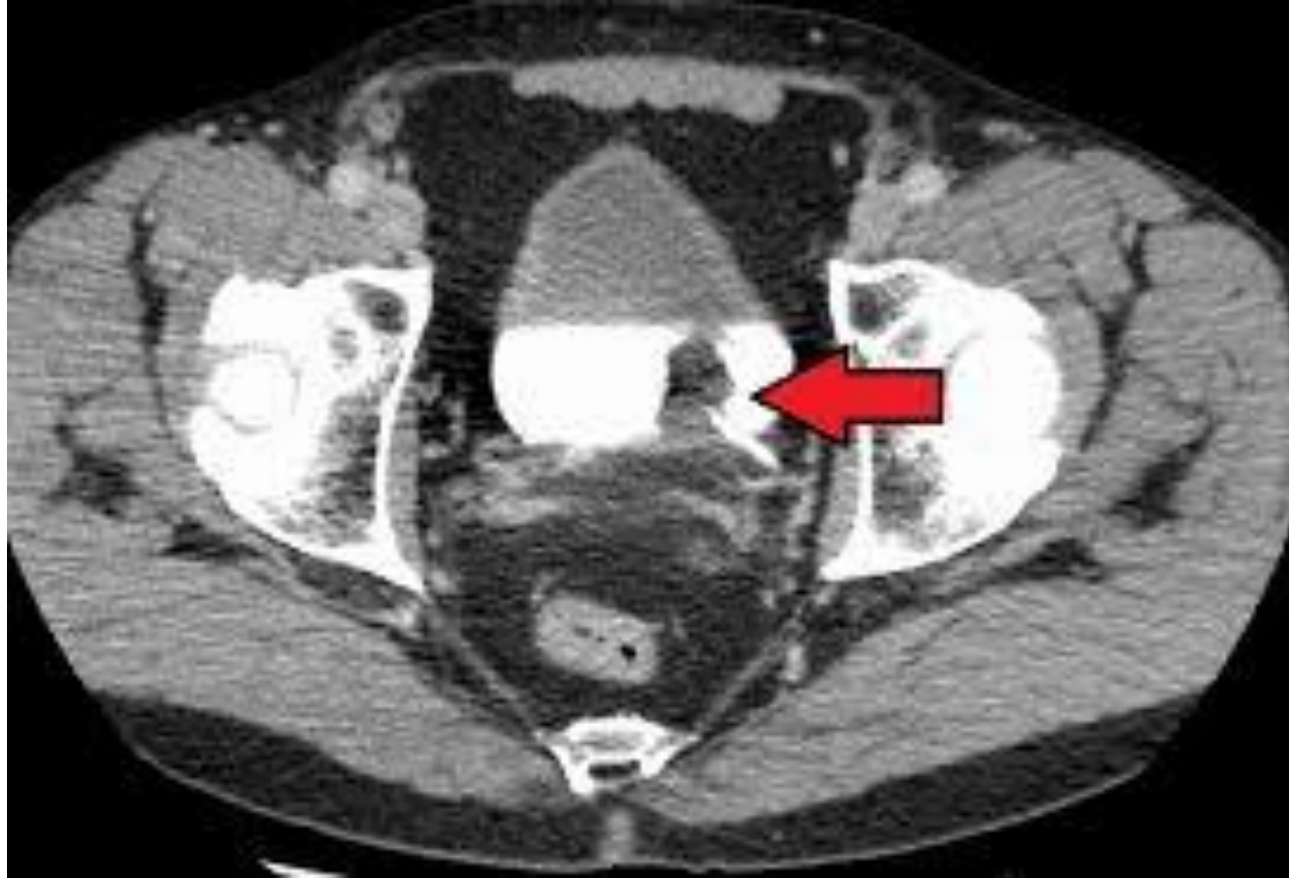
Hydronephrosis





Hydronephrosis



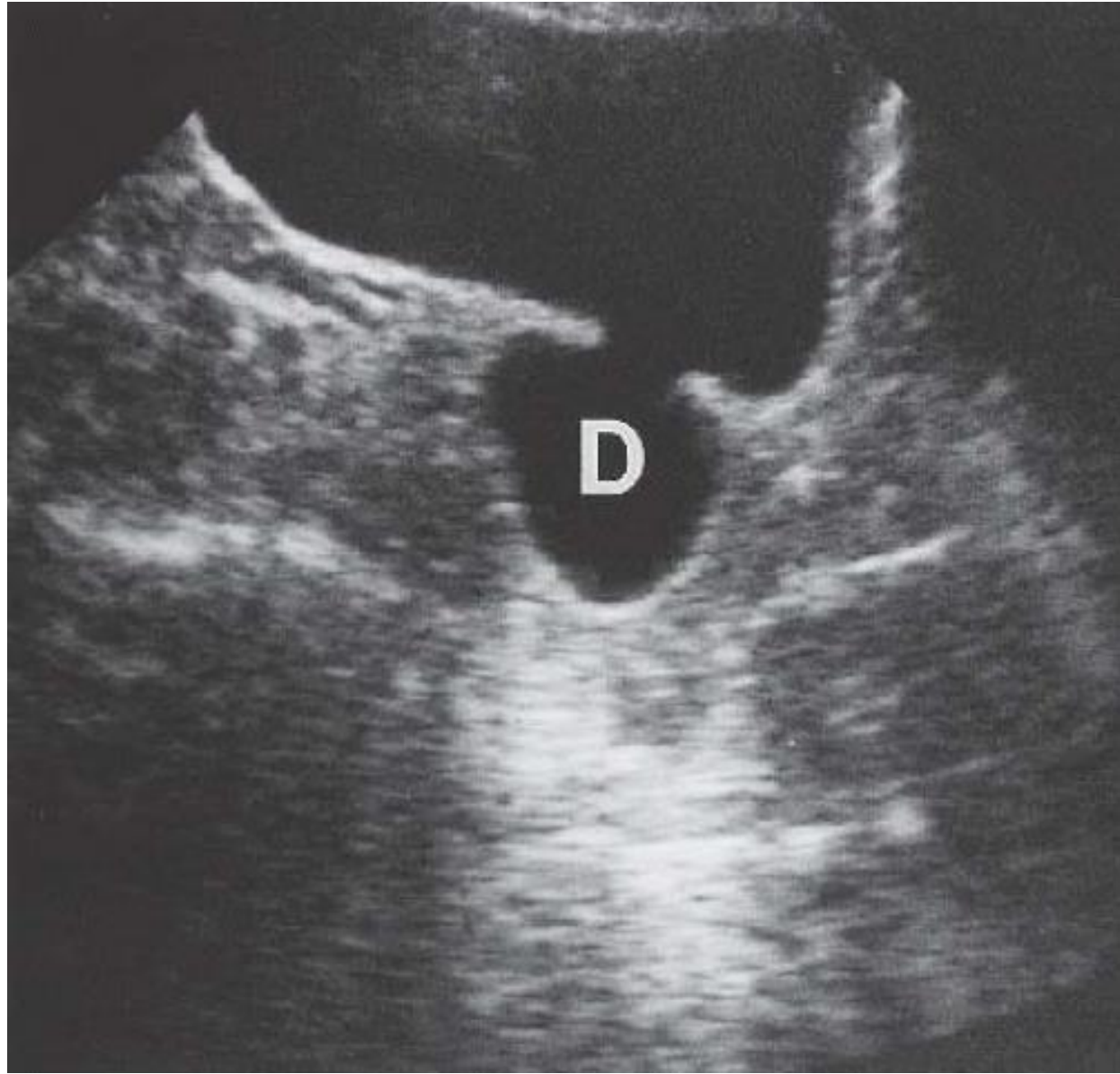


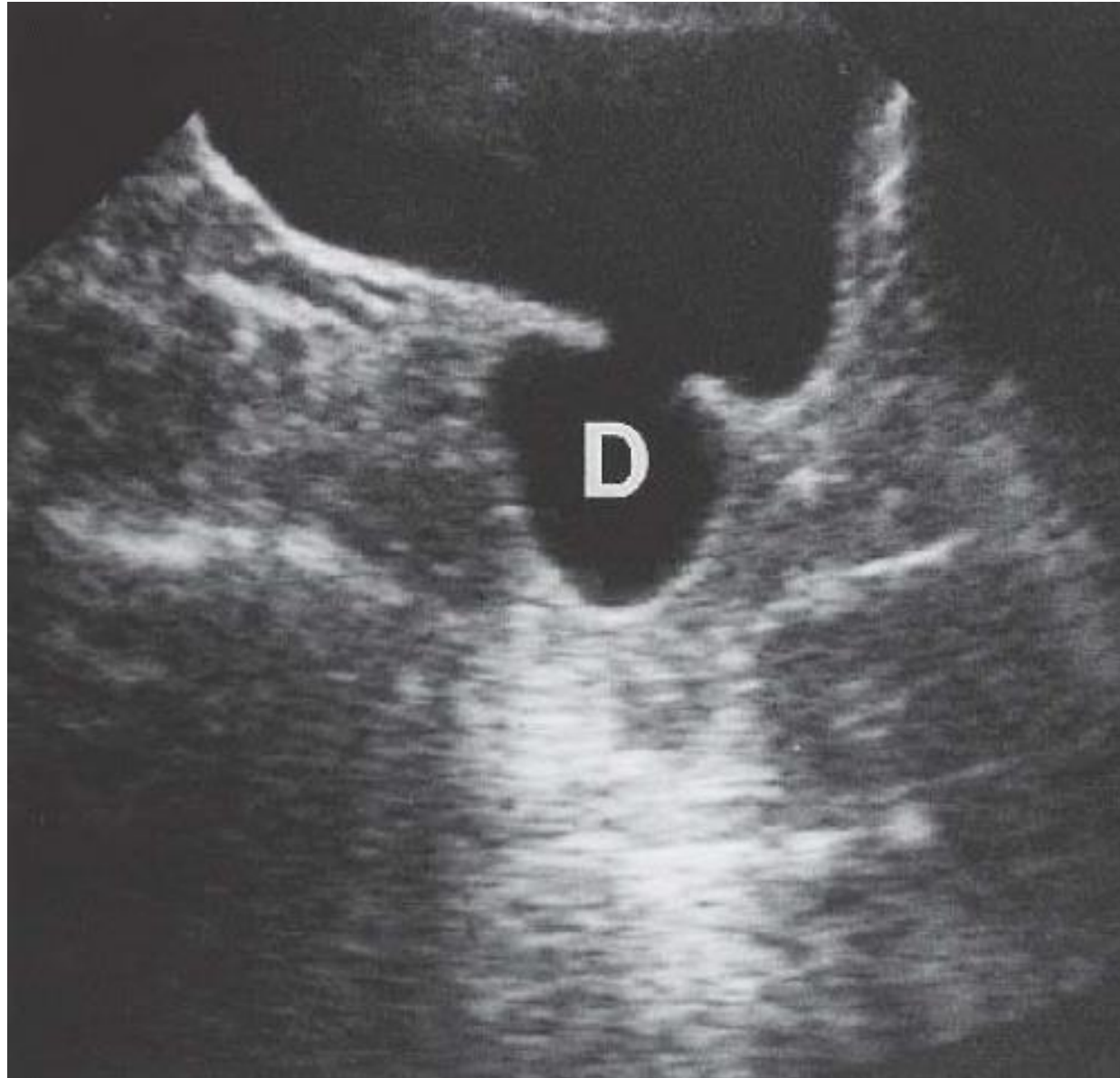
Bladder mass



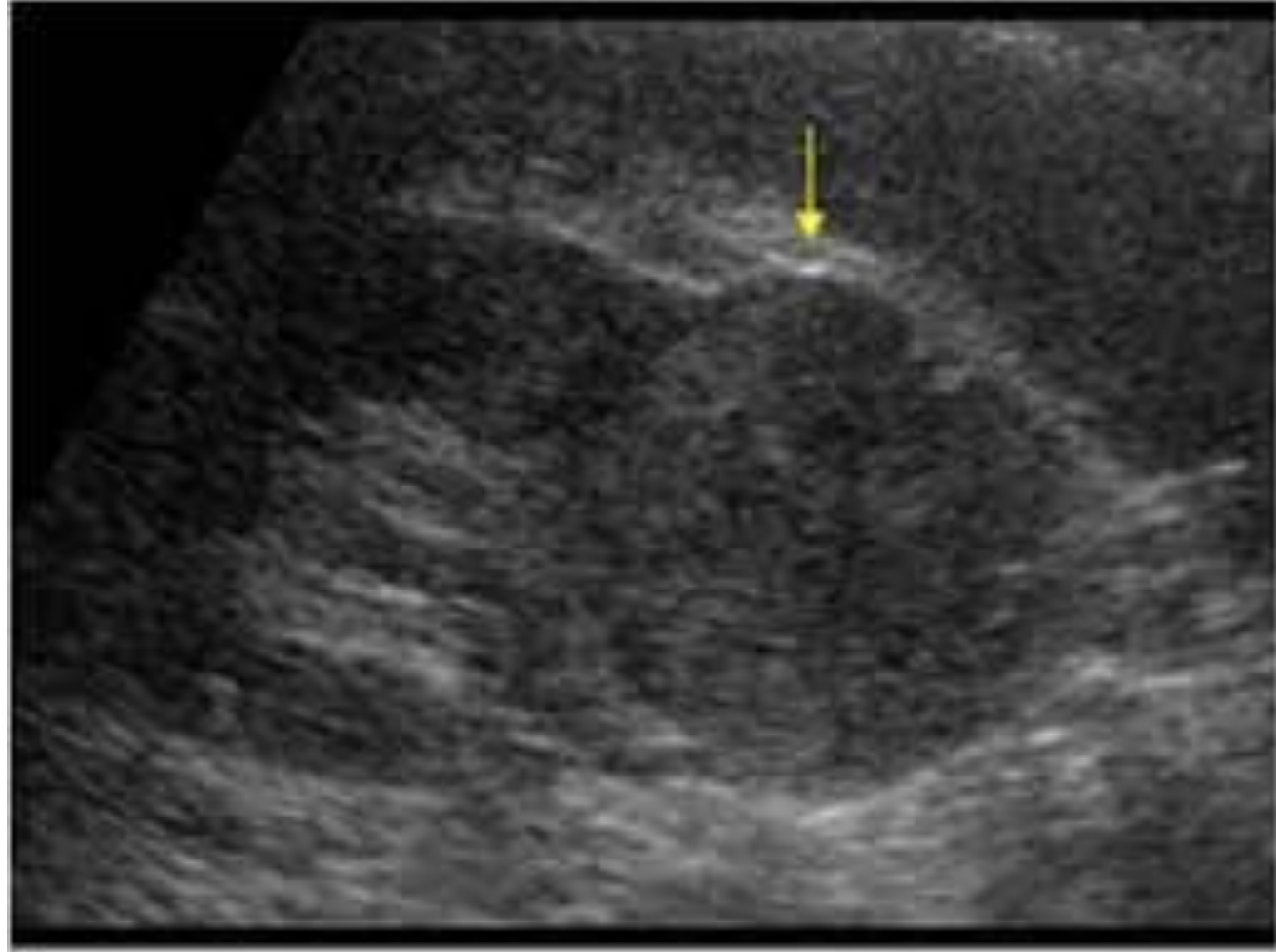


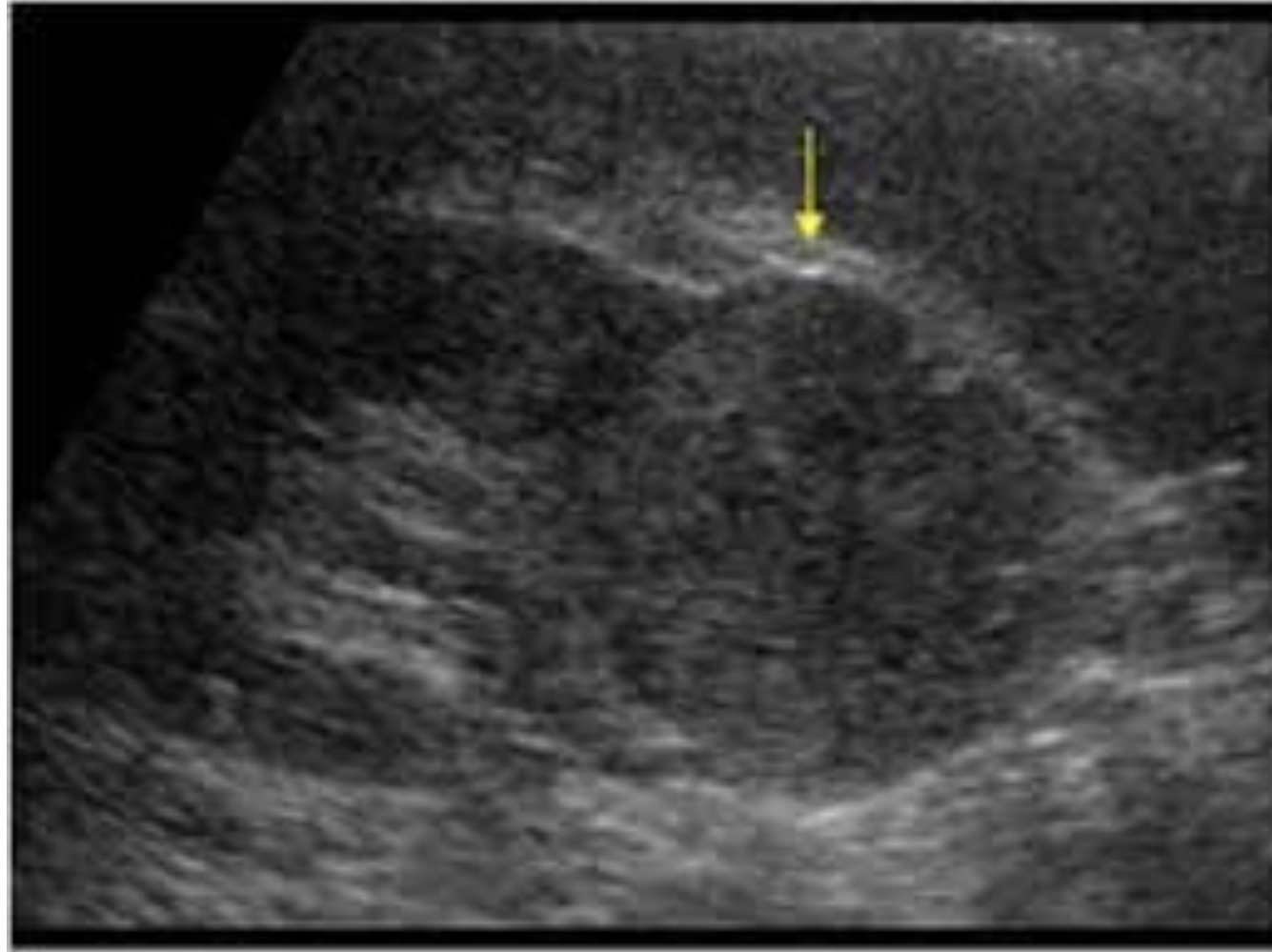
Bladder mass





Bladder diverticulum





Renal mass







Multiple renal cysts





Normal excretory phase CT urography

Thank you

