

## Paracentesis – Full Clinical Guideline

Reference no.: CG-T/2023/212

Large volume paracentesis is not a procedure to be taken lightly and almost never needs to be performed as an emergency. Unless the patient is required to be in a high dependency area, paracentesis should only be performed on the Elective Procedures Unit or ward 304 (other wards at the discretion of Hepatology Consultant and sister in charge). Major complications include haemorrhage, infection and circulatory dysfunction which may manifest as an AKI in the days following drainage.

[See training video on insertion of a therapeutic ascitic drain](#)

**See Paracentesis proforma (Appendix)**

### Indications

Paracentesis is performed to remove ascitic fluid in order to relieve discomfort, improve nutrition or to alleviate respiratory compromise resulting from diaphragmatic splinting

### Contraindications

- Uncooperative patient
- Known bowel obstruction
- Pregnancy
- Skin infection at proposed puncture site
- Disseminated intravascular coagulation (DIC)
- Platelets < 30 - correct with platelet transfusion prior to paracentesis \*

\*According to EASL/ BSG guidelines there is no need to check platelets or INR prior to paracentesis. Local practice is to check the platelet count and transfuse platelets if < 30

### Pre-insertion

A recent departmental USS confirming the presence of intra-abdominal fluid should have been performed before a patient's **first** paracentesis.

- Obtain informed consent (this should be written for the first paracentesis):  
 Risks: Bleeding (minor - self limiting 2-3%, major 1%)  
 Post paracentesis circulatory dysfunction  
 Bowel perforation (<0.5%)  
 Iatrogenic infection (< 0.5%)  
 leakage of ascites (5%)
- Ensure baseline observations taken: T, HR, BP, RR and weight.
- Ask patient to empty bladder prior to the procedure
- Paracentesis should be performed in the ward treatment room under sterile conditions, where the following equipment should be prepared Sonosite  
 ultrasound machine
  - Dressing trolley & sharps bin
  - Sterile dressing pack containing sterile gloves
  - 2% Chlorhexadine swabs x 2
  - Orange (25G) needle (x1)
  - Green (19G) needle (x2) – one to draw up & one to infiltrate  
lignocaine
  - 10mls of 1% or 2% Lidocaine
  - 10mls of 0.9% saline (to lubricate drain)
  - 10ml Syringe (x1)

20ml Syringe (x1)  
 Size 11 scalpel  
 Waterproof "drainguard" dressing  
 Drainage bag with luer lock connection  
 Paracentesis catheter (Neo-hydro)  
 Blood culture bottles  
 Universal containers (x3)  
 Urine dipstick

## Procedure

- Lie patient supine with head raised and expose abdominal wall skin from diaphragm to pelvis.
- **Site for paracentesis:** Left (preferable) or right lower quadrant,  $\approx$  2 finger breadths (3cm) cephalad and 2 finger breadths medial to the anterior superior iliac spine avoiding any obvious scars or dilated veins. Ensure lateral to rectus sheath (inferior epigastric artery). Confirm satisfactory position using sonosite ultrasound machine.
- Thoroughly clean the skin around the proposed drain site
- Using a 25G (orange needle) inject 1-3ml of 1% or 2% lignocaine to raise a small intradermal bleb. Then use a 21G (green) needle to infiltrate down to the peritoneal wall until ascitic fluid is aspirated, taking care to aspirate prior to each injection to avoid intravenous injection.  
**STOP - if ascitic fluid cannot be aspirated with a green needle. Obtain senior input and consider requesting insertion under ultrasound guidance**
- Using a size 11 scalpel make a small  $\approx$  3mm incision through the skin
- **INSERTION:**
  - Wet Neo Hydro catheter with 0.9% Saline
  - Insert perpendicular to the skin, advancing slowly until peritoneal cavity punctured, indicated by loss of resistance and a "Flash back" of fluid into the catheter
  - Withdraw needle stylet and advance catheter (with introducer in place) a further 1-2 cm
  - Angle catheter towards pelvis and advance catheter over introducer (keep fixed)
  - Remove introducer - fluid should be draining freely from the catheter

There needs to be visual and verbal confirmation of removal of the stylet/ introducer by both the operator and observer and for this to be recorded in the patients' medical notes using trust approved sticker (found in paracentesis box in equipment store room). [See trust guideline on guidewires, introducers and stiffeners.](#)

- Collect diagnostic samples (see below)
- Connect the catheter to the drainage tube and bag, then fix to the abdominal wall using "Drainguard" dressing

## Diagnostic samples

- First drain: 3 x 5ml in universal containers to biochemistry (albumin and protein), histopathology (cytology) and microbiology (cell count) + 2 x 10ml in blood culture bottles
- Subsequent drains: Providing the initial diagnostic tests outlined above have been performed then the only test required at the time of subsequent LVP is testing for leucocytes using a reagent strip. Only if leucocytes are present (2+ and above), should fluid be sent for cell count (universal container) and culture (blood culture bottles). Daycase patients on EPU with results indicating SBP should be admitted to W304

## Post-insertion

- Prescribe **100ml 20% Human Albumin Solution (HAS)** for every 2.5 litres of ascites drained.
- Omit diuretics for 48hrs
- 1/4 hrly observations for 1 hr, 1/2 hrly observations for 1 hr, followed by 1 hrly observations until drain removed.
- Leave on free drainage (DO NOT CLAMP). Remove drain after 6 hours, or earlier if there is felt to be no residual ascites and apply adhesive dressing.
- Record the patient's post paracentesis weight

- Daycase patients on EPU can be discharged after 30-60 minutes, providing asymptomatic and observations satisfactory.
- Leakage of fluid from the drain site can be managed with either insertion of a single suture, medical glue or by applying a stoma bag. If the latter is employed the volume of fluid collected should be recorded.
- After repeated paracentesis it is not unusual for adhesions to develop and the fluid to become loculated, resulting in subsequent poor drainage despite an apparently large volume. In these circumstances ultrasound guidance should be used to mark potential drain sites.

### Further reading


[EASL clinical practice guidelines on the management of ascites, spontaneous bacterial peritonitis and hepatorenal syndrome in cirrhosis. \*Journal OF Hepatology\*. 2010; 53: 397-417](#)

[AASLD practice guideline: Diagnosis, evaluation and management of ascites, SBP and HRS updated 2021](#)

**Documentation Controls** (these go at the end of the document but before any appendices)

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	3	2022	Liver Management Group	Previous guideline expired
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<b>Training and Dissemination:</b> Forms part of liver handbook which is disseminated to all clinicians rotating through Hepatology				
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<b>Linked Documents:</b> State the name(s) of any other relevant documents Trust guideline on guidewires, introducers and stiffeners, Paracentesis video				
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Appendix



Addressograph

Location: \_\_\_\_\_ Date: \_\_\_\_\_

**Ascitic Paracentesis Proforma**

Previous Drainage: Y  N  If so date.....

Indications (Tick box)  Diagnostic - to obtain a specimen of fluid  
 Therapeutic - Relieve pressure symptoms or compression of abdominal organs

**Assessment of Contraindications**

Patient's history	Yes	No
Anticoagulation including aspirin, clopidogrel, warfarin or DOACS in last 7 days	<input type="checkbox"/>	<input type="checkbox"/>
Known bowel obstruction	<input type="checkbox"/>	<input type="checkbox"/>
Very uncooperative patient	<input type="checkbox"/>	<input type="checkbox"/>
Pregnancy,	<input type="checkbox"/>	<input type="checkbox"/>
Skin infection at site	<input type="checkbox"/>	<input type="checkbox"/>
Platelets $\leq 50$	<input type="checkbox"/>	<input type="checkbox"/>
INR $\geq 2.0$	<input type="checkbox"/>	<input type="checkbox"/>
Previously required radiological guided drainage	<input type="checkbox"/>	<input type="checkbox"/>
Unable to aspirate with 21 G needle.	<input type="checkbox"/>	<input type="checkbox"/>

If the answer is YES to any of the above, discuss with senior.

**Pre Procedure Documentation**

Patient consent gained

Clotting: INR..... Platelets .....

ANTT method

Landmarks assessed

Local anaesthetic used ..... % .....ml used

Ascitic fluid sent: PMN count  Blood cultures  Chemistry  Cytology

Colour of fluid:..... Consistency of fluid :.....Dip WCC count:.....

**Post procedure**

Time of drain insertion:		Name, Sign	
Time of drain removal:		Name, Sign	

Advice to patient to stop diuretics for 48 hours given

Guideline: Replace 100mls of 20% Human Albumin Solution for every 2500mls drained

Total volume drained (mls)

Total Albumin Required (mls)

Total Albumin Given (mls)

Needle introducer removal confirmation :				
	Operator Signature	Operator initials	Observer Signature	Observer initials
Verbal confirmation				
Visual confirmation				

Pre-procedure weight : \_\_\_\_\_ Post procedure weight: \_\_\_\_\_