

Paracentesis - Insertion of Ascitic Drain - Full Clinical Guideline

Reference no.: CG-T/2014/212

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 ward 202 or 304. 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](#)

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 < 50, INR \geq 2.0 (note patients having a radiologist inserted drain require INR < 1.4) - correct with platelet/ FFP transfusion prior to paracentesis

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 PIU 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 if there is felt to be no residual ascites and apply adhesive dressing.
- Record the patient's post paracentesis weight
- Daycase patients on PIU can be discharged after 30-60 minutes, providing asymptomatic and observations satisfactory.
- Arrange to check UEs (+ review results) after 2-3 days (post paracentesis renal dysfunction)
- Leakage of fluid from the drain site can be managed with either insertion of a single suture 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

Runyon BA; AASLD Practice Guidelines Committee. Management of adult patients with ascites due to cirrhosis: an update. *Hepatology*. 2009; 49: 2087-2107

Documentation Controls

Development of Guideline:	Dr Adam Lawson, Dr Huey Tan and Sr Alison Beard
Consultation with:	Hepatology consultant and specialist nurse team
Approved By:	Hepatology – November 2018 Medical Division 15/11/18
Review Date:	December 2021
Key Contact:	Dr Adam Lawson