



CAUSES OF ASCITES

- Causes of Ascites [17](#)
 - Cirrhosis - 81%
 - Cancer - 10%
 - Heart Failure - 3%
 - Tuberculosis - 2%
 - Dialysis - 1%
 - Pancreatic Disease - 1%
 - Other - 2%



ULTRASOUND

- Use and features include:
 - Can confirm the presence of ascites as physical examination is only moderately accurate for diagnosis. [1](#)
 - Can detect as little as a few millilitres of fluid located anterior to the liver or immediately below the diaphragm. [2,3](#)
 - Can help determine the cause of ascites such as portal hypertension, cirrhosis, portal and hepatic vein thrombosis. [4,6](#)
 - Can guide paracentesis and is particularly useful where there is only a small amount of fluid or the fluid is compartmentalised. [4,5](#)
 - Has a sensitivity and specificity of at least 85% for the diagnosis of Budd-Chiari syndrome. [8](#)
- Ultrasound features of liver cirrhosis include: [14](#)
 - A coarsened, heterogeneous echo pattern.
 - Increased parenchymal echogenicity.
 - Nodularity of liver surface.
- Limitations of ultrasound include: [7](#)
 - Poor beam penetration in obese patients and those with multiple air-filled bowel loops.
 - Low specificity for characterising liver lesions.
 - Operator dependent.

ULTRASOUND FEATURES OF PORTAL HYPERTENSION

- Ultrasound features of portal hypertension include: [14](#)
- Collateral vessels - commonly gastroesophageal, paraumbilical, splenorenal and gastrosplenic veins. [10,11](#)
- Enlarged splanchnic veins. [12](#)
- Portal and splenic veins greater than 10mm in diameter (sensitivity and specificity of 82%.) [13](#)
- A patent paraumbilical vein (specificity of 100% and sensitivity of 82%). [15](#)





COMPUTED TOMOGRAPHY

- Uses and features include:
 - Often has a complementary role with ultrasound in the evaluation of patients with ascites.
 - Is a sensitive tool for the detection of ascites. [4](#)
 - Provides a more complete evaluation of the abdomen and pelvis which is particularly useful in patients with an unknown source of ascites. [3](#)
 - Unlike ultrasound is not impeded by a large amount of bowel gas.
- Disadvantages:
 - Involves exposure to radiation.
 - Risk of contrast allergy and nephropathy if intravenous contrast is used.

DIAGNOSTIC PARACENTESIS

- Is useful for: [5](#)
 - Confirming the presence of ascites.
 - Determining the cause of ascites.
 - Determining whether the fluid is infected
 - Determining whether portal hypertension is present [9](#)
 - a serum - ascitic albumin gradient $>11\text{g/l}$ indicates ascites due to portal hypertension
 - a serum - ascitic albumin gradient $>11\text{g/l}$ indicates ascites due to other causes
- Best done under ultrasound guidance if:
 - There is only a small amount of fluid.
 - The fluid is loculated.
 - The patient has a gross coagulopathy or multiple scars.
 - After a failed paracentesis done without ultrasound guidance.

LIVER BIOPSY

- Referral for liver biopsy should be considered after a thorough non-invasive clinical, serological and radiological evaluation has failed to establish a cause of liver cirrhosis. Due consideration must be given to the risk/benefit profile prior to considering biopsy, as well as how biopsy results would change management [18](#)
- In a large prospective study which performed 354 liver biopsies for sustained abnormal liver function test's, 18% of patient's had their management directly altered by the outcome of the biopsy [19](#)
- There is a significant false negative rate (10-50%) with percutaneous liver biopsy in the diagnosis of cirrhosis. Newer procedures that incorporate mini-laparoscopic techniques with direct visualisation of the liver has reduced this rate (15%) [20](#)





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Website

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