Renal cysts and renal masses

2- Ultrasound plays an important role in characterizing focal renal masses.

3-It is used to differentiate benign cysts from solid renal neoplasms.

4- most solid lesions are malignant

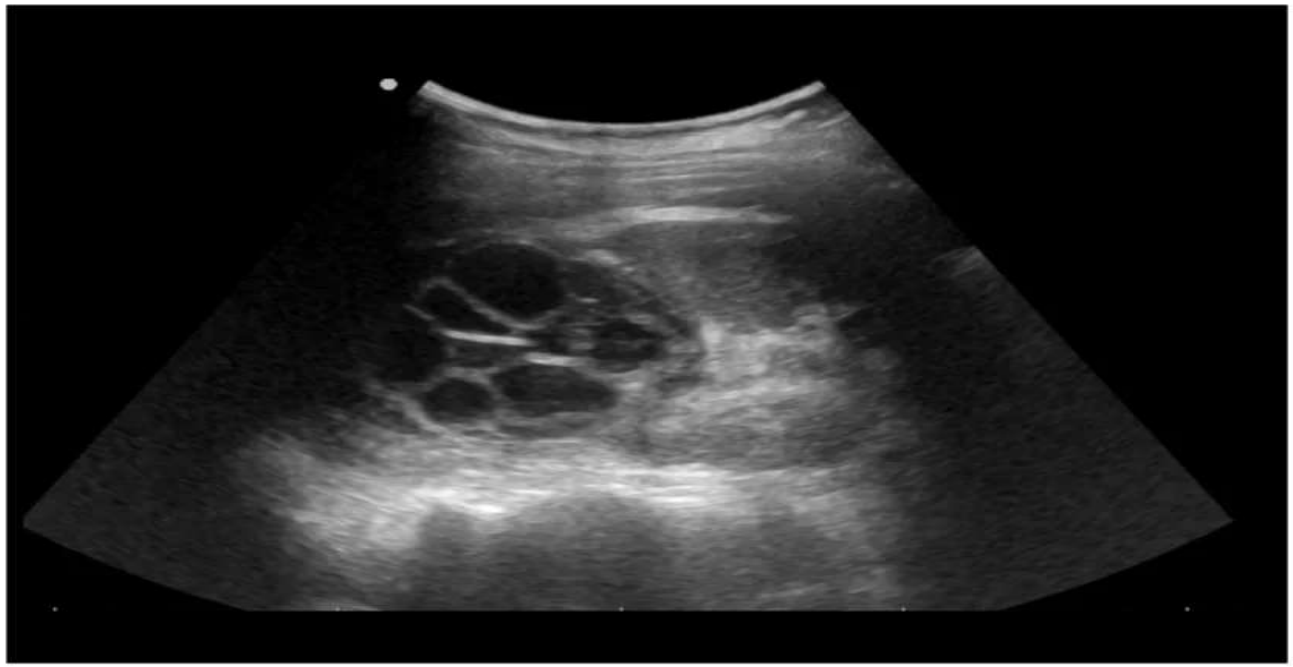
5- all simple cysts and even most complex cysts are benign.

Renal cyst

- **simple renal cysts are very common over the age of 50 years**
- Rounded or oval in shape
- Thin wall
- Acoustic enhancement

Renal hydatid cyst

- Hydatid cysts usually contain debris and are often loculated or septate.
- Hydatid cysts may be multiple or bilateral.



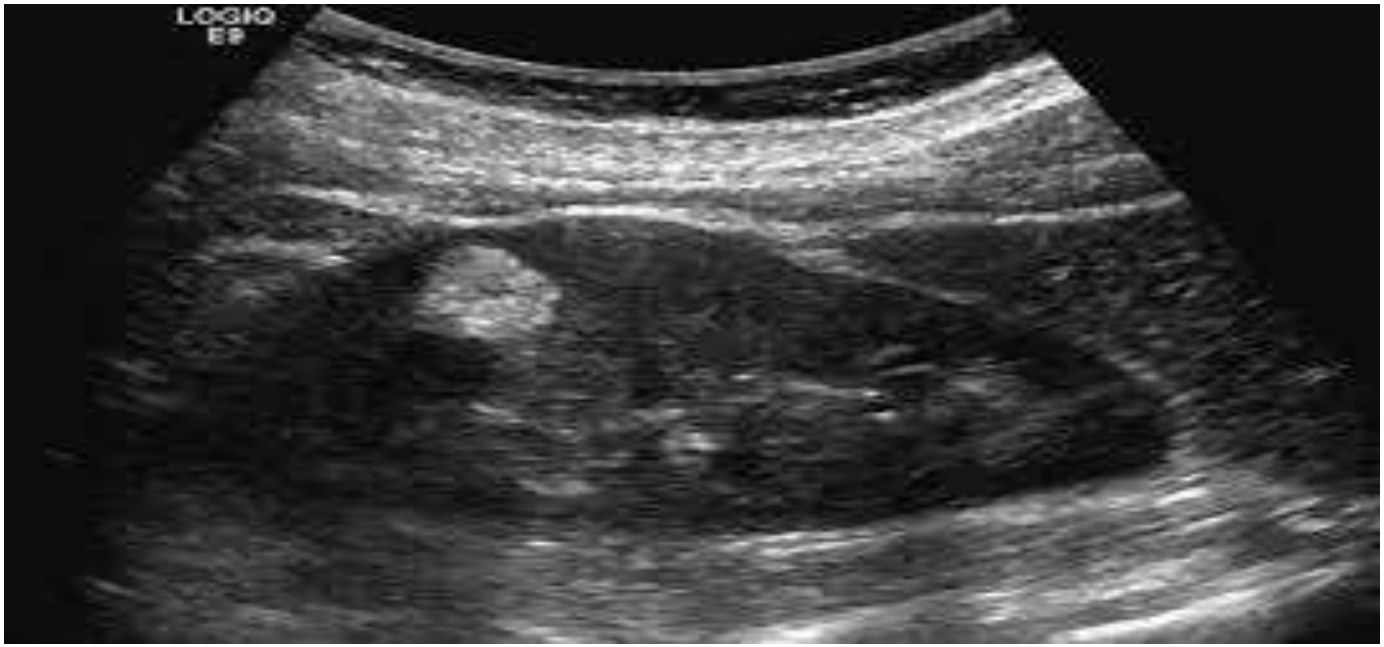
polycystic kidney

Renal tumors

Ultrasound cannot reliably differentiate between benign renal tumours (other than renal cysts) and malignant renal tumours, and cannot always accurately differentiate malignant tumours from renal abscesses.

angiomyolipoma

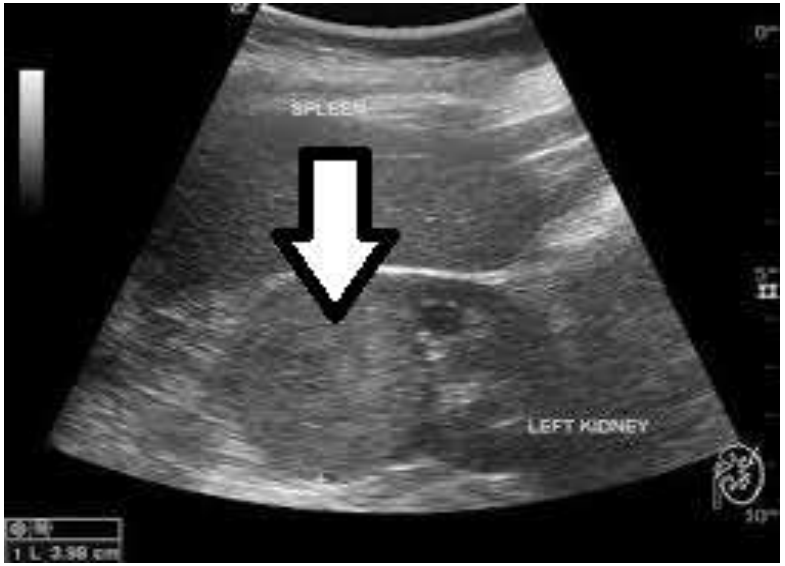
- Well defined hyper echoic renal cortical lesion
- Contain fatty tissue and blood vessels



Solid renal mass

- Renal masses may be regular or irregular outline.

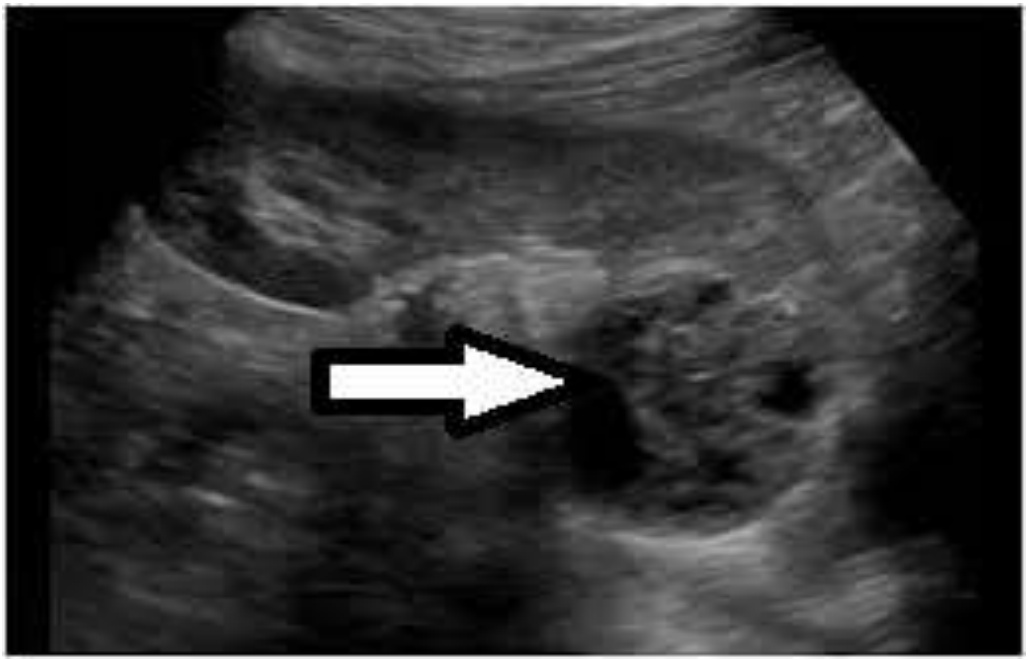
Irregular



Regular

A complex non-homogeneous mass

- If there is necrosis of solid renal mass the tumor known as non homogeneous and its mostly malignant.



Small kidney, Renal calculi, Trauma, Perirenal fluid

- **Causes of small kidney (atrophy):**

1-congenital hypoplasia

2- happens after birth:

a- low blood supply to the kidney (renal artery stenosis)

seen small kidney with normal echogenicity

b-chronic renal disease (renal failur)

seen small kidney with echogenic parenchyma

c- blockage of the kidney (hydro nephrosis)

seen small kidney with echogenic parenchyma

d- chronic infection

small, echogenic kidney with an irregular outline and variable thickness of the cortex

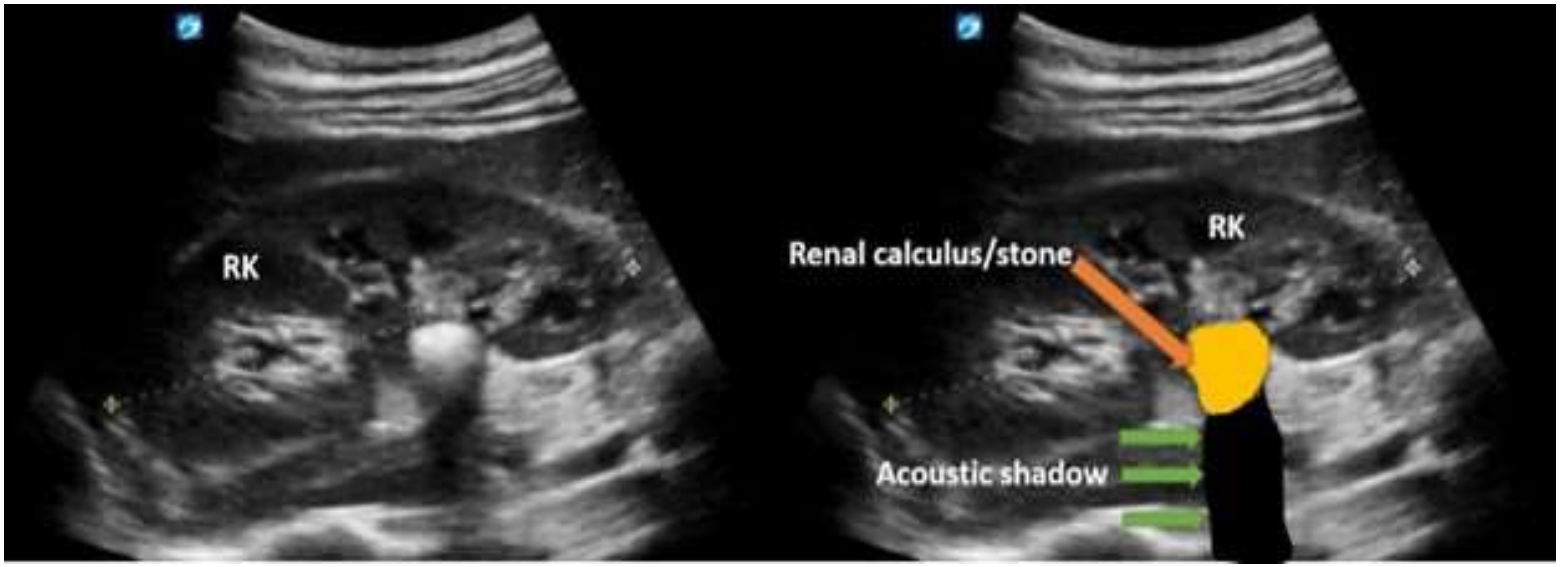
- **A greater decrease in kidney size can lead to kidney failure**

Kidney atrophy

Renal calculi

1-The minimum detectable size on ultrasound unit, using a 3.5 MHz transducer, is 3-4 mm

2- Smaller stones (2-3 mm) may be seen with a 5 MHz transducer

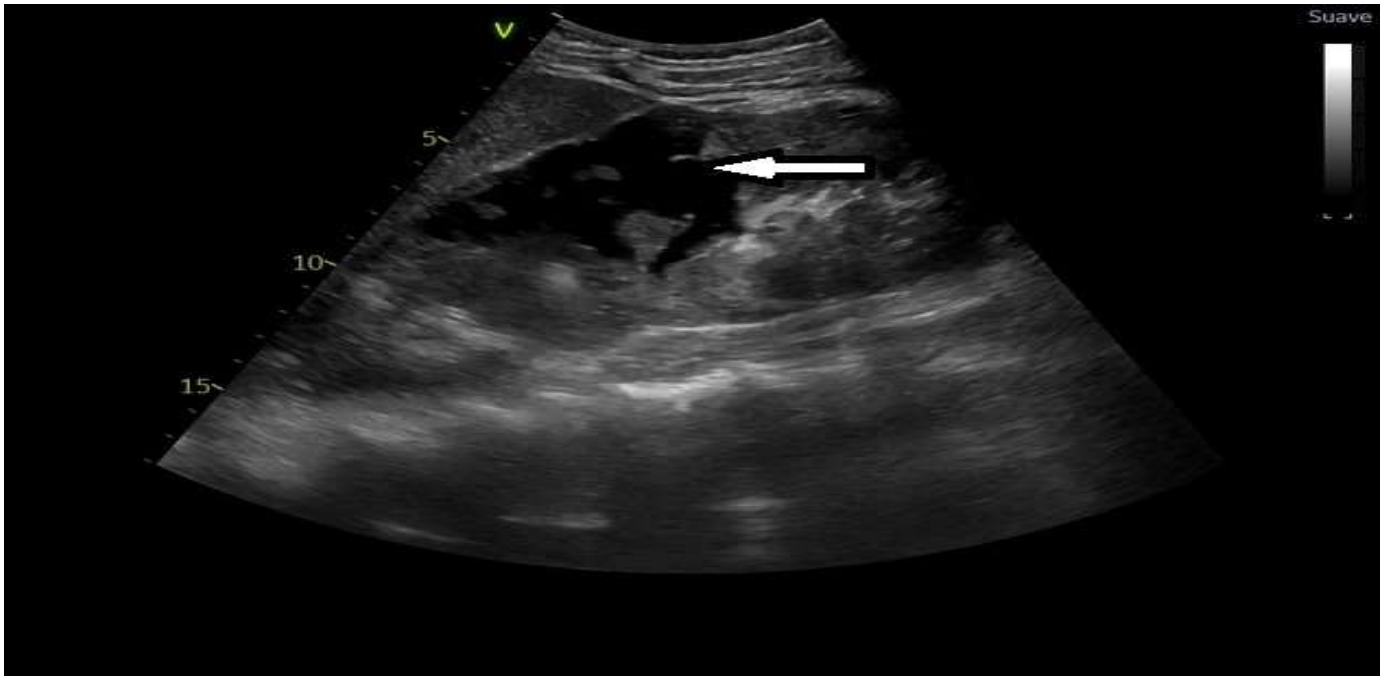


Renal calculi

Ureteric calculi are *very* difficult to locate by ultrasound. *Failure to see a ureteric calculus does not mean that there is no calculus.*

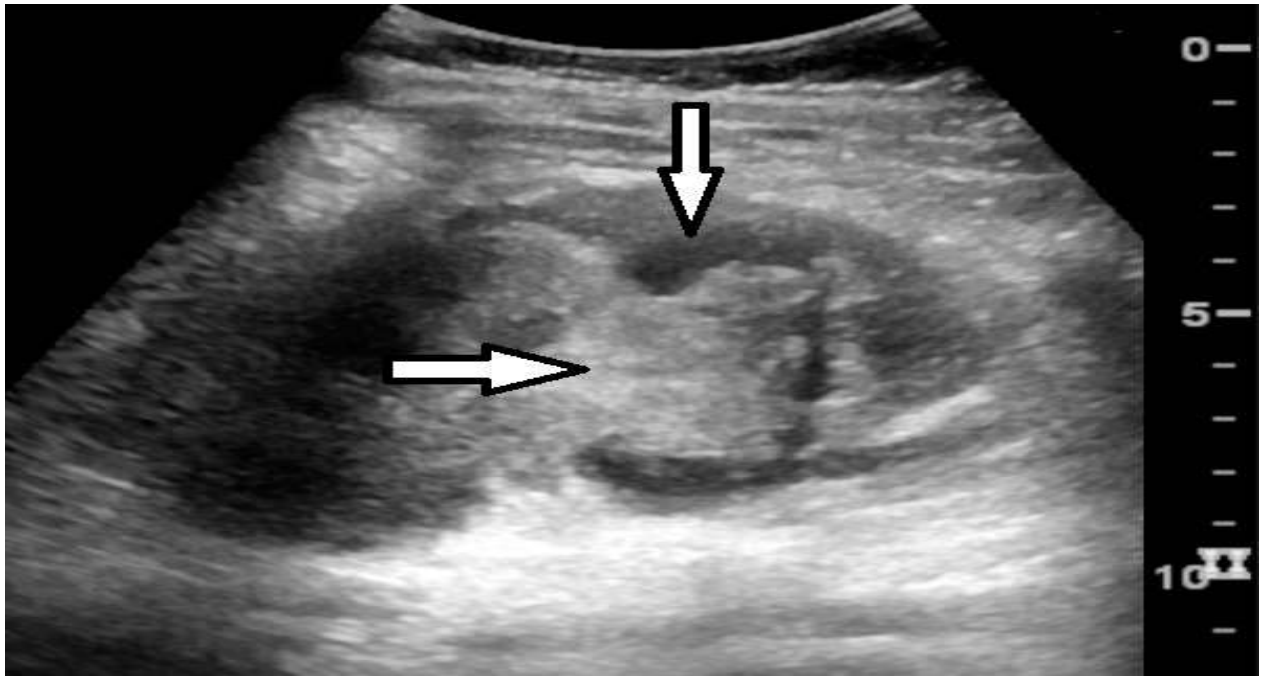
Renal trauma

- **In the acute stage, renal ultrasound may show intra renal or peri renal echo-free areas as a result of the presence of blood (haematoma or extravasated urine)**



Renal trauma

- **When the blood has clotted and formed a thrombus, the same areas will show as bright echoes or a mixture of echo and echo-free areas.**

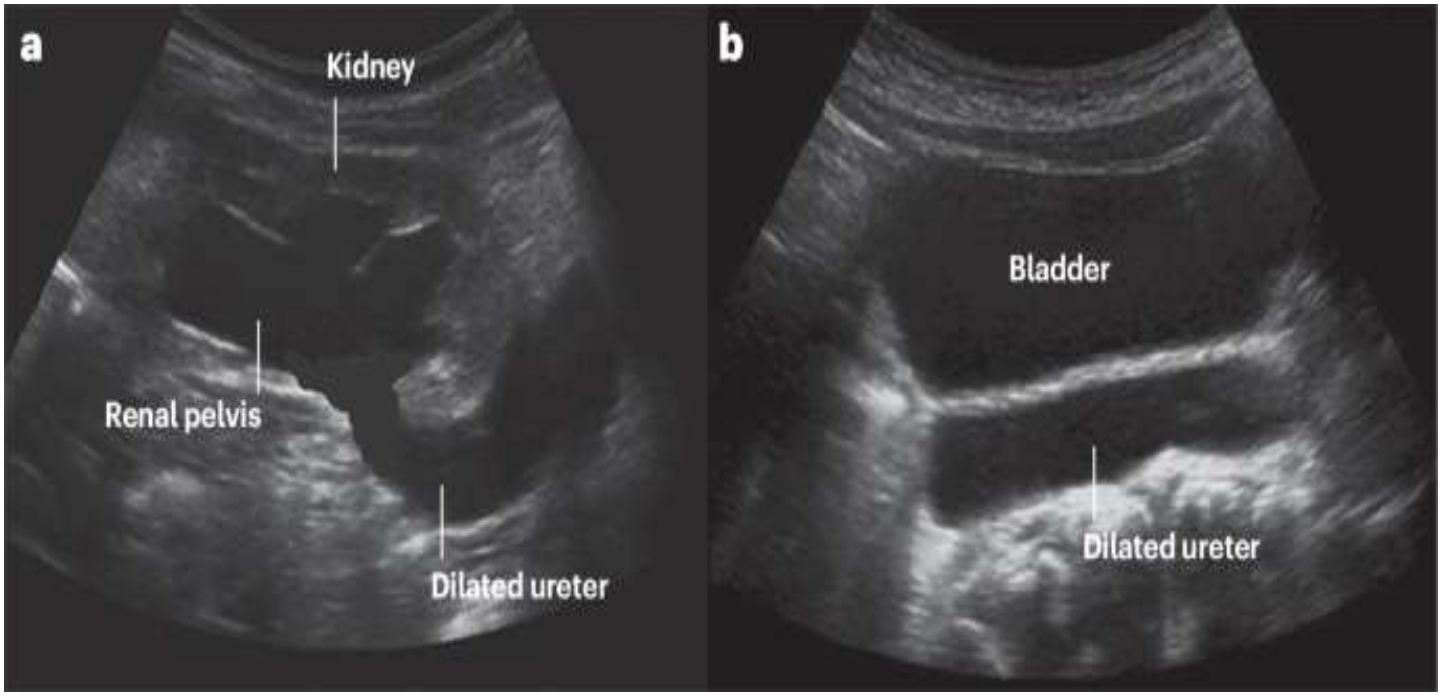


Peri renal fluid

- **Blood and urine around the kidney cannot be distinguished on ultrasound.**

ureters

- **If dilated (e.g. by outlet obstruction due to an enlarged prostate or urethral stricture, or due to vesico-ureteric reflux), they are easier to see, particularly near the kidney or bladder.**



Thank you