

The Investigation of Peritoneal (Ascitic) Fluid/ Effusions

Please state the fluid type clearly on the request form under 'specimen type'.

1. What are the sampling requirements?

- Microbiology – ascitic fluid in universal container and blood culture bottles for cell count, differential and culture.
- Biochemistry – ascitic fluid albumin in plain universal container; serum albumin in yellow bottle; glucose in fluoride oxalate bottle.

2. What is the appearance of the effusion and what does it signify?

- Ascites that is due to the commonest cause cirrhosis is usually clear, straw coloured.
- Homogeneously bloody sample: usually due to a traumatic tap but may also be indicative of malignancy, pancreatitis, infection or abdominal trauma. Samples that show haemolysis post-centrifugation will not be analysed for Biochemistry tests.
- Turbid/milky/cloudy: mainly due to malignancy.

3. What is the cause of a peritoneal (ascitic) effusion?

- Total Protein and LDH are NOT recommended in the evaluation of ascitic fluid.
- The Transudate/exudates concept does NOT apply to ascitic fluid.
- Request serum albumin and ascitic fluid albumin and send appropriate samples.
- Determine serum-ascites albumin gradient (SAAG) in all ascitic fluids.
- SAAG = serum albumin – ascites albumin.

SAAG	Pathophysiology	Causes
>11 g/L	Intrahepatic venous compression	Malignancy
	Portal hypertension	Cirrhosis, cardiac failure
≤11 g/L	Increased capillary permeability	Malignancy
	Mechanism unclear	Tuberculosis, pancreatitis

Table. Differential diagnosis of peritoneal (ascitic) effusions.

4. Is infection a cause of an effusion?

- Microbiology tests required - gram staining & culture.

5. Is malignancy a cause of an effusion?

- Tumour markers are NOT recommended in the investigation of ascitic effusions.
- Suggest cytology for cell count and differential.

6. Distinguishing ascites due to cirrhosis versus cardiac failure

- SERUM BNP >364ng/L or NT-ProBNP >1000 ng/L suggests a cardiac component to the ascites. There is no diagnostic utility in measuring BNP or NT-ProBNP in ascitic fluid- serum is the preferred sample type.

7. Is pancreatitis a cause?

- Amylase has been shown not to be useful in the investigation of ascitic effusions.

8. Is tuberculosis (TB) a cause?

- Low ascitic fluid glucose may indicate TB ascites but is of limited diagnostic utility.
- Adenosine deaminase (ADA) <40 IU/L may be used to exclude TB ascites.

9. Why does the effusion appear milky or turbid?

- Chylous peritoneal effusions are rare and are mainly due to malignancy. Triglyceride concentrations rarely clinically useful.