Introduction

- The development of refractory ascites in the setting of cirrhosis is associated with a 50% 2-year survival.
- All cases should be discussed with the Hepatology team.
- Spontaneous bacterial peritonitis (SBP) may be asymptomatic and can only be excluded by ascitic fluid analysis
- Dietary sodium restriction and diuretic therapy (not therapeutic paracentesis) are the first line treatment for ascites.
- Paracentesis may be diagnostic (typically 20mls fluid removed for analysis) or therapeutic (large volume paracentesis, drain to dry)
- Abdominal paracentesis is generally well tolerated and is frequently done as an outpatient.
- Risk of bleeding is low; need for correction of coagulopathy should be individualised
- Consider individualised requirement for intravenous antibiotics. All Childs C patients to receive one dose of intravenous Tazocin prior to therapeutic paracentesis.

### Diagnostic Paracentesis Indications

- New onset ascites or ascites of unknown origin
- Patient with known ascites with fever, abdominal pain, hypotension, encephalopathy, or general deterioration.

### Therapeutic Paracentesis Indications

- Large/Tense ascites or diuretic failure/resistance. The rationale behind this procedure is to improve patient comfort.
- Large ascites in the presence of a symptomatic hepatic hydrothorax
Contraindications to

diagnostic/therapeutic paracentesis

- Uncooperative patient
- Acute abdomen that requires surgery
- Intra-abdominal adhesions
- Distended bowel
- Pregnancy
- Disseminated intravascular coagulation
- Inexperienced doctor

Additional Contraindications to
therapeutic paracentesis

- If patient does not have symptoms do not perform
- Spontaneous Bacterial Peritonitis
- Hypotension
- Do not perform if patient has hepatorenal syndrome or acute renal failure, renal function will deteriorate. 3L can be removed for comfort.
- Relative indications include: frail patient, systemic or local infection

List of equipment

**Diagnostic Paracentesis**

- Catheter pack
- Sterile fenestrated drape or towel
- Sterile gown
- PPE: sterile gloves / goggles
- 19G x 1 ½" (white) drawing up needle
- 20ml syringe (for fluid aspiration)
- Chlorhexidine 2% in 70% alcohol
- Absorbent sheet
- Adhesive absorbent dressing (e.g. Post op Opsite ™)
- Blood culture bottles
- Sterile yellow top container, Clotted tubes

**Therapeutic Paracentesis add**

- Lignocaine 1% 50mg in 5ml
- 23G x 1” (orange) needle
- 10ml syringe (for local anaesthesia)
- Pharmaceal ™ – Thoracentesis/Abdocentesis kit (includes drainage tube and scalp)
- 2 x occlusive dressing (e.g. Tegaderm™ or stat lock small (6-8.5fr) ™)
- Drainage bag (2 litre luer lock) and holder
- Wet strength bag
- NSA 20% 100ml

Safety Information

**Diagnostic or Therapeutic Paracentesis**

- Patient must be identified by three indicators (e.g. name, DOB, address or URM)
- Explain the procedure to the patient including complications (infection, punctured viscera, bleed, and hypovolaemia). Written consent as per Hospital Policy 013
- Record baseline core observations
- Prophylactic infusions of plasma or platelets not required for diagnostic paracentesis
- Ask the patient to empty their bladder pre procedure
- Position patient on his / her back in a slightly recumbent position leaning toward the site of paracentesis
- Examine abdomen for optimal site. Ideally the right or left iliac fossa, 2 finger breadths cephalad and 2 finger breadths medial to the ASIS
- Check the area is dull to percussion and confirm shifting dullness. If there is clinical doubt regarding the presence of ascites, then the paracentesis should be guided using ultrasound.
- Exclude significant hepatomegaly, splenomegaly, visible vessels or scars in the area. Avoid the inferior epigastric artery which runs along the edge of the rectus sheath.

**Diagnostic Paracentesis:**

**Procedure**

Maintain standard aseptic technique at all times. Follow the risk assessment outlined in the Aseptic Technique Framework available at SCGH Intranet/Department/Infection Control Manual/ Aseptic Technique Policy No.18"

- Clean trolley/work surface with pre-diluted detergent and water or detergent wipe.
- Gather equipment for the procedure.
- Perform hand hygiene and prepare sterile field using a non touch technique
- Don sterile gloves and gown
- Place sterile fenestrated drape or towel at proposed site
- Clean the area with Chlorhexidine 2% in 70% alcohol for a minimum of 30 seconds, allow to dry for 20-30 seconds
- Using the 19g needle and 20ml syringe advance the needle while aspirating. Once a flashback is seen do not advance further but continue to aspirate approx. 20mls of ascites
- If you cannot get fluid, reposition the needle without removing from skin. If still there is no fluid, pull out needle, use new sterile needle and syringe and repeat.
- If you are unable to aspirate fluid request ultrasound guided
- If a therapeutic paracentesis is not required cover the aspiration site with a post op Opsite™ dressing using a non touch technique.
- Dispose of waste appropriately.
- Remove gloves and gown and perform hand hygiene.
- Clean trolley after use with pre-diluted detergent and water or detergent wipe

**Therapeutic Paracentesis**

**Procedure**

- Perform a diagnostic paracentesis procedure as described above to confirm the ideal location for the drain.
- Maintain aseptic non touch technique
- Inject local anaesthetic
- Make small incision (<3mm) with a scalpel
- Insert the drain using Z technique (pull the adjacent skin down and toward the midline during insertion then release). If you are unable to aspirate fluid request ultrasound guided.
- Secure drain to skin with dressings ensuring drain is not kinked (suture should not be used).
- Attach the drainage bag to the drain.
- Alert the nurse that the drain has been inserted.

**Procedure notes**

- Write a procedure note documenting: site, time, and consent, indications for procedure, character of fluid, any complications and analysis of ascites requested.
**Nursing Management of paracentesis drain**

**Safety Information**
- Patient to remain in bed while drain in situ and until NSA infusion complete (see below)
- Patients can experience hypotension or decreased urine output related to paracentesis induced circulatory dysfunction for up to five days post therapeutic paracentesis

**Pre Procedure**
- Record patient’s weight prior to drain insertion.
- Ensure patient has recently emptied their bladder to minimise risk of perforation
- Observe and support patient throughout insertion procedure

**Drainage of Ascites**
- Record core observations ½ hrly for 1hr then hourly until drainage complete / discharge from short stay areas
- Drainage should be continuous, do not clamp tubing or interrupt drainage unless specifically instructed by senior Hepatologist
- Drains inserted in the radiology department: radiology department to attach a 2 litre drainage bag to catheter, leave unclamped allowing free drainage on return escort to ward
- Record ascitic drainage on fluid balance chart (MR 904) or clinical pathway (MR710)
- Replace ascites at start of procedure or on return from radiology department
  - One bottle, 100mls 20% NSA
  - Then one bottle 100mls 20% NSA for every 3litres drained, (unless otherwise specified)
  - Each bottle of NSA infused over one hour
- Observe puncture site for any leakage around drain and report
- If fluid stops draining prematurely, contact medical officer

**Drain removal**
- Remove drain after a maximum of 6 hours or before if drainage stops
- Remove drain (as per NPG 65)
- Apply sterile dry dressing and adhesive occlusive secondary dressing.

**Post drain removal**
- Record patient’s weight.
- Assist patient when first mobilised post procedure, risk of postural hypotension and falls
- If fluid leakage occurs, lay patient on opposite side to insertion site for 2 hrs.
- If excessive drainage, apply wound management bag over site
- Consider suture if fluid leakage continues for > 24hrs.
- Continue to document any further drainage of ascitic fluid on FBC (MR 904) or clinical pathway MR710
- Consider further NSA 20% replacement if drainage continues, in consultation with medical team
• Observe for signs of secondary peritonitis, haematuria, post paracentesis circulatory dysfunction (hypotension, reduced urine output) can occur up to 6 days post procedure
• Discharge education: Inform patient of potential signs and symptoms

**Ascitic fluid analysis (Routine)**

- Microscopy and WCC + differential (yellow top sterile container to Microbiology)
- Blood culture bottles
- Albumin concentration and serum albumin concentration (clotted blood tube to Biochem)

**Interpretation**

- If the polymorphonuclear leucocyte count is >250 cells/mm3 => SBP
- Discuss all cases of SBP with Hepatology.
- Serum-ascites albumin gradient = serum albumin - ascitic fluid albumin if>1.1 g/dL portal hypertension is present; if < 1.1 g/dL portal hypertension is not present (about 97% accurate)

**Ascitic fluid analysis (Specific additional investigations)**

- Microbiology for AFB, PCR and culture for mycobacteria – only if there is high index of cdtuberculosis
- Cytology – suspicion of peritoneal carcinomatosis
- Lactate dehydrogenase >225mU/L, glucose <50mg/dL, total protein >1g/dL and multiple organisms on culture suggest secondary bacterial peritonitis (ruptured viscus or loculated abscess)
- A high level of triglycerides confirms chylous ascites.
- An elevated amylase level suggests pancreatitis or gut perforation.
- An elevated bilirubin level suggest biliary or gut perforation
Bibliography:


Sachs, B 2013, ‘Abdominal Paracentesis: Clinician Information’. Evidence Summaries, viewed 01 August 2013, JBI CONNECT, JBI Database of Evidence Based Best Practices, ID: JBI543. (Guideline)

The Joanna Briggs Institute 2011 ‘Abdominal Paracentesis’, Evidence Summaries, viewed 01 August 2013, JBI CONNECT, JBI Database of Evidence Based Best Practices, ID: JBI836. (Guideline)

Wong, F 2012, 'Management of ascites in cirrhosis'. *Journal of Gastroenterology and Hepatology*, vol. 27, no. 1, pp. 11-20. (Expert opinion)

**RISK STATEMENT:**
Non-compliance with this guideline will (please tick all that apply [right click on box, change properties, checked]):

| Breach legislative requirements | ☐ | Impact on Patient Quality of Care | ☒ |
| Breach National/State/Hospital Policy | ☐ | Impact on Patient Safety | ☒ |
| Breach professional standards | ☒ | Other: | |
| Breach SCGH Mission & Values | ☒ | | |

**Endorsing Authority:**
Endorsed by: Medical Executive Committee (MEC)
Prof G Jeffrey Head of Department Hepatology

Policy Author: Dr R Mac Nicholas Hepatologist
SRN Sarah Byrne G63 Clinical Nurse Specialist
Dr S Slatyer CNR

Executive Sponsor: Dr V Cheng (MSD Medical Codirector)

1st Issued on: Nov 2013

Next review due: Nov 2016

Version: 1

**References (Standards):**
National Standard/s
Standard 2 partnering with consumers.
Standard 3 preventing and Controlling Healthcare Associated Infection.
Standard 9 Recognising and Responding to Clinical Deterioration in Acute Healthcare

Legislation N/A

Standards N/A

Related Documents N/A

Do not keep printed versions of policies as currency of information cannot be guaranteed.
Access current version from HealthPoint or CHiPs.