

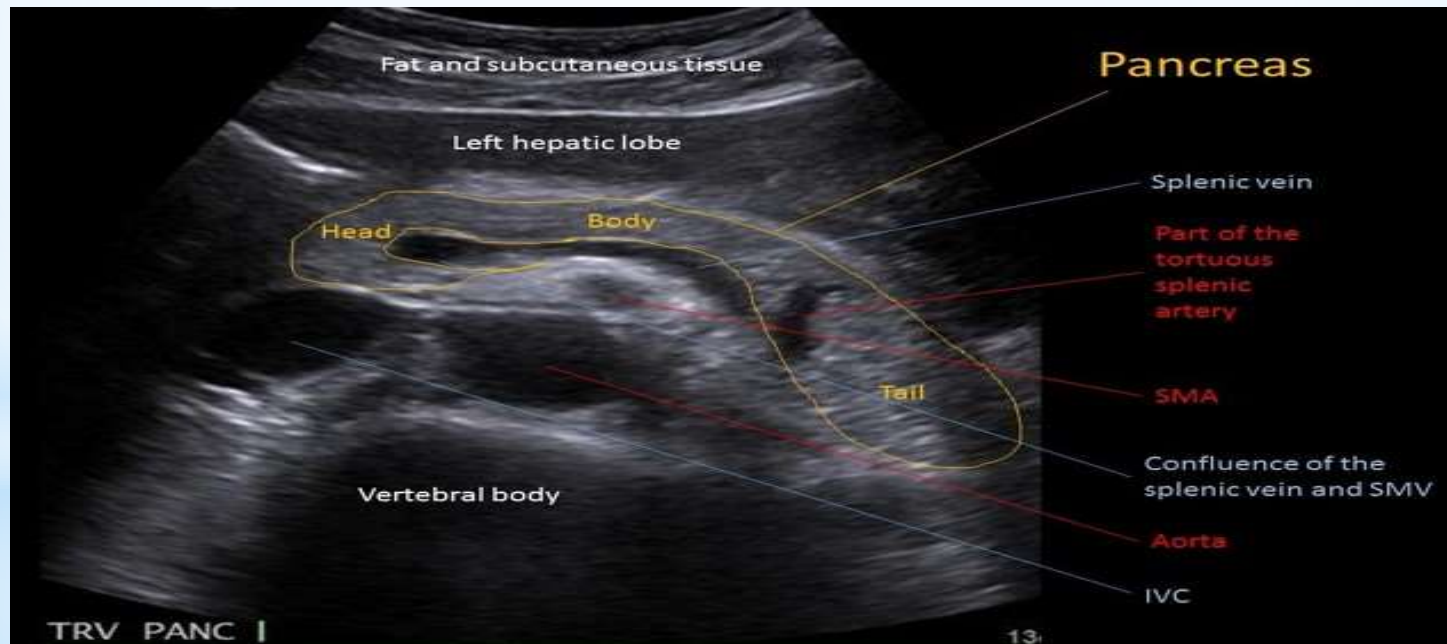
# \* Normal and abnormal pancreas

Visualizing the entire pancreas due to complicated anatomy, obesity and overlying gas can be difficult different body positions should be employed to scan pancreas such as the right lateral decubitus, sitting, and upright positions with applying strong compression with the transducer

In poor visualization, the liquid-filled stomach method is highly recommended

## \* Transverse scanning

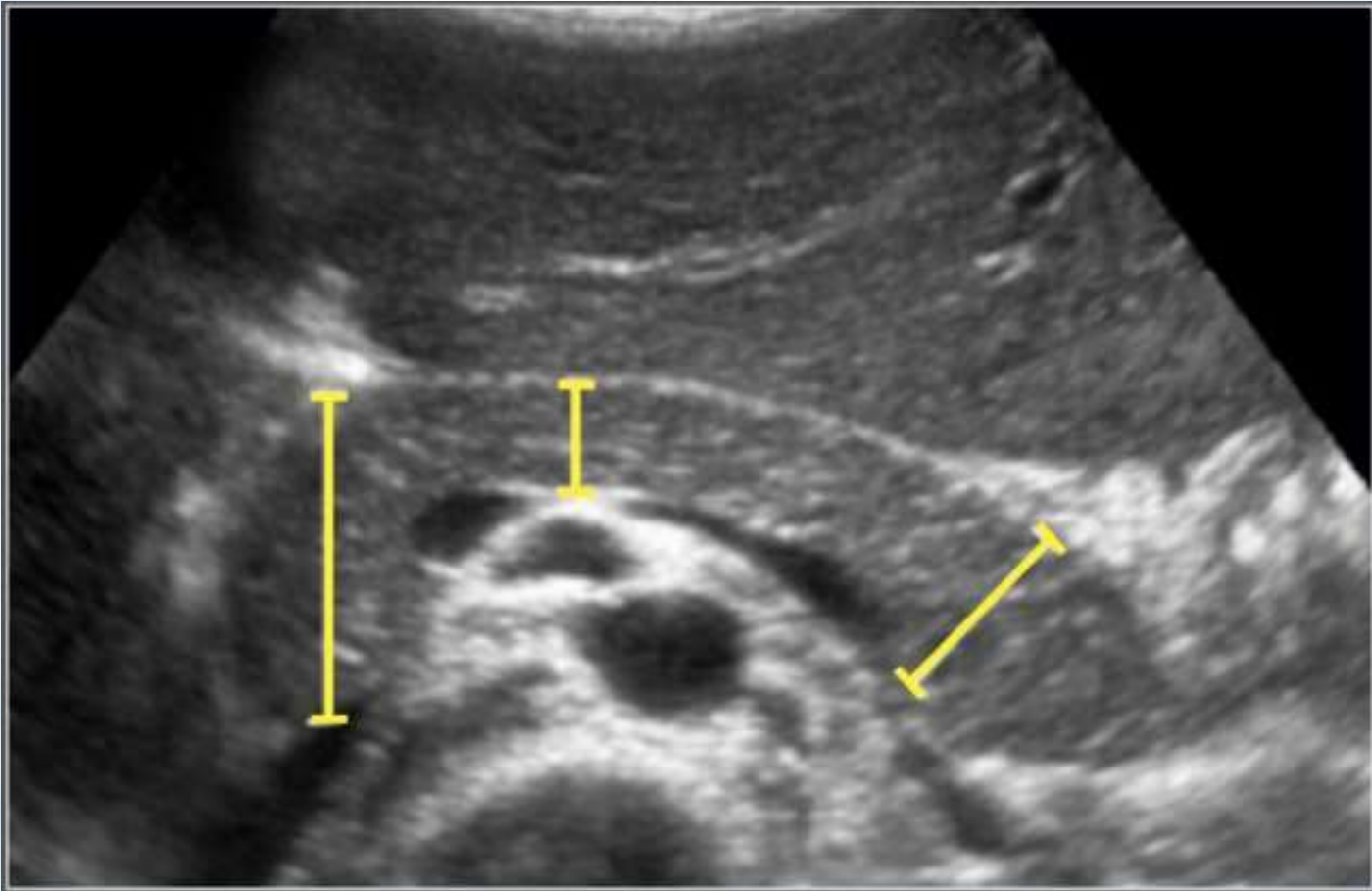
- \* Start with transverse scans across the abdomen moving downwards towards the feet until the splenic vein is seen as a linear, tubular structure, Pancreas seen with homogeneous echogenicity, smooth outline



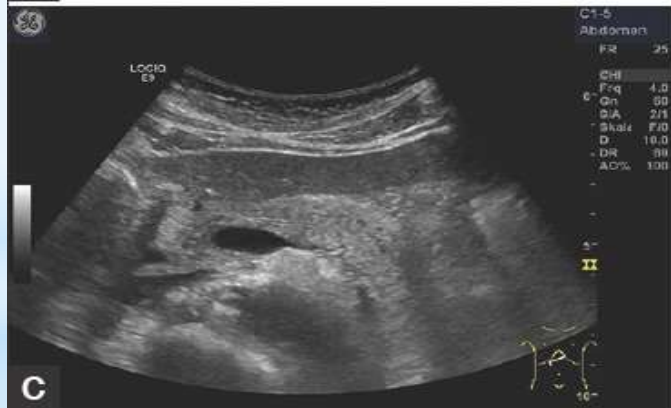
## Normal pancreatic size

- \* The average diameter of the head of the pancreas: **2.8 cm**.
  - The average diameter of the medial part of the body of the pancreas: less than **2cm**.
  - The average diameter of the tail of the pancreas: **2.5 cm**.
  - The diameter of the pancreatic duct should not exceed **2 mm**.

# \*Normal pancreas



- \*The pancreas is usually smaller and seen with increased echogenicity in elderly





If there is atrophy of pancreatic tail and the head appearing normal then a tumor in the head of the pancreas must be suspected.

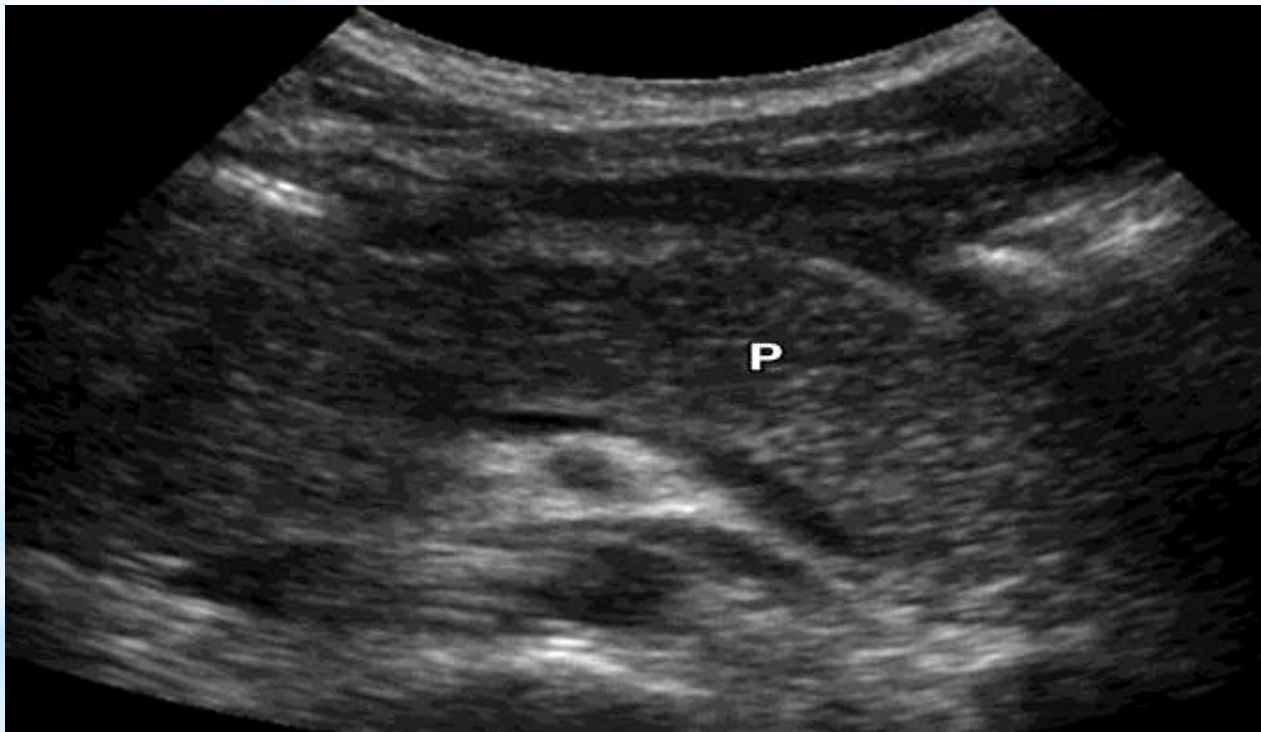


- \* If the pancreas is small and irregularly hyperechogenic and non-homogeneous with calcification, the cause is usually chronic pancreatitis



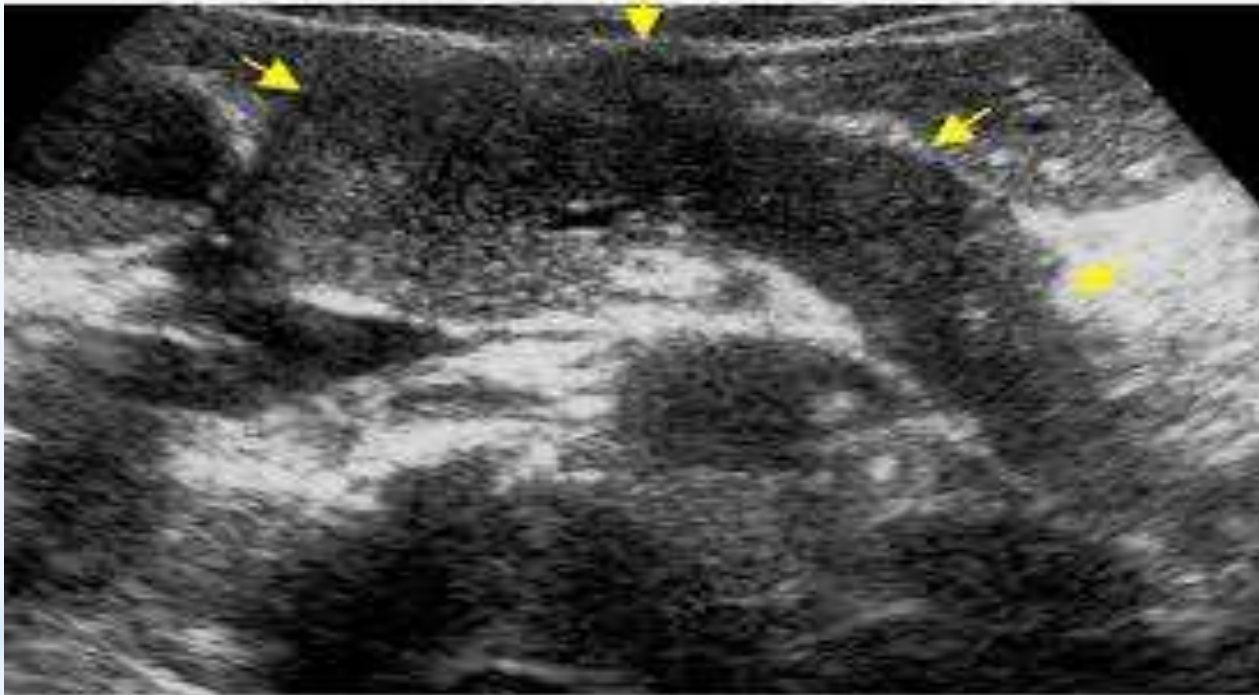
- \* Diffuse enlargement of the pancreas

- \* In acute pancreatitis, the pancreas may be diffusely enlarged and either normal or hypochogenic compared with the adjacent liver

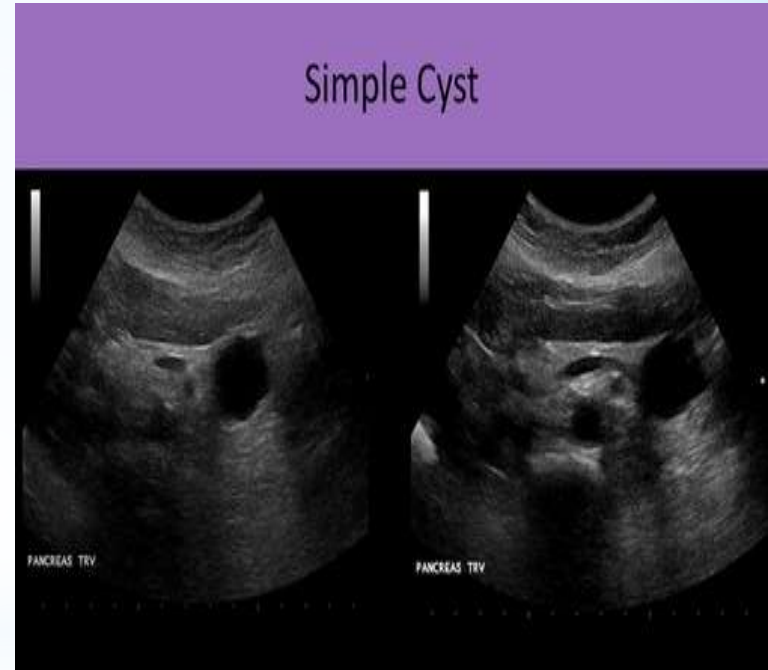




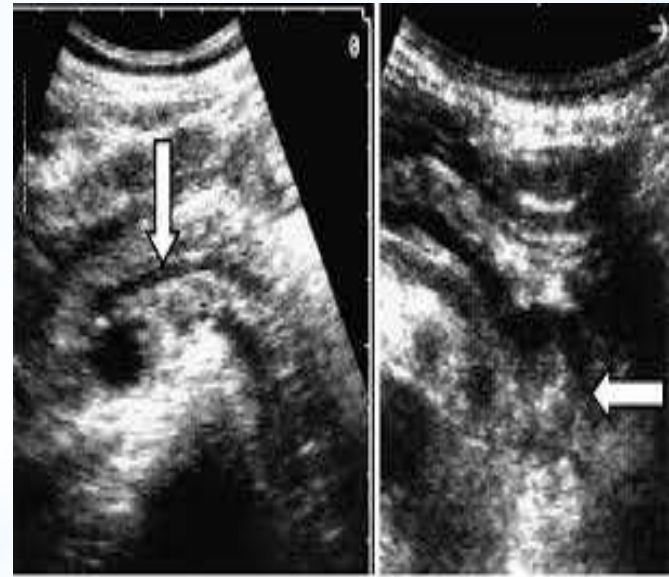
\* Focal pancreatic enlargement  
Seen in pancreatic tumor



- \*Pancreatic cyst
- \*Simple cyst and complex cyst (pseudo cyst)

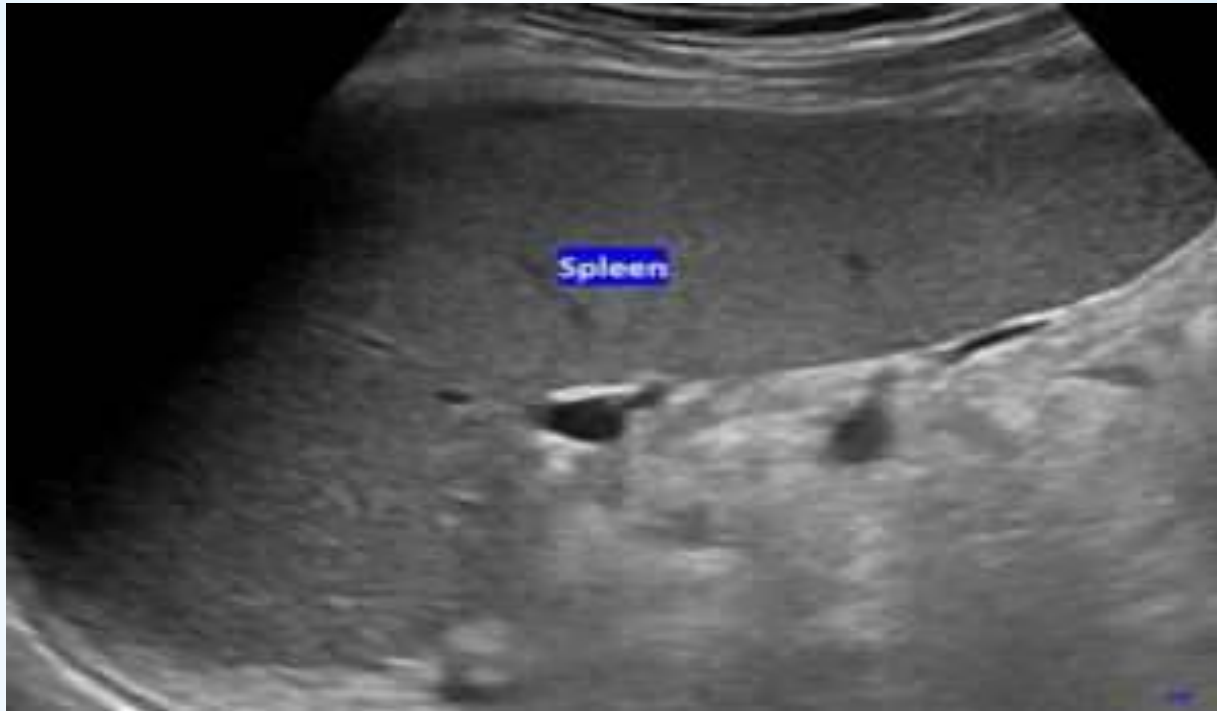


- \* Dilated pancreatic cyst
- \* The normal maximum internal diameter of the pancreatic duct is 2 mm.



## Normal and abnormal spleen

- \*The spleen is a wedge shaped organ lying mainly in the left upper quadrant.  
average size is around 2.5 cm thick, 7.5 cm width and 12.5 cm in length.  
It is enclosed by a thin capsule, which is easily ruptured.  
It is slightly less echogenic than the liver



Normal spleen



## \* **Enlarged spleen/splenomegaly**

### \* **Homogeneous splenomegaly**

This may be due to:

Tropical splenomegaly (eg. Idiopathic splenomegaly , malaria)

Sickle cell disease

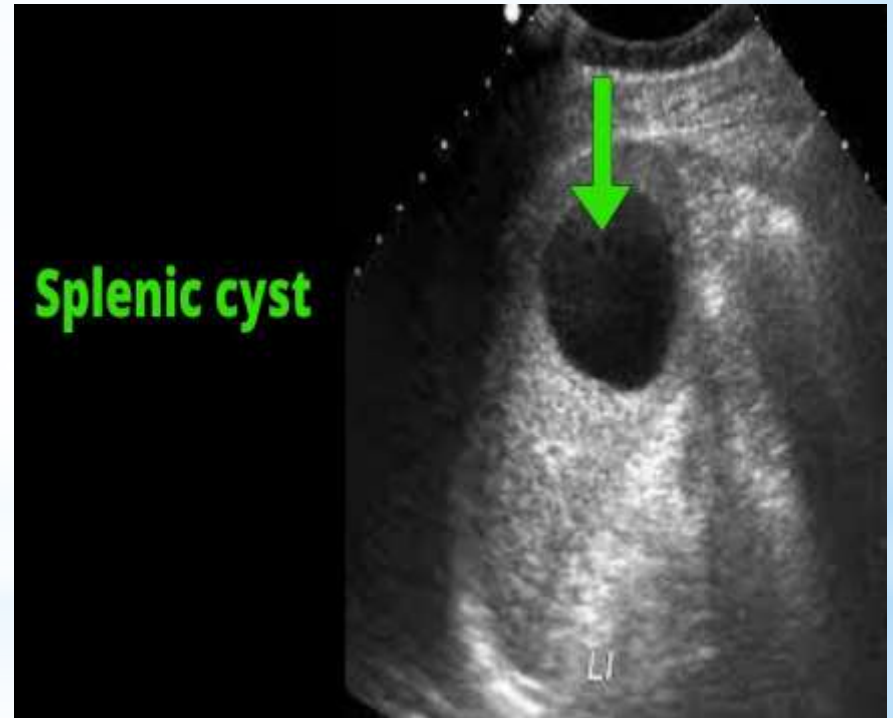
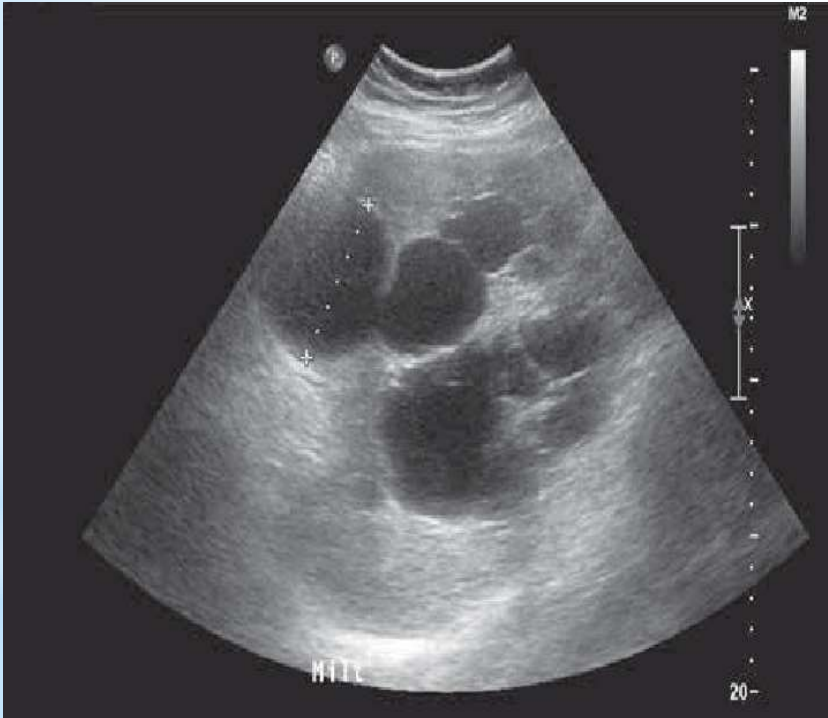
Portal hypertension.

- Leukaemia.
- Lymphoma (may contain hyperechogenic masses).

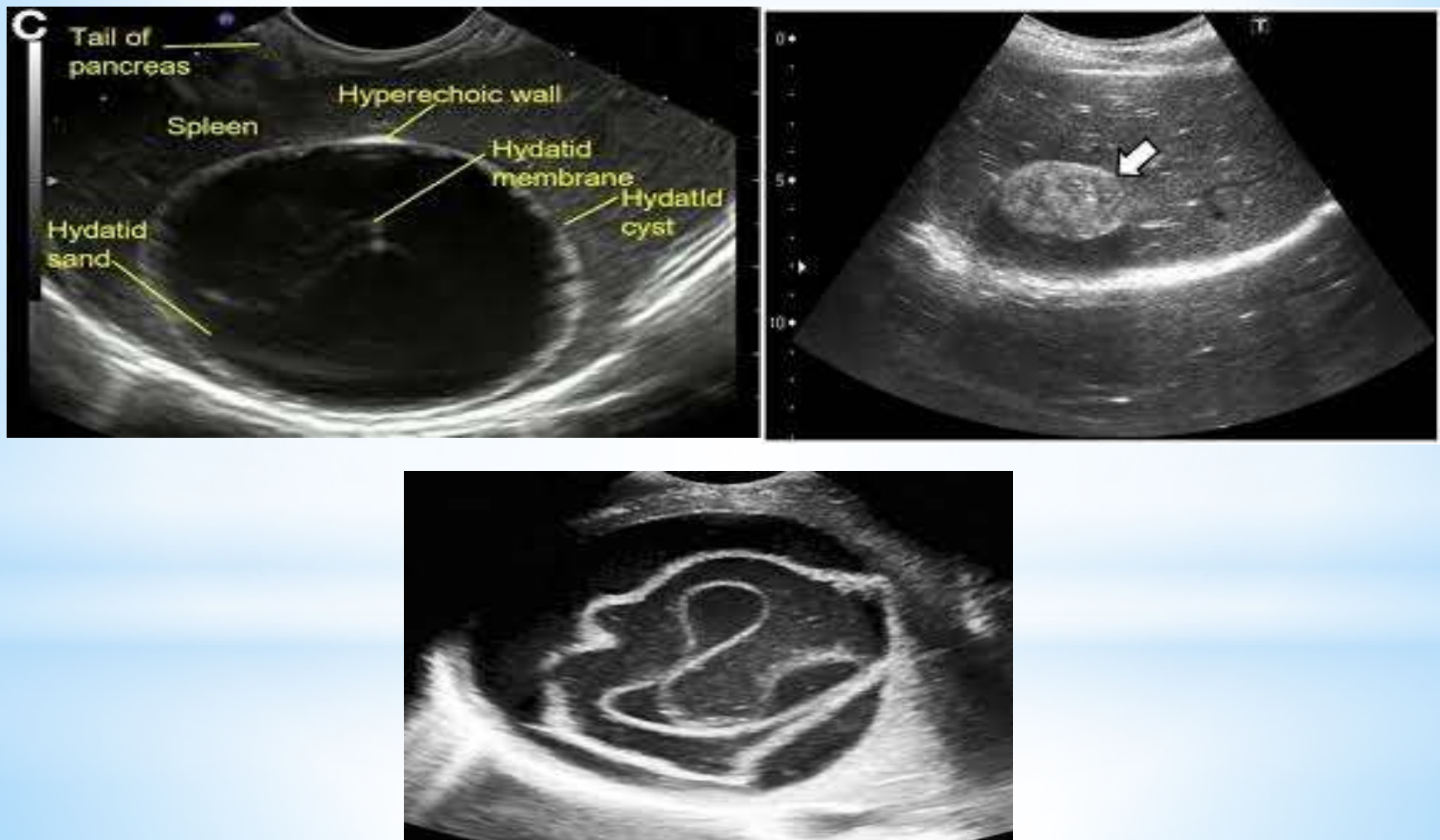
# Non-homogeneous spleen, with or without splenomegaly

- Well defined cystic lesion

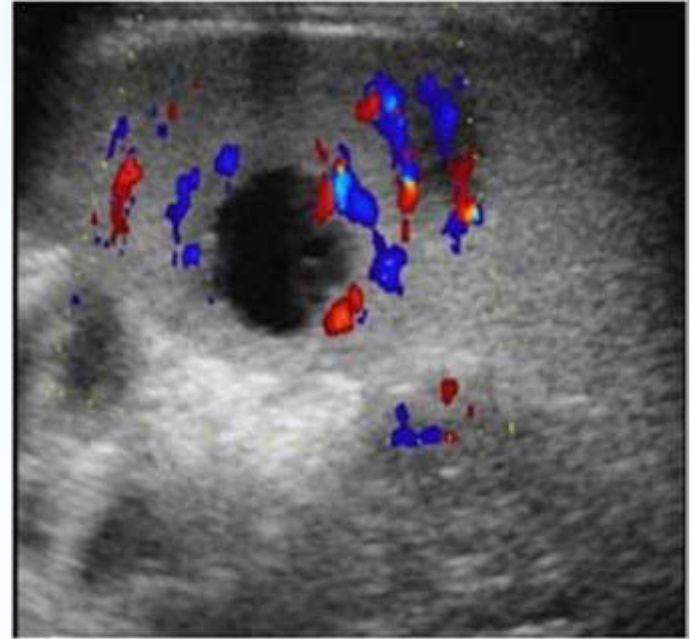
- 1- Cystic disease (solitary or multiple congenital cyst)



## 2- Echinococcal (hydatid) cysts.

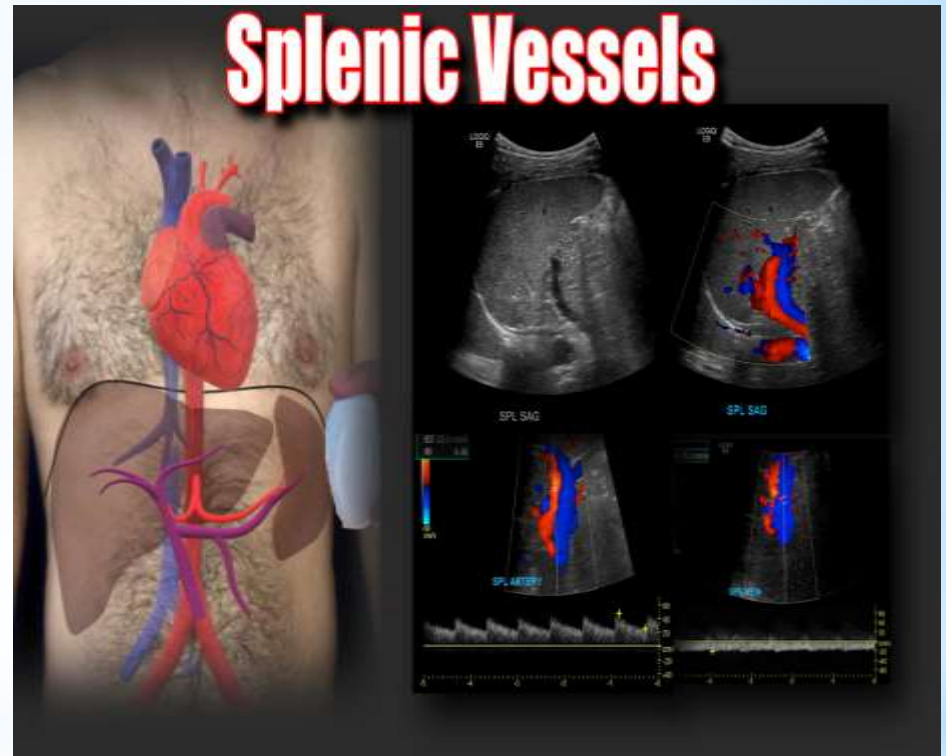


\*3- splenic abscess





# Splenic vein



\* Normal splenic vein diameter about 10mm



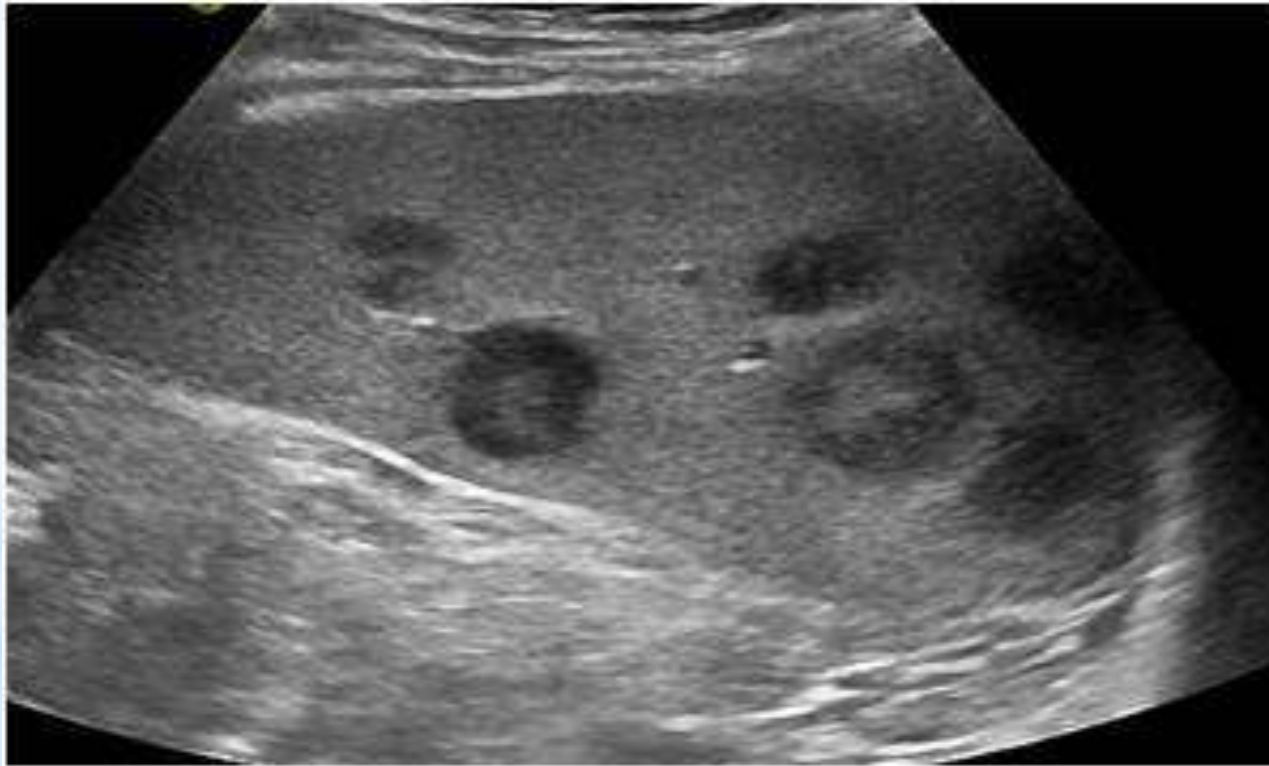
## \*Enlarged splenic vein

If the splenic vein appears large and remains more than 10 mm in diameter on normal respiration, portal hypertension should be suspected



Intrasplenic mass, with or without splenomegaly

Splenic lymphoma



## \* Multiple Splenic abscess

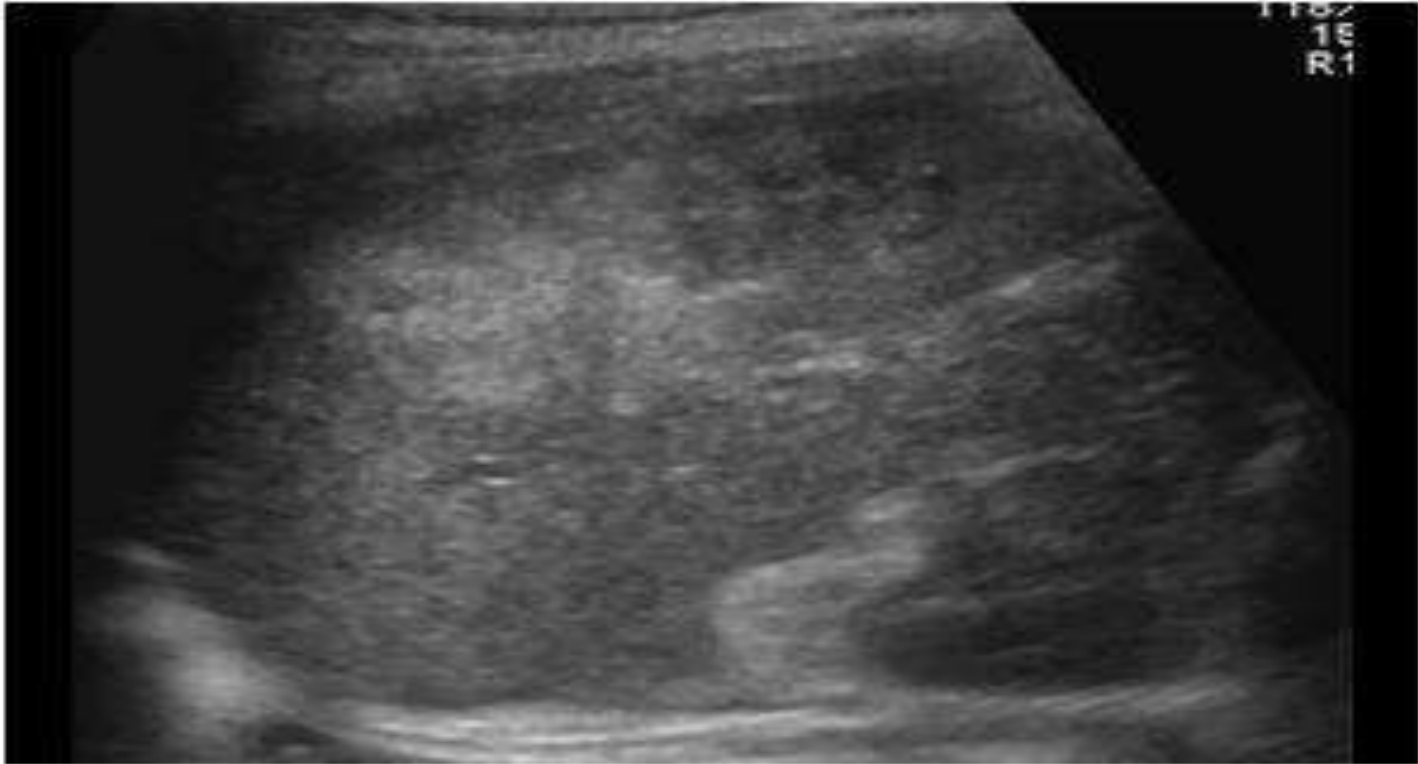


\*Sub phrenic abscess



\* Splenic trauma

\* Splenic hematoma





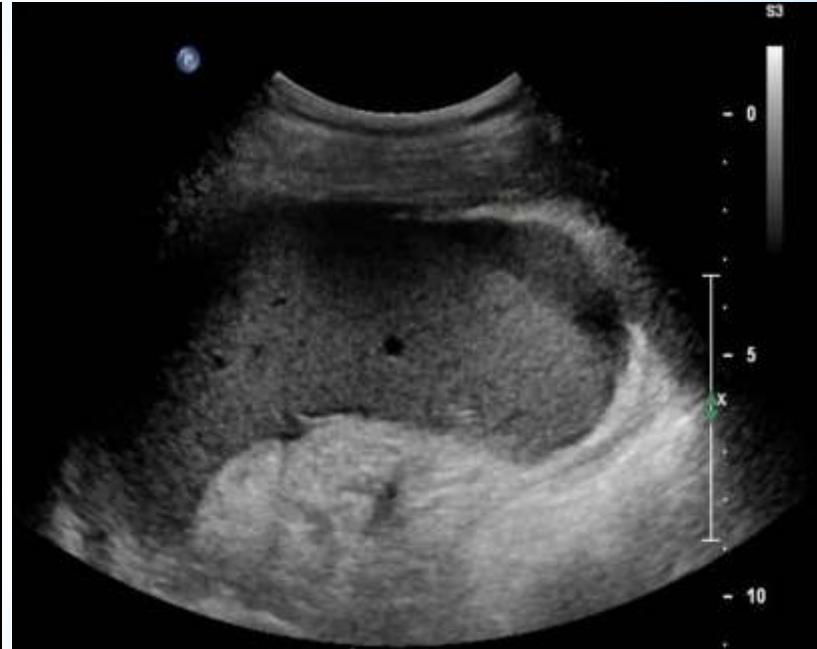
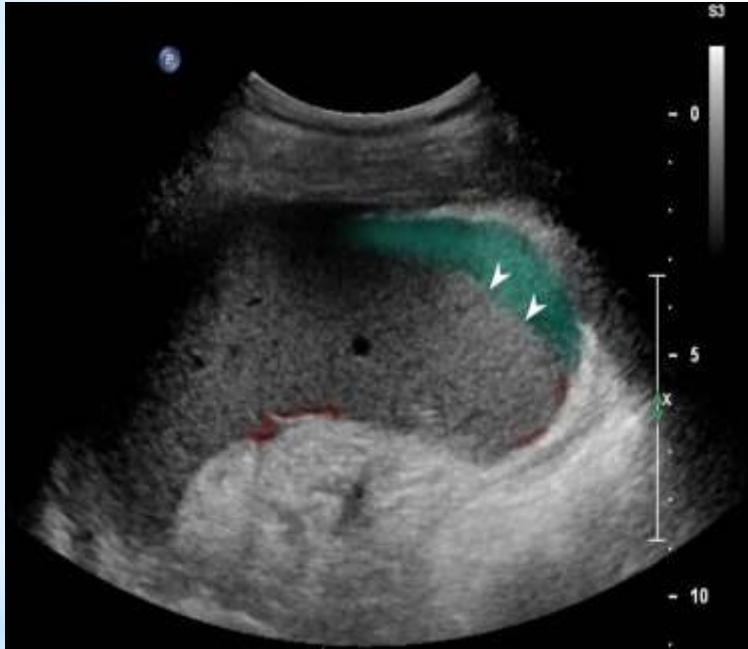
\* Splenic injury

\* Peri-splenic hematoma with heterogeneous splenic echogenicity



## \* Sub-capsular splenic hematoma

- \* An echo-free or complex echo area at the periphery of the spleen,



## \*Ruptured spleen

