Abdominal Paracentesis Standard Operating Procedure UHL Gastroenterology (LocSSIPs)

Change Description	**Reason for Change**
☐ Change in format	☒ Trust requirement

APPROVERS	**POSITION**	**NAME**
Person Responsible for Procedure:	Consultant Hepatologist	Dr Toby Delahooke
SOP Owner:	Consultant Hepatologist	Dr Toby Delahooke
Sub-group Lead:	Consultant Hepatologist	Dr Ka-Kit Li

Appendices in this document:

Appendix 1: UHL Safer Surgery Abdominal Paracentesis Checklist
Appendix 2 : Patient Information Leaflet for *Having an abdominal tap/drain to remove fluid from around your tummy* Available at: Having an abdominal tap/ drain to remove fluid from around your tummy (leicestershospitals.nhs.uk)

Introduction and Background:

This SOP is based on the clinical guidelines produced by the BSG, EASL, AASLD. Reference has been made to the "Paracentesis for Malignant Ascites Procedure SOP" of Doncaster and Bassetlaw Hospitals NHS trust and Oxford Medical Education Website entry on "Ascitic drain insertion".
The SOP has been based on the National Safety Standards for Invasive Procedures template for Local Safety Standards for Invasive Procedures (LocSSIPs). Quick link to Safer Surgery Checklist: Paracentesis checklist

Abdominal paracentesis is a therapeutic procedure that is used to drain ascites from the abdomen.

Ascites: An accumulation of fluid within the peritoneal cavity of the abdomen.
Paracentesis: The procedure of removing ascitic fluid from the abdominal cavity. The commonest context in which this occurs is following the accumulation of hepatic ascites due to cirrhosis of the liver. However, it is sometimes also required to drain malignant ascites that can occur most commonly in gastric, ovarian, pancreatic, breast and bronchial malignancy. It can occur less commonly in congestive cardiac failure and protein depletion.

Paracentesis is a simple procedure which can be performed as a day case or as an inpatient. In tense ascites there may be up to 18 litres of ascites present. Removal of 4–6 litres is usually enough to give symptomatic relief. Removal of more than 6 litres rarely causes hypovolemia and adverse effects, but may give symptom relief for longer until the ascites reaccumulates.

Symptoms: Ascites can be distressing and be associated with abdominal distension, abdominal pain, nausea, vomiting, early satiety, anorexia, lower body oedema and breathlessness.

Benefits: Paracentesis aims to improve the symptoms of ascites. It can improve symptoms in up to 90% of cases, with some benefits seen after just two hours of drainage, although it may take breathlessness 72 hours to improve. It is less likely to improve the associated symptoms of oedema, fatigue, poor mobility and malaise.

Prognosis: The development of hepatic ascites is associated with a mortality of 50% within two years of diagnosis. Once ascites becomes refractory to medical therapy, 50% die within six months. Therapeutic paracentesis or Transjugular Intrahepatic Portosystemic Shunt (TIPS) despite improving fluid management and patient quality of life do not improve long term survival without transplantation for most patients. Therefore, when any patient with cirrhosis develops ascites, suitability for liver transplantation should be considered. Attention should be given to renal function in patients with ascites as pre-transplant renal dysfunction leads to greater morbidity and delayed recovery following liver transplantation and is associated with a prolonged stay in the intensive care unit and hospital.

For malignant ascites, with the exception of chemotherapy sensitive carcinoma of the ovary, the prognosis is usually poor (2-3 months).

Paracentesis may not be appropriate if the prognosis is very short and the patient is rapidly deteriorating. If the prognosis is very short but patient has troublesome symptoms, a brief paracentesis of 1-2 litres can be considered to reduce discomfort.

Type of ascites: Ascites is usually either a transudate (protein level less than 30 g/l in ascitic fluid) or an exudate (protein level greater than 30 g/l).

- Transudates are usually seen in those with liver failure, from cirrhosis (resulting from portal hypertension). A trial of diuretics may be appropriate if the renal function permits.
- Exudates are seen usually with intra-abdominal malignancy, and diuretics are unlikely to be helpful. If there is uncertainty regarding the type of ascites and whether diuretics may help, a serum ascites albumin gradient (SAAG) can be calculated. This is done by sending a specimen of ascitic fluid to the biochemistry laboratory for measurement of protein and albumin levels. The ascitic albumin level is subtracted from the serum level and if the value is greater than 11 g/l, a trial of diuretics may be helpful post drainage to slow the rate of reaccumulation.

Indications for procedure:

- Pain, discomfort or tightness due to stretching of the abdominal wall.
- Dyspnoea, usually exacerbated by exertion, due to upward pressure on the diaphragm.
- Nausea, vomiting and dyspepsia due to ‘squashed stomach syndrome’.
- Patients are usually symptomatic only when the abdominal wall is tensely distended.

Contraindications to paracentesis:

- Local infection
    - Choose another site
- Pregnancy
- Obstruction/ileus

Cautions – but not contraindications

- Coagulopathy (INR greater than 2.0)
    - Attempt to correct INR to less than 1.5 if possible.

- Platelets less than 50

Thrombocytopenia and coagulopathy is often present in liver disease and though it is a caution, it not a contraindication to paracentesis or drainage. The incidence of clinically significant bleeding is low; routine FFP or platelets is not indicated

- Organomegaly
- Distended bladder
- Abdominal adhesions

Complications of paracentesis:

- Total paracentesis is associated with significant haemodynamic effects. It has been assumed wrongly that total paracentesis of large volumes of ascites (>10 litre) leads to circulatory collapse. Large volume paracentesis (average >10 litre over 2–4 hours) causes a marked reduction in intra- abdominal and inferior vena cava pressure, leading to a decrease in right atrial pressure and an increase in cardiac output. These haemodynamic changes are maximal at three hours. Pulmonary capillary wedge pressure decreases at six hours and continues to fall further in the absence of colloid replacement. On average, blood pressure decreases by 8 mm Hg. The severity of post-paracentesis circulatory dysfunction correlates inversely with patient survival. There are anecdotal reports of some patients with advanced liver disease developing quite severe hypotension post-paracentesis, but this rarely occurs.
- The paracentesis site may continue to leak ascitic fluid post procedure. This may rarely continue to leak over days to weeks requiring a stoma bag to collect fluid. The patient needs to be warned about the possible leaking which may otherwise cause distress.
- Symptoms of dizziness, fatigue and malaise (up to 3%)
- Perforation of an abdominal viscus e.g. bowel perforation, is a risk especially if intestinal obstruction is present.
- Haemorrhage (a particular risk if the platelets are low) 1-2%. Blood stained ascites is common in malignant ascites and does not necessarily indicate a complication.
- Infection is a rare complication providing an aseptic technique is used.
- Pulmonary embolus from a dislodged thrombus (<1%)

Alternatives to paracentesis

- **Diuretics**

Diuretics can be considered but it takes 4-8 weeks to eliminate the excess fluid. The patients most likely to respond to diuretic therapy are those with liver failure, from cirrhosis. However, studies have shown increase renal dysfunction using this approach compared to large volume paracentesis for tense ascites.

  - Measure baseline urea and electrolytes
  - Measure weight prior to starting diuretics
  - Start with spironolactone 100mg mane
  - Increase dose by 100mg every 4 days to achieve a weight loss of 0.5-1kg/24hours
  - Typical maintenance dose is 300mg mane
  - Consider adding furosemide 40mg mane if desired weight loss not achieved after 2 weeks(max 80mg 9am and 12pm)
  - Monitor U&Es carefully as electrolyte disturbance (particularly hyperkalaemia) andhypotension may occur.
  - Stop diuretics if do not achieve satisfactory reduction in ascites, cause renalimpairment or not tolerated.

- **Other treatment options**
  - TIPS: Has been recommended by NICE as a treatment for diuretic resistant or intolerant

ascites. However there is no improvement in mortality. 15-20% risk of encephalopathy.

- In malignant ascites an indwelling peritoneal catheter and peritoneo-venous shunts have been used in patients with a prognosis of >3 months. These can allow patients to manage their recurrent malignant ascites at home. Thus negating the need for regular hospital/hospice admissions for repeat large volume paracentesis. It should be considered in malignant ascites if the patient has had more than two paracentesis in a month and the patient is not having active cancer treatment.
  - Systemic and intraperitoneal chemotherapy has been used but, other than in chemosensitive ovarian carcinoma and lymphoma, no benefit has been shown.

Where the procedure takes place

The most common areas, but not exclusively it can take place are:

- Medical and surgical admissions wards or inpatient medical and surgical wards
- High dependency and ITU
- Oncology wards
- Gynaecology wards
- Osborne Daycare unit, LRI
- Radiology department

Never Events:

Possible never events with appropriate prevention and measures as described in this document may include but is not limited to:

1. Incorrect patient.

Prevention:

Using patient identification see UHL Patient Identification Band Policy.

List management and scheduling:

The decision to perform therapeutic paracentesis should be made by a specialist registrar or above or Advanced Nurse Practioner (ANP) or Physician Associate (PA) with knowledge of the indications, cautions, contraindications and complications of the procedure.

The minimum dataset required is

- Name
- Hospital S number
- Date of birth
- Consultant
- Indication
- History of previous failed paracentesis attempts and the reason.
- Pre procedure bloods within the last 4 weeks for hepatic ascites and 48 hours for malignant ascites.
- Current medications.

Inpatients

For inpatients with hepatic ascites, referral should then be made to a doctor or PA who is trained and

competent in performing the procedure within the managing team (See *Workforce – Staffing requirements* section below). If there is no one competent to perform the procedure, then the Specialty Registrar for Gastroenterology oncall should be contacted to discuss the case (07985459112). For patients with malignant ascites then the Oncology ANP (currently Annie Law) should be contacted through switchboard. If the ANP is unavailable then the patient should be discussed with the oncall oncology registrar.

The decision as to whether the patient requires a radiologically placed drain will need to be made on all patients referred for an ultrasound preprocedure (see indications below) and based on a discussion between the referring doctor and the radiologist on its relative merits. Often marking of the most suitable site may occur which will allow the drain to be placed safely on the ward. However, if the insertion is Unsuccessful following this then a radiologically placed drain should be attempted if appropriate.

Day case patients

Ambulatory patients that are requiring recurrent paracentesis due to diuretic resistant or intolerant ascites can be referred a consultant Hepatologist secretary on 0116 258 6480. If advice is required to the suitability for paracentesis then directly contact the Hepatology specialty registrar or PA(phone ward 43 Leicester Royal Infirmary for contact details 0116 258 6239 or 6279). Currently these patients are being brought into either ward 43 or ward 42 Leicester Royal Infirmary to an available bed. In future, it is hoped that an ambulatory care bay on ward 43 is opened for this service. Only the Hepatology specialty registrar or PA are permitted to add patients to the list of patients needing daycase drainage. Patients that have any of the contraindications or cautions listed above should not have the procedure as a day case and should be admitted to one of the gastroenterology wards to have it performed. Patients that do not attend should be contacted within 24 hours to identify the reason for non-attendance and make alternative arrangements if necessary for drainage. Patients with recurrent malignant ascites should be referred to the Oncology ANP (currently Annie Law) via switchboard for arrangements to be made to attend the Osborne Day care area (0116 258 5263) for paracentesis.

- **LOROS**

Patients that are approaching the end of their life and are being managed palliatively, can be referred to the palliative care team based at LOROS. If deemed appropriate the procedure may be performed there.

Patient preparation:

Investigations prior to procedure

- **Ultrasound scan (USS)**

If there is clinical evidence of substantial ascites in the form of tense abdomen and fluid thrill it is usually safe to proceed to drainage without USS imaging. An ultrasound scan will confirm the presence of ascites, and may determine if the fluid is 'pocketed' 'loculated' by tumour, adhesions etc.

A scan should be performed if:

- Malignant ascites.
- Ascitic fluid is not easily clinically identified i.e. possible other causes of abdominal distension such as hepatomegaly, abdominal tumour etc
- Difficulty with previous drainage or suspected loculation of ascites
- There is a chance of bowel obstruction

If there is any diagnostic uncertainty or the patient has previously been noted to have loculated ascites, arrange ultrasound scan with marking of maximum collection of ascites

If there is ascites clinically, or it is radiologically confirmed but the abdomen is not tense and there is no fluid thrill consider deferring the procedure as benefit will be limited.
If the radiologist marks the most appropriate site for the drain on the abdomen with an indelible pen then they should also make a dated, timed and signed entry into the medical notes describing the position so that at the time of the procedure it can be checked that this corresponds.
If an appropriately trained operator can performed bedside ultrasound then the paracentesis should be performed immediately afterwards.

- **Blood tests**

In order to proceed with a safe paracentesis, the following should be considered as a guide. In some cases if likely benefits outweigh the risks, paracentesis can be performed despite poor blood results. In these cases, the patient should be made aware of the increased risk as part of obtaining informed consent.

- A platelet count and clotting screen should be measured in at-risk patient.
- U&E should be taken if:
  - More than 6 litres is to be removed, and the patient has oedema, or
  - The patient is clinically dehydrated, or
  - The patient has reacted badly to previous paracentesis

Caution should be exercised in those with:	**Rationale**
INR greater than 1.5	Risk of haemorrhage. Consider the use of vitamin K to normalise the INR before proceeding
Platelets below 50	Risk of haemorrhage
Significant anaemia	May be worsened by haemorrhage, lower reserves for coping with procedure. May make correct attribution of symptoms more difficult.
Low sodium (less than 126)	Poor prognostic indicator. Paracentesis can cause further electrolyte disturbance
Abnormal potassium	Paracentesis can cause further electrolyte disturbance
Poor renal function	Lower reserves for dealing with fluid shift
Hepatic impairment	Lower reserves for dealing with fluid shift, may be associated with raised INR
Low protein and albumin (less than 20)	Likely to re-accumulate more quickly due to low oncotic pressure (production rate exceeds drainage rate), leading to significant intravascular depletion
Low white cell count / neutropenia	Risk of infection
BEFORE THE PROCEDURE:	
Action	**Rationale**
Stop anticoagulation (3 days for warfarin, 2 days for Enoxaparin). See UHL guideline: Anticoagulant Bridging Therapy for Elective Surgery and Procedures B30/2016 if this is required.	Minimise the risk of haemorrhage

Blood tests (See above) and IV cannula placed	Ensure a safe procedure and venous access.
Assess to confirm the presence of ascites	Exclude other conditions such as bowel obstruction and distension due to tumour
Consider ultrasound (See above)	If previous drainages have been difficult e.g. loculated fluid or there is doubt over the presence of fluid. All cases of malignant ascites.

The UHL Paracentesis patient information sheet (See appendix A) should be given to the patient at the earliest opportunity after the decision to do the procedure has been taken.	Ensure the patient is informed of the procedure.
The consent of the patient should be obtained by the person carrying out the procedure. They should have been trained and accredited to perform consent. It should be written consent of standard NHS forms (Form 1 or 4) depending on the patient's capacity to give consent. The risks of the procedure mentioned above should be discussed during the consenting process. This discussion can be modified depending on known blood results and known cautions that are relevant to the particular patient. Alternatives to paracentesis described above should also be discussed. Audit of this process will be included in audits of the procedure as a whole.	Ensure appropriate informed consent has been taken prior to the procedure.
Prepare a trolley of equipment (See appendix B)	Ensure that all equipment needed is present before start of procedure.

Other considerations prior to the procedure

- **UHL Patient Identification Band Policy B43/2007 – all patients have name bands which are checked by team pre-procedure.**
- **COVID risks and PPE precautious where appropriate include use of long sleeved gown, Hood, surgical/FFP3/mask, gloves and theatre hat.**
- There is no need to fast patients prior to the procedure.
- Patients with diabetes do not need to be treated differently.
- There is no need to involve an MDT.
- No prophylactic antibiotics are required prior to the procedure.

Workforce – staffing requirements:

The minimum safe staffing is two; the person performing the procedure (the operator) and the assistant to open packs using an aseptic technique. This is no different in hours or out of hours.

Competency of the operator (doctor, ANP or PA) performing the procedure, will have been documented in their training portfolio following formative and a summative DOPs or equivilents. The operator should also have demonstrated knowledge of the UHL Consent to Treatment or Examination Policy A16/2002
Both the operator and the assistant should have up-to-date statutory and mandatory training on infection prevention. Operators that have been trained in pre-paracentesis ultrasound should have this competency recorded in the training portfolio.

If the operator requires assistance with the technical aspects of the procedure, then the assistant should call the registrar covering the ward. If the assistant needs help, then the sister in charge for the ward area should be called. For inpatients the patient's trained nurse will provide the post procedure monitoring.

Trained nursing support will also be required to monitor the patient after the procedure until discharge.

Ward checklist, and ward to procedure room handover:

No formal handover process is required for this procedure when performed as an inpatient. However, prior to performing the procedure the checklist (See appendix C) should be filled in by the operator and the assistant.

The procedure checklist (see appendix C) will be partially filled up by the nursing staff and will need to be finalised by the operator performing the procedure.

Procedural Verification of Site Marking:

The choice of the site of the procedure will depend on an initial examination of the patient. See the section below on *Performing the procedure*.
If the patient has had the site marked in radiology, then the medical notes should be checked for the entry by the radiologist that describes where this has been made and that it corresponds to mark on the patient and that 6 hours has not elapsed since this has been carried out.
If the operator has performed pre-paracentesis ultrasound to identify the site for drainage at the bedside, the paracentesis should take place immediately afterwards.

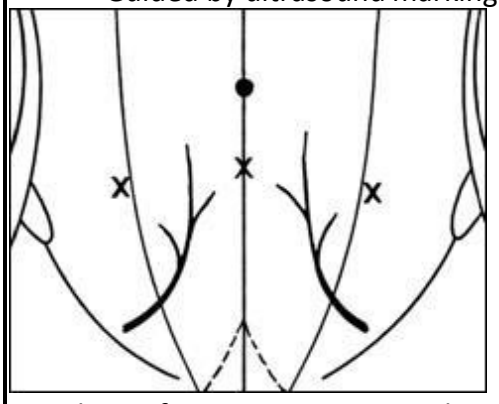
Team Safety Briefing:

The operator and the assistant must be present and it should take place in a private area on the ward.
The safety briefing will involve checking that the both operator and the assistant have been trained to perform the procedure, that the patient is on the ward, the equipment trolley has been prepared and there are no immediate reasons why the procedure should not take place.

Sign In and Time Out:

The operator and assistant will go to the patient's bedside. They will bring the equipment trolley which has all the equipment required to perform the procedure.
The sign in and Time out checklist (See Appendix C Parascentesis checklist) will then take place just prior to the procedure starting and can be led by either the operator or the assistant. The patient's participation should be encouraged.

Performing the procedure:

PROCEDURE:	
Action	**Rationale**
Take the patient's initial observations	To inform speed of drainage.
Ask the patient to empty their bladder	To minimise the risk of perforation
Ask the patient to lie supine in a comfortable position with the backrest slightly raised	To allow gravity to assist in the drainage
Confirm once again the presence of ascites. The usual site for paracentesis is the left side but can be in either iliac fossa at least 10cm from midline or supra-pubically (with an empty bladder). The chosen site should avoid: • Scars, • Tumour masses, • Distended bowel or bladder • Liver and spleen. • Inferior epigastric artery that runs 5cmeither side of the midline (see below), or be • Guided by ultrasound marking  *Usual sites for paracentesis, avoiding the inferior epigastric arteries.*	To minimise risk of complications such as perforation and haemorrhage

Open dressing pack on trolley with "no touch" technique Wash hands thoroughly, glove and prepare equipment Clean the area with sterile solution e.g. chlorhexidine 2%	To minimise the risk of infection
Use aseptic technique throughout	To minimise the risk of infection
Anaesthetise the skin with 1% or 2% Lidocaine using the orange needle. Ensure you raise a large bleb as the drain perforating the skin will be the most painful part of the procedure. Anaesthetise deeper tissues using the green needle, aspirating as you insert the needle to ensure you are not in a vessel before infiltrating with lidocaine, until fluid is aspirated from the peritoneal cavity. Use a maximum of 10mls of Lidocaine. Wait 3 minutes or until the patient reports numbness on testing with a needle prick.	For patient comfort and to aid cooperation with the procedure If fluid is **not** obtained **consider whether it is safe to proceed**. In obese patients, peritoneum may not be reached with 1½ inch needle. **If there is any concern re safety of proceeding stop and review and/or obtain ultrasound to confirm presence and site of ascites.**
Take the paracentesis catheter and advance the needle to tip of catheter, thus straightening it out. Insert the paracentesis catheter using a 'Z' track (Perforate the skin perpendicularly, and then advance obliquely in the sub-cutaneous tissue for 1-2cm before returning to a perpendicular position to puncture the peritoneal cavity). Gradually advance the catheter into the peritoneal space. Once you have inserted the catheter to theequivalent length of the green needle where fluid was first aspirated, start to pull the needle back slowly whilst advancing the catheter. Do not pull the needle back too far as it is needed for stability, but equally do not push the needle too far into the peritoneal cavity. Advance catheter to the hilt and completely remove needle.	At this point a sample can be taken for protein and albumin levels if required. The needle needs to be removed to allow the flexible catheter tube to move freely in the peritoneum.
Apply a drainable catheter bag	To collect and measure the ascitic fluid
Apply two sterile cannula dressings to the catheter if it is to remain in situ	To prevent it from becoming dislodged. Sutures are rarely required
Document the procedure, plan for drainage and required frequency of observation in the notes	
If the patient becomes unwell, clamp the tube, take pulse, blood pressure and temperature and seek medical advice.	There is a risk of perforation, infection and hypovolaemia with this procedure
Monitoring:	

Immediately prior to the procedure and immediately after the procedure these observations should be made and recorded.

- Blood Pressure
- Pulse rate
- Respiratory rate
- Temp
- O2 Sats
- (Capillary Blood Glucose) CBGs

No monitoring is required during the procedure unless the patient becomes unwell or there is a complication with the procedure.

Prosthesis verification:

Not Applicable.

Prevention of retained Foreign Objects:

The main risk of retained foreign objects is if damage occurs to the flexible part of the paracentesis drain during its insertion or removal.
If any resistance is felt in the removal of the paracentesis drain, then a check should be made on the type of drain that has been inserted. If the drain has been inserted in radiology, then there is a string tie that has to be cut first.
Inspection of the complete drain should take place following its removal to ensure that it is fully intact. If there appears to be any part that is missing, then a surgical opinion should be sought.

Radiography:

See *Patient preparation* and *List management and scheduling*

Sign Out:

Upon the completion of the procedure the operator should confirm to the assistant that the procedure is complete (See Appendix C Paracentesis checklist)
Between them they should confirm:

- The trochar /needle has been removed from the drain.
- There is no bleeding around the drain site.
- The dressing is in place around the drain.
- All the connections are firmly tightened.
- Ascitic fluid is draining out of the drain into the tubing and into the bag without leakage.
- The patient is not in pain or showing any signs of peritonism.

- All sharps are disposed of safely.
- All non-sharp waste is disposed of in the appropriate bin
- The specimens for clinical chemistry, microbiology and histology are labelled correctly.
- An account of the procedure should then be documented in the notes. It should include the date and time it took place, the indication, that consent was given, that aseptic technique was used, the amount, type and strength of local anaesthetic used, the position of the drain, whether there were any complications, the samples that were taken and where they will be sent and any post procedure instructions for monitoring, IV fluids, analgesia, and how long to drain should remain in. This should then be signed and the operators name printed legibly.
- This post procedural care should be discussed with the assistant.

Handover:

If the assistant is not the nurse looking after the patient, then a handover to the nurse looking after the patient on the ward should take place (See appendix C Paracentesis checklist).
This should cover:

- The procedure performed.
- The indication for the procedure.
- Whether there were any complications.
- Whether the patient received any medication or IV fluids during the procedure.
- The post procedure monitoring that is required.
- Instructions on IV fluid replacement required.
- Instructions on when the drain can be removed and by whom.
- Who to contact if the patient becomes unwell.

If the operator is not part of the medical team looking after the patient, then they should handover that the procedure has been completed and if any complications occurs and post procedure care that is required.

Team Debrief:

A debrief should take place between the operator and assistant after the handover has taken place. This should happen away from the patient's bedside in a private part of the ward.
The debrief which should include (See appendix C Paracentesis checklist):

- Things that went well
- Any problems with equipment or other issues
- Areas for improvement
- A named person for escalating issues

Following this, an entry into the ward's paracentesis procedures log book should be made, it should include the date and time, patient name, operator and assistant.

Post-procedural aftercare:	
POST PROCEDURE:	
Action	**Rationale**
The patient may well need prn medication for breakthrough abdominal ache or soreness at the drain site and prn medication should always be available. **Escalating pain, not controlled by prn medication, requires medical review.**	Patient comfort Exclude possible post procedural complications
These Standard observations should be made and recorded every 15 minutes for 1 hour, then every 30 minutes for 1 hour and then hourly for 4 hours • Amount drained • Blood Pressure • Pulse rate • Respiratory rate • Temp • O2 Sats	Detect any evidence of a complication
Standard IV fluid replacement • Cirrhotics: Infuse 20% Human Albumin Solution (HAS 20%) from the blood bank. 100mls should be infused for each 3000mls of ascites drained. • Malignant ascites: Not routinely required	Counteract the haemodynamic changes that can lead to Acute Kidney Injury 24 hours post procedure
Drop in systolic BP >20mmHg • 250ml colloid fluid challenge • Send fluid for urgent cell count, MC&S, LDH, protein and cytology.	Respond appropriately to fluid shifts.
Remove the catheter once the specified volume has been drained, or the drainage has slowed to a minimum.	To minimise the risk of infection
Standard duration of drain is 6 hours before removal. In malignant ascites the drain can be left in for up to 48 hours but only if the rate of drainage has not significantly slowed.	To minimise the risk of infection
The patient should be asked to lie on the opposite side to the drainage site for removal	Lying on the opposite side minimises the risk of leakage from the site
Apply a sterile gauze and adhesive dressing to the area. If leakage is heavy, a stoma bag may be required (Sometimes patients need a stoma pack over the site for several days). Sutures are rarely required.	To maintain asepsis and protect the wound

Patients often feel 'washed out' and weak during and in the last few hours after the procedure. Usually rest and reassurance (and analgesia if there is discomfort) are sufficient. If there is greater cause for concern, check blood pressure, assess need for medical review, intravenous fluids and consider other complications of paracentesis if appropriate.	Exclude possible post procedural complications

Discharge:

For day case patients, once the drain has been removed and a stoma bag placed over the site, the patient the patient should have a lying and standing BP and a full set of observations.
If these are normal, then they should be encouraged to walk around to ensure they are steady on their feet and there is no excessive leakage of fluid.
A discharge letter should be written on ICE that documents that the procedure has taken place and the amount of ascitic fluid removed.
A decision should be taken by the operator whether the patient should have their diuretics adjusted depending on the patient's renal function and previous diuretic tolerance. This should be documented in the discharge letter with arrangements for follow up and blood monitoring.

Governance and Audit:

A safety incident is a breach in the SOP in which the patient potentially could or did come to harm. All incidents will be reported on Datix.
All incidents reported on Datix concerning this procedure will be shared and discussed at staff meetings in all the areas where this procedure takes place.
Adherence to the SOP will be initially be audited on an annual basis.
Each ward's cases will be identified by consulting the ward's log book of paracentesis procedures. The results will be presented to the monthly Digestive Disease Centre (DDC) meeting.
To submit monthly Safe Surgery Audit and WHOBARS assessment as per Safe Surgery Quality Assurance & Accreditation programme.

Training:

Any new operator will have to demonstrate knowledge of thisSOP.

New operators, learning the procedure should be supervised by an experienced operator. Competency should be gained by formative DOPs recorded in their training portfolio. Once the trainer feels that the trainee has achieved the necessary competency to perform the procedure independently then a summative DOPs should be performed and recorded in their training portfolio.
New ANP and PA operators should be trained in a similar way and competency should recorded using their equivalent documentation and stored in their training portfolio.
Competency in pre-paracentesis ultrasound should be developed and documented in the same way.

All nursing staff on areas where the procedure is performed will have to undergo training on the SOP by nurse trainers and will only be allow to assist if they can demonstrate knowledge of it.
Each ward should keep a record of all trained operators and assistants.

Documentation:

There will be a handwritten entry into the medical notes as described in *Sign out*.
The Paracentesis checklist (Appendix C) should also be filed in the medical notes.
On wards and the medical day case unit a record of every procedure carried out will be maintained in a log book of all paracentesis procedures. It will document the date and time, patient name, operator and assistant. This will allow auditing of the patients that have undergone the procedure.

References to other standards, alerts and procedures:

British Society of Gastroenterology (BSG) Guidelines on the management of ascites in cirrhosis 2006

European Association for the Study of the Liver (EASL) clinical practice guidelines on the management of ascites, spontaneous bacterial peritonitis, and hepatorenal syndrome in cirrhosis 2010

American Association for the Study of Liver Diseases (AASLD) Management ofAdult Patients with Ascites Due to Cirrhosis: Update 2012

Oxford Medical Education Website entry on Ascitic drain insertion
http://www.oxfordmedicaleducation.com/clinical-skills/procedures/ascitic-drain/

Paracentesis for Malignant Ascites Procedure SOP of Doncaster and Bassetlaw Hospitals NHS trust

National Safety Standards for Invasive Procedures, NHS England 2015:
https://www.england.nhs.uk/patientsafety/wp-content/uploads/sites/32/2015/09/natssips-safety-standards.pdf

UHL Safer Surgery Policy: B40/2010
UHL Sedation Policy: Safety and Sedation of Patients Undergoing Diagnostic and Therapeutic Procedures B10/2005
UHL Consent to Treatment or Examination Policy A16/2002
UHL Delegated Consent Policy B10/2013
UHL Guideline: Anticoagulation management ("bridging") at the time of elective surgery and invasive procedures (adult) B30/2016
UHL Guideline: Management of ascites in cirrhosis C36/2010
UHL Patient Identification Band Policy B43/2007
Shared decision making for doctors: Decision making and consent (gmc-uk.org)
COVID and PPE: UHL PPE for Transmission Based Precautions - A Visual Guide
COVID and PPE: UHL PPE for Aerosol Generating Procedures (AGPs) - A Visual Guide

END

Appendix 1: UHL Safer Surgery *Abdominal Paracentesis* Checklist

Patient ID Label *or write name and number*
Hospital No.:
Name:
Address:
D.O.B.: Sex:
Telephone No. 1:
Telephone No. 2:

STOP THE LINE

Safer Surgery Checklist

Abdominal Paracentesis Checklist

Pre-Procedure Care Pathway

LocSSIPs

University Hospitals of Leicester NHS Trust

Date: Ward:
Procedure:
Consultant:

This care pathway is designed to be used for the management of drainage of ascites

PRE-PROCEDURE

Pre-procedure checklist

Confirm patient's Name, DOB and Hospital Number with patient and against wristband/consent/procedure list	☐
Likes to be called:	
Language spoken *(if patient cannot speak English)*:	
Types of ascites to be drained: Hepatic ☐ Malignant	☐
Does the patient have any bleeding disorders?	Yes ☐ No ☐
Known allergy:	Yes ☐ No ☐
Is patient on anticoagulation? *(Discontinue as appropriate, stop dalteparin 48 hrs prior to procedure)*	Yes ☐ No ☐
Details and bridging plan?	
Current diuretic treatment *(drug, dose, frequency)*	
History of previous failed paracentesis attempts	Yes ☐ No ☐
Details:	
Does the patient require radiological marking of site of draining?	Yes ☐ No ☐

Review bloods done within the past 4 weeks for hepatic ascites and 48hrs for malignant ascites

	Result	Date
INR		
Platelets		
Haemoglobin		
Na		
K		
Urea		
Creatinine		

Patient consented for procedure (written/digital consent)	Yes ☐ No ☐
Confirm procedure and site with patient	Yes ☐ No ☐
Patient given information leaflet	Yes ☐ No ☐
Human Albumin 20% 100ml bottles *(minimum 3)* ordered and prescribed	Not required ☐ Yes ☐ No ☐
IV cannula placed	Not required ☐ Yes ☐ No ☐

TEAM SAFETY BRIEFING

Team safety briefing

Operator and assistant trained to perform this procedure	Yes ☐ No ☐
Patient is on the ward	Yes ☐ No ☐
No immediate reasons why the procedure should not take place	Yes ☐ No ☐
Equipment trolley prepared	Yes ☐ No ☐
Name of Assistant:	

'Based on the WHO Surgical Safety Checklist, URL http://www.who.int/patientsafety/safesurgery/en, © World Health Organization 2008 All rights reserved.'

PLEASE TURN OVER
PAGE 1

Abdominal Paracentesis Standard Operating Procedure UHL Gastroenterology (LocSSIPs)
Approved by CMG 2023

Patient ID Label *or write name and number*

Hospital No.:
Name:
Address:

D.O.B.: Sex:
Telephone No. 1:
Telephone No. 2:

STOP THE LINE

Safer Surgery Checklist

Abdominal Paracentesis Checklist

Care Pathway

LocSSIPs

University Hospitals of Leicester NHS Trust

Date: Ward:
Procedure:
Consultant:

This care pathway is designed to be used for the management of drainage of ascites

SIGN IN & TIME OUT			Anticipated critical events	SIGN OUT	
To be read out loud and boxes below checked				**To be read out loud and boxes below checked**	
Before starting procedure			**Operator:**	**Operator verbally confirms with the Assistant:**	
Have all team members introduced themselves by name and role	Yes ☐	No ☐	How much drained fluid is anticipated?	Has the name of the procedure been recorded?	☐
			Are there any specific equipment requirements or special investigations? Yes ☐ No ☐	Has the procedure been documented in the patient's notes?	☐
Confirm patient's Name, DOB and Hospital Number with patient and against wristband/consent/procedure list	Yes ☐	No ☐		The trochar/needle has been removed from the drain?	☐
			Are there any critical or unexpected steps you want the team to know about? Yes ☐ No ☐	There is no bleeding around the drain site?	☐
Confirm site and side of procedure	Yes ☐	No ☐		The dressing is in place around the drain?	☐
Is the site for drain marked?	Yes ☐	No ☐	**Assistant:**	All connectors are firmly tightened?	☐
Known allergy:	Yes ☐	No ☐	Sterility of the instrumentation confirmed? Yes ☐ No ☐	Ascitic fluid is draining out of the drain into the tubing and into the bag without leakage?	☐
Is greater than 6 L likely to be drained and non-malignant ascites?	Yes ☐	No ☐	Are there any issues or concerns? Yes ☐ No ☐	The patient is not in pain or showing any sign of peritonism?	☐
Adequate IV access?	Yes ☐	No ☐	Operator Name:	All sharps are disposed of safely?	☐
3x100ml HAS 20% available and prescribed	Yes ☐	No ☐	Operator Signature:	All non-sharp waste is disposed of in the appropriate bin?	☐
Operator and assistant verbally confirm:			**Procedure Documentation**	Have the specimens been labelled, including patient name?	☐
Patient's name	Yes ☐	No ☐	Date drain insertion started:	Have any equipment problems been identified that need to be addressed?	☐
Procedure, site and planned position	Yes ☐	No ☐	Time drain insertion:	**Operator:**	
			Time drain insertion finished:	Any key concerns for recovery and managament of this patient?	☐
			Position of the drain	Operator Name:	
			Complications of procedure Yes ☐ No ☐	Operator Signature:	
			Details if Yes:		

Abdominal Paracentesis Standard Operating Procedure UHL Gastroenterology (LocSSIPs)
Approved by CMG 2023

'Based on the WHO Surgical Safety Checklist. URL http://www.who.int/patientsafety/safesurgery/en,

PLEASE TURN OVER
PAGE 2

NHS
University Hospitals of Leicester
NHS Trust

LocSSIPs

Date: Ward:
Consultant:
Time started:

Safer Surgery Checklist

Abdominal Paracentesis Checklist

Post-Procedure Care Pathway

This care pathway is designed to be used for the management of drainage of ascites

Patient ID Label *or write name and number*
Hospital No.:
Name:
Address:
D.O.B.: Sex:
Telephone No. 1:
Telephone No. 2:

STOP THE LINE

POST-PROCEDURE CARE

Should the patient have standard post-drain monitoring?	Yes ☐ No ☐
Details if **No:**	
Should the patient have standard IV fluid replacement?	Yes ☐ No ☐
Details if **No:**	
Should the patient have darin removed after 6 hours?	Yes ☐ No ☐
Details if **No:**	
Does the patient require pain relief and has it been prescribed?	Yes ☐ No ☐
Name and contact details of doctor to be contacted if patient becomes unwell:	

HANDOVER FROM OPERATOR/ASSISTANT TO WARD STAFF

The procedure performed	☐
The indication for the procedure	☐
Whether there were any complications	☐
Whether the patient received any medication or IV fluids during the procedure	☐
The post procedure monitoring that is required	☐
Instructions on IV fluid replacement required	☐
Instructions on when the drain can be removed and by whom	☐
Who to contact if the patient becomes unwell	☐

Debrief

Things that went well	☐
Any problems with equipment or other issues	☐
Areas for improvement	☐
A named person for escalating issues	☐
Make entry into the ward's paracentesis procedures log book (date and time, patient name, operator and assistant)	☐

REMOVAL OF DRAIN

Any complications during drainage?	Yes ☐ No ☐
Details if **Yes:**	
Total amount drained (mls)	
Date the drain was removed:	Time:
Person removing drain:	
Confirmation that there are no retained foreign bodies	Yes ☐ No ☐
Details if **NO** action taken:	
Standard post drain removal care	Yes ☐ No ☐
Details if **No:**	

Discharge:

Review and prescription of diuretics ☐	Check patient still has patient information sheet ☐
Advice on care of drain site ☐	Outpatient follow-up ☐
Supply of stoma bags/dressings ☐	Next appointment of drain if required ☐
Document procedure details, complications, changes in medication, follow-up arrangements in discharge letter on ICE ☐	
Give patient copy of discharge letter and send copy to GP ☐	

Abdominal Paracentesis Standard Operating Procedure UHL Gastroenterology (LocSSIPs)
Approved by CMG 2023

'Based on the WHO Surgical Safety Checklist, URL http://www.who.int/patientsafety/safesurgery/en,

PAGE 3

Appendix 2: Patient Information Leaflet for *Having an abdominal tap/drain to remove fluid from around your tummy* Available at: [Having an abdominal tap/ drain to remove fluid from around your tummy (leicestershospitals.nhs.uk)]

Caring at its best

NHS
University Hospitals of Leicester
NHS Trust

Having an abdominal tap/ drain to remove fluid from around your tummy

Hepatology / Oncology

Information for Patients

Produced: October 2018
Last reviewed: May 2022
Next review: May 2025
Leaflet number: 279 Version: 6

What is an abdominal tap/ drain?

An abdominal tap (also know as paracentesis) or drain, is a procedure in which a small tube is inserted into your tummy (abdominal wall) to remove fluid (ascites) from within your tummy.

Why do I need to have it done?

There are 2 reasons for having this procedure:

- To relieve pressure from within your tummy from a build up of fluid (abdominal drain).
- To remove a small amount of this fluid to send to the laboratory to be tested (abdominal tap). You can expect to have the results of this test within a week.

Where will the procedure take place?

- If you are currently staying in hospital, it can take place on the ward that you are on.
- If you are out of hospital and under the care of a cancer team (Oncology), you will go to Osborne Day Care, on the 2nd floor of the Osborne Building at Leicester Royal Infirmary.
- If you are under the care of the liver team (Hepatology), you will go to either ward 43 or 42 at Leicester Royal Infirmary.
- Please let us know if you are on blood thinning medication (anticoagulant) e.g. like warfarin or antiplatelet medication like clopidogrel, at the time when your appointment is being made.

Health information and support is available at www.nhs.uk or call 111 for non-emergency medical advice

Visit www.leicestershospitals.nhs.uk for maps and information about visiting Leicester's Hospitals
To give feedback about this information sheet, contact InformationForPatients@uhl-tr.nhs.uk

1

NHS
University Hospitals of Leicester
NHS Trust

What happens when I come to the hospital?

- We will look at your blood test results. These might need to be repeated if necessary.
- Please bring along a list of your medications for us to look at.
- Before the procedure begins you will be asked to use the toilet to empty your bladder.
- A nurse will help you onto the bed and make sure you are in a comfortable position.
- You may be given an injection to numb the skin (local anaesthetic).
- You may have an ultrasound scan during the procedure depending on the cause of the fluid.
- During the procedure, a small tube will be inserted into your tummy via a small cut in the skin. The fluid will drain through this tube into a drainage bag.
- If the fluid build up is due to liver scarring (cirrhosis), you may need to have a drip put in your arm to give you some fluid (human albumin solution 20%), while the extra fluid is draining from your tummy. Human albumin solution is a blood product and has been shown to help the kidneys after a tap.
- When all the fluid has drained (this could be over several hours), the tube is removed and a dressing is put over the place where the tube went in.
- You may experience slight discomfort during the procedure, but it should not be painful.
- Painkillers can be given if you experience any discomfort. Tell the nursing staff if this happens.
- If you have any queries please ask your nurse.

What are the benefits of this procedure?

- Having the fluid drained from your tummy will help relieve tummy pain.
- The results of the laboratory test of the fluid sample may help determine why the fluid is there.

What are the risks?

- It is a safe procedure with a very small chance of significant side effects (less than 1 in 100 people).
- There is a slight chance that during the procedure a hole is made in the gut. This may cause bleeding or infection. In patients that have cancer as the cause of the fluid, it is common for the fluid that comes out to be blood stained (pinky). This does not necessarily mean there has been a problem caused by the procedure.
- If a large quantity of fluid is removed, there is a slight risk of it making you feel dizzy and affecting the kidney function. Fluid may be given to you through a drip to avoid these problems. Your blood pressure, pulse and temperature will be monitored regularly during the procedure.
- There is a slight chance that the site where the tube is inserted may become infected.

NHS
University Hospitals of Leicester
NHS Trust

Aftercare

- Some leakage of fluid from the drain site for a few hours after the procedure is common and nothing to worry about. Your nurse will check this before you go home.
- You should remove the dressing from the drain site after 24 hours.
- You should then check the site for redness and other signs of infection. If you are worried that you may have an infection or have other concerns, please contact us using the details below.
- It is certainly possible that the fluid will start to build up again over the following days to weeks. Please contact us if this happens using the details below.

Contact details

If you are feeling unwell immediately after being discharged from hospital:

- **Liver Unit (Hepatology) patients:**

  Ward 43, Leicester Royal Infirmary - Tel: 0116 258 6239 or 6279
- **Osborne Unit (Oncology) patients:**

  Osborne Day Care - Tel: 0116 258 5263 (Monday to Friday, 9am to 5pm)

  Outside hours - Oncology Wards, Tel: 0116 258 6339 or 0116 258 6309.

If your tummy is becoming more swollen and painful again and needs a further drain:

There may be a delay of 3 to 4 days before this can be arranged for you to come in.

- **Liver Unit (Hepatology) patients:**

  Hepatology Secretary - 0116 258 6480 (Monday to Friday, 9am to 4pm)
- **Osborne Unit (Oncology) patients:**

  Osborne Day Care - Tel: 0116 258 5263 (Monday to Friday, 9am to 5pm)

اگر آپ کو یہ معلومات کسی اور زبان میں درکار ہیں، تو براہِ کرم مندرجہ ذیل نمبر پر ٹیلی فون کریں۔
على هذه المعلومات بلغةٍ أخرى، الرجاء الاتصال على رقم الهاتف الذي يظهر في الأسفل
જો તમને અન્ય ભાષામાં આ માહિતી જોઈતી હોય, તો નીચે આપેલ નંબર પર કૃપા કરી ટેલિફોન કરો
ਜੇ ਤੁਸੀਂ ਇਹ ਜਾਣਕਾਰੀ ਕਿਸੇ ਹੋਰ ਭਾਸ਼ਾ ਵਿਚ ਚਾਹੁੰਦੇ ਹੋ, ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਹੇਠਾਂ ਦਿੱਤੇ ਗਏ ਨੰਬਰ 'ਤੇ ਟੈਲੀਫੋਨ ਕਰੋ।
Aby uzyskać informacje w innym języku, proszę zadzwonić pod podany niżej numer telefonu

If you would like this information in another language or format such as EasyRead or Braille, please telephone 0116 250 2959 or email equality@uhl-tr.nhs.uk

LEICESTER'S RESEARCH

Leicester's Hospitals is a research active trust so you may find research happening on your ward or in your clinic. To find out about the benefits of research and become involved yourself, speak to your clinician or nurse, call 0116 258 8351 or visit www.leicestersresearch.nhs.uk/patient-and-public-involvement

3