

? What is Ascites

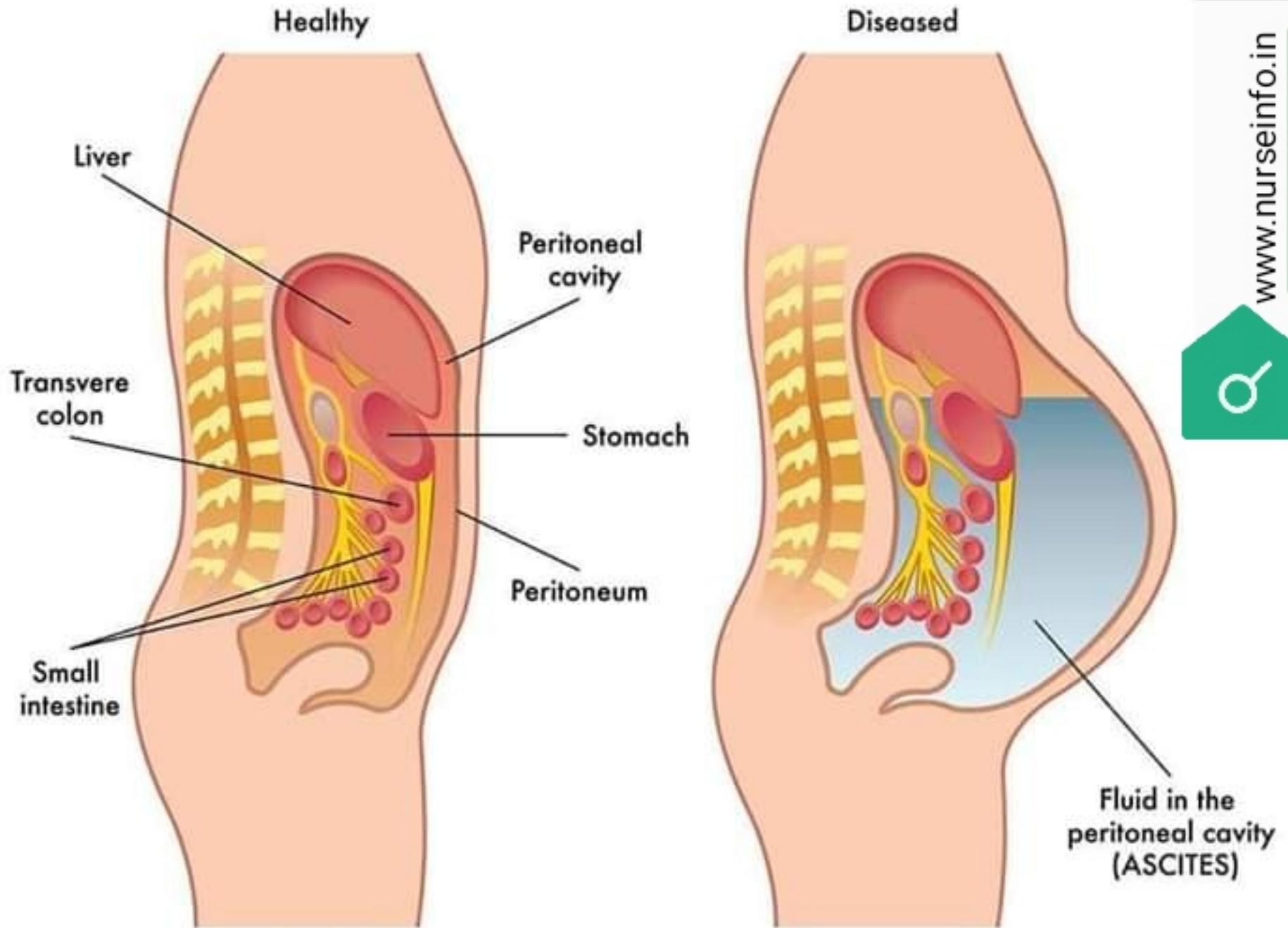
- Ascites is the presence of excess fluid in the peritoneal cavity.
- It is a common clinical finding with a wide range of causes, but develops most frequently as a part of the decompensation of previously asymptomatic chronic liver disease.



What is ascites?

Ascites (A-sigh-teas) is the accumulation of an excessive (larger than normal) amount of fluid in the abdominal cavity.





Alcohol cessation

Avoid NSAIDs

Sodium restriction (2 g/day)



Oral diuretics

- Starting dose: spironolactone 100 mg/furosemide 40 mg PO QD
- Progressive increase every 3 to 5 days
- Maximum dose: spironolactone 400 mg/furosemide 160 mg PO QD



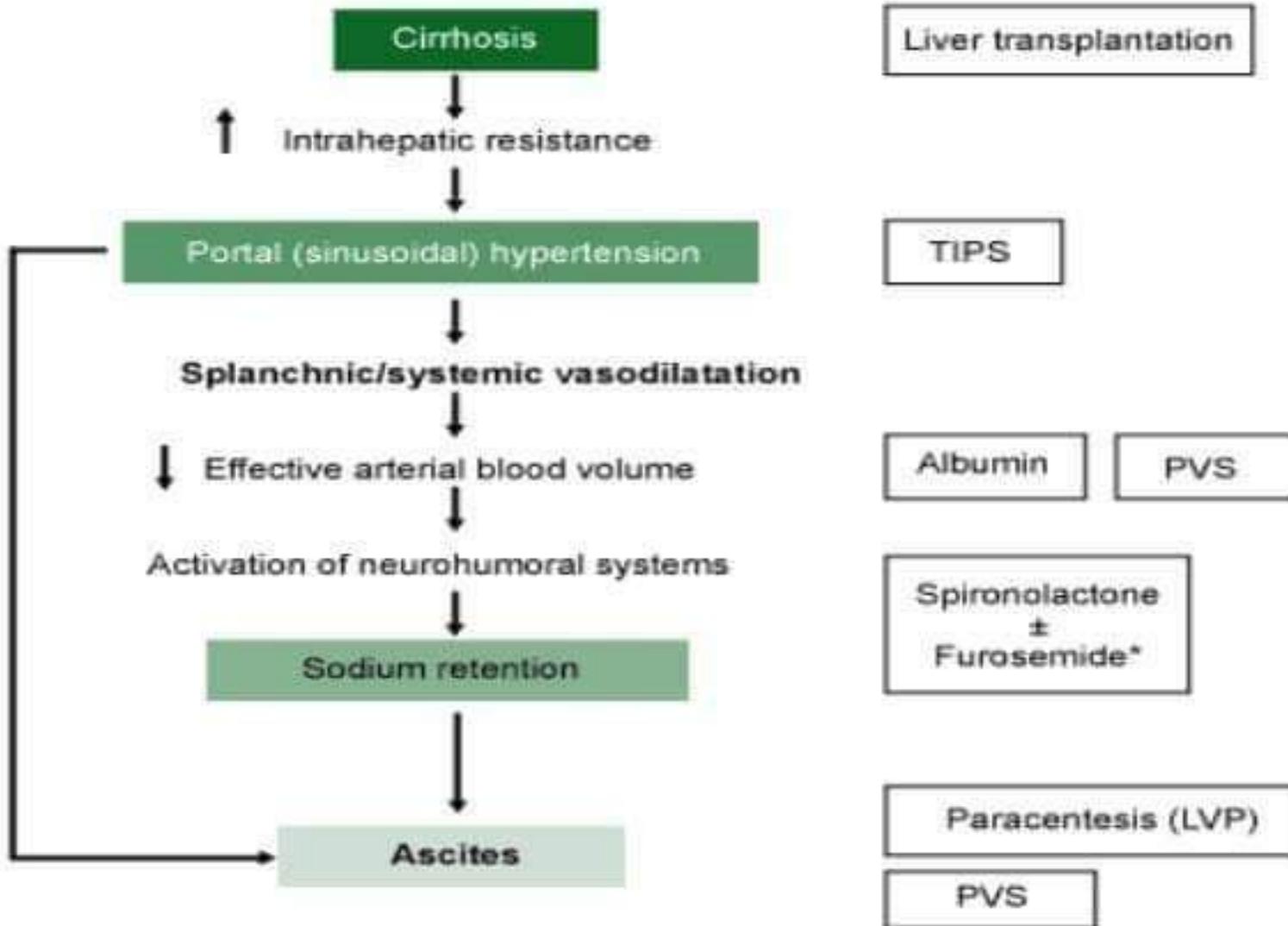
Frequent large volume paracentesis
with albumin infusion



Transjugular intrahepatic
portosystemic shunt (TIPS)



Liver transplantation



LVP, large-volume paracentesis; PVS, peritoneovenous shunt.

*Furosemide should only be used in conjunction with spironolactone.

Disorder	SAAG		Additional Diagnostic Tests
	≥ 1.1 g/dL	< 1.1 g/dL	
Liver related			
Cirrhosis	X		Ascitic fluid cell count and differential for SBP, total protein
Alcoholic hepatitis	X		
Acute liver failure	X		
Budd-Chiari Syndrome	X		Imaging
Sinusoidal Obstruction Syndrome	X		
Sarcoidosis, hepatic granulomas	X		Liver biopsy
Polycystic liver disease	X		Imaging
Nodular regenerative hyperplasia	X		Liver biopsy
Cardiac			
CHF, constrictive pericarditis, pulmonary hypertension	X		Echocardiogram, right heart catheterization
Neoplasm			
Hepatocellular carcinoma	X		Imaging
Liver metastases	X		Imaging
Peritoneal carcinomatosis		X	Imaging, cytology
Malignant chylous ascites		X	Ascitic fluid triglyceride, imaging
Infection			
Tuberculous peritonitis		X	Mycobacterial culture on directed peritoneal biopsy and ascitic fluid
Secondary bacterial peritonitis		X	Ascitic fluid glucose, LDH, Gram's stain, CEA, alkaline phosphatase
Other			
Nephrotic syndrome		X	24-hour urine protein
Pancreatic ascites		X	Ascitic fluid amylase
Thyroid myxedema	X		Serum thyroid tests
Postoperative lymphatic leak		X	Ascitic fluid triglyceride

Table 2. Differential Diagnosis of Ascites

Cirrhosis

Alcoholic Hepatitis

Heart Failure

Cancer (peritoneal carcinomatosis, massive liver metastases, etc)

"Mixed" Ascites, i. e. Cirrhosis Plus Another Cause for Ascites

Pancreatitis

Nephrotic Syndrome

Tuberculous Peritonitis

Acute Liver Failure

Budd-Chiari Syndrome

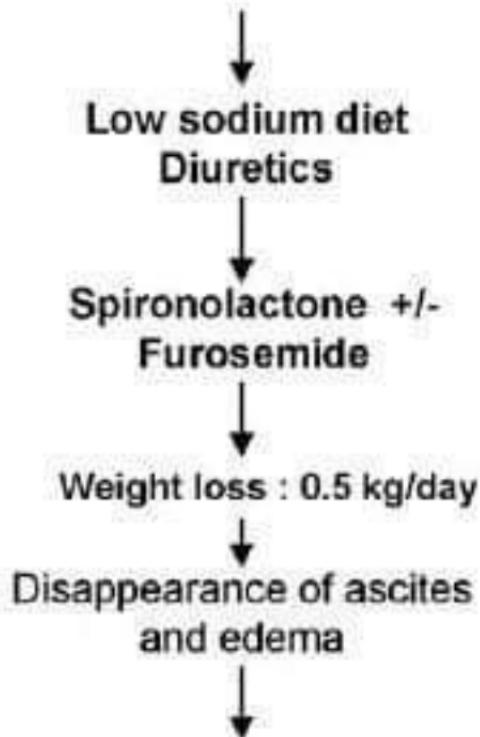
Sinusoidal Obstruction Syndrome

Postoperative Lymphatic Leak

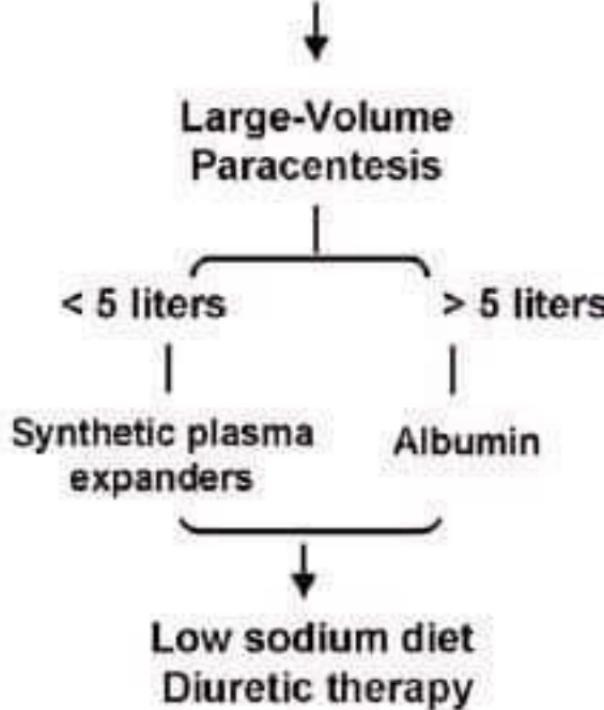
Myxedema

High albumin gradient (SAAG \geq 1.1 mg/dL)	Low albumin gradient (SAAG<1.1 g/dL)
Cirrhosis	Peritoneal carcinomatosis
Acute alcoholic hepatitis	Peritoneal tuberculosis
Heart failure	Pancreatitis
Hepatic metastases	Serositis
Nodular regenerative hyperplasia	Nephrotic syndrome
Budd-Chiari syndrome	Bowel obstruction/infarction/ perforation
Portal vein thrombosis	Pseudomyxoma peritonei
Idiopathic portal fibrosis	
Myxedema	
Sinusoidal obstructive syndrome	
SAAG: Serum-to-ascitic albumin gradient	

Grade 2 Ascites



Grade 3 Ascites



MAINTENANCE THERAPY:

Continue low sodium diet

Reduce diuretic therapy as needed

Refractory Ascites



Large-Volume Paracentesis plus
Albumin (8 g/L of ascites removed)

{ Initial Management



Low sodium diet
Fluid restriction in hyponatremic patients

{ Maintenance therapy



Ongoing Large-Volume Paracentesis
with Albumin as needed

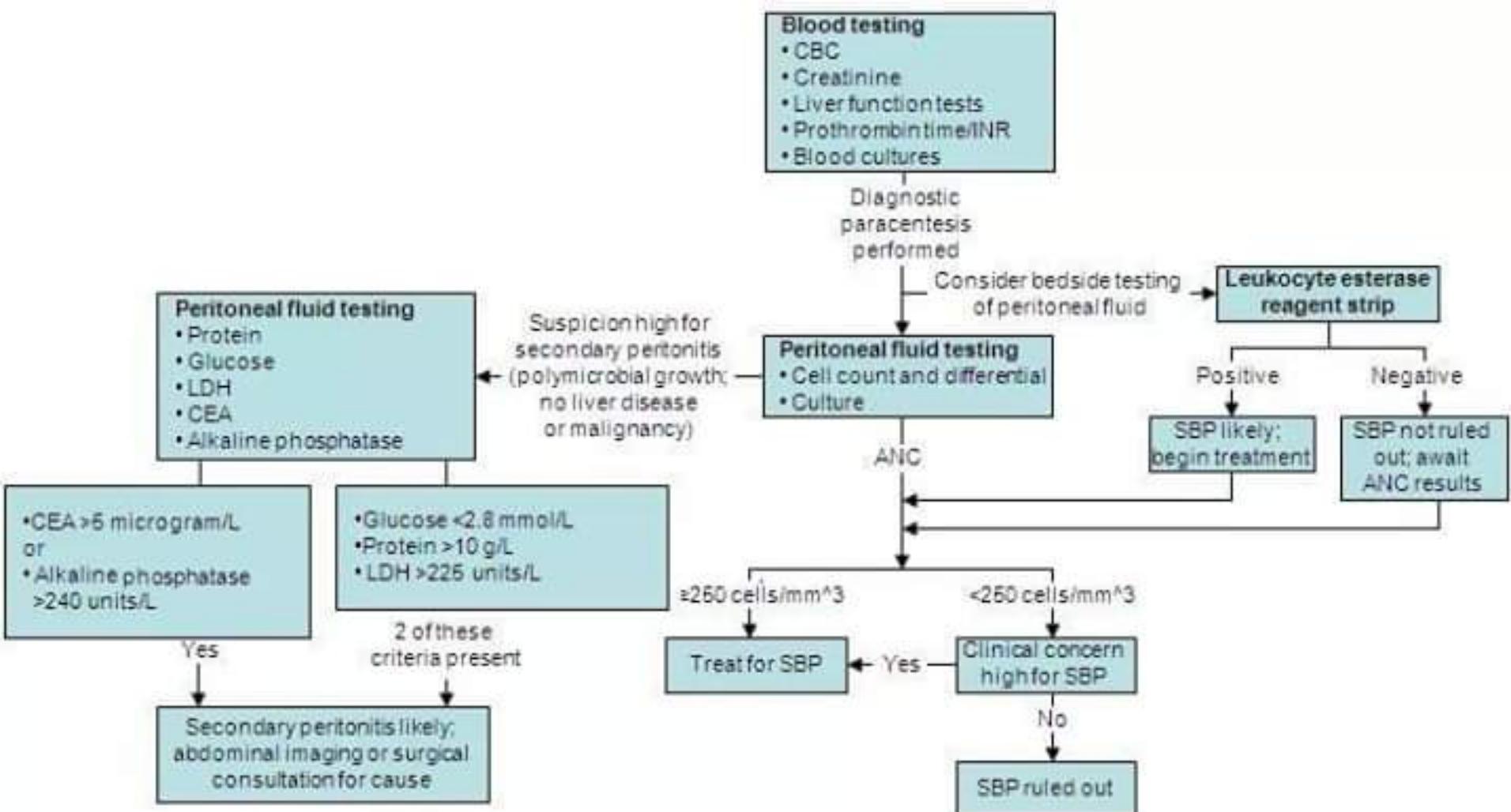


Continue large-volume
paracentesis



Consider TIPS*

Very frequent recurrence
Loculated ascites
Patient unwilling



Underfill

Overflow

Vasodilation

Cirrhosis

Portal
hypertension

Primary renal
sodium retention
(? stimulus)

Peripheral arterial
vasodilatation

Ascites

Decreased effective
intravascular
volume

Decreased effective
intravascular
volume

Renal sodium
retention

Increased
blood volume

Renal sodium
retention

Ascites