Guidelines on Paracentesis

Prevalence and Pathology
The presence of malignant ascites is an indicator of advanced disease and depending on the primary tumour and stage, prognosis may be measured in weeks to months, rather than in years. The focus of treatment is therefore concentrated on the palliation of troublesome symptoms.

Any cancer can cause ascites. Prevalence in all malignancies has been being estimated at 15%. For some patients, this may be one of the first presenting signs that lead to a diagnosis of cancer and for women, the most common cancers that cause ascites include ovarian, endometrial and cervical cancers. 30-60% of women who die from ovarian cancer develop ascites at some time during their illness. For men, gastrointestinal tumours, in particular rectal, colonic and stomach cancers are the cause in at least 50% of cases. Cancers of unknown primary origin are responsible for around 6-20% of cases in both sexes.

In health, there is a constant influx of fluid into the peritoneal cavity which is reabsorbed at a rate of 5-6mls/hr, leaving behind 50-100mls of peritoneal fluid. In cancer, the balance of this efflux and influx of fluid is disrupted.

The pathology of malignant ascites has been proposed as being due to 4 different mechanisms (a combination of mechanisms may co-exist and the exact mechanism is probably more complex than described).

1. Peritoneal carcinomatosis – seeding of cancer cells within the peritoneum release cytokines such as vascular endothelial growth factor which increases vascular permeability. Protein-rich fluid leaks from the venules into the peritoneal cavity. Cancer cells may also block lymphatic channels, which also contribute to the disruption of the balance between influx and efflux of fluid within the peritoneal cavity.
2. Massive hepatic metastases - tumour compression or growth into the portal or hepatic veins may lead to portal hypertension. Low albumin exacerbates the problem with resulting imbalance between oncotic and hydrostatic pressures and fluid leakage.
3. Chylous ascites – Tumour invasion may obstruct lymphatics, or radiotherapy or surgery may also have resulted in their damage.
4. Hepatocellular carcinoma – often associated with cirrhosis

Malignant ascites are responsible for 10% of the total number of cases of ascites. The most common non-malignant cause is chronic liver disease with associated portal hypertension. Less often, ascites may be due to cardiac failure, nephrotic syndrome, pancreatitis, and bacterial peritonitis (including TB). In our population of patients, some of these pathologies may co-exist with the cancer diagnosis.

Treatment

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1 Parsons SL, Watson SA, Steele RJC, ‘malignant ascites’. British Journal Surgery 1996;83: p6-14. Median survival of Lymphoma was 58-78 weeks, whereas for an unknown primary, median survival may be as little 1-12 weeks.
2 Ascites may be present in more than 15% of all malignancies at some stage of the disease process. Oxford Textbook of Palliative medicine
3 De Simone GG. Treatment of malignant ascites. Prog Palliative Care 1999; 7(1): p10-16
4 ref 1
Currently, there are no available NICE guidelines for the management of malignant ascites. A Cochrane protocol for the palliation of malignant ascites in gynaecological cancer has been registered recently.  

**Aims of treatment/general principles/rationale**

- Prognosis if often poor, so treatment should be minimally invasive
- Paracentesis provides poor long-term control of ascites
- Treatment should be aimed at improving symptoms therefore
- If the patient does not have symptoms—**do not treat**
- Adequate explanation of the procedure and the patient’s expectations may lead the patient to decline drainage

**Patient selection/cautions**

- Procedure should be carried out by an experienced doctor
- Do not proceed if the patient is on chemotherapy or is neutropenic or thrombocytopenic
- Previous spontaneous bacterial peritonitis

**Be cautious with a patient who**

- Has liver or renal failure
- Is frail (assess performance status on all patients)
- Has a Coagulopathy
- Has an infection (local or systemic)

**Weigh up the risks and benefits and if not proceeding**

- Combination of diuretics may be more helpful (especially with liver mets)
- Diuretics may also be tried if the abdomen is not tense and the patient did not tolerate ascitic drainage previously
- If frail, other symptom control measures may be more appropriate
  - Eg metoclopramide and antacids for squashed stomach, analgesia for discomfort

**Symptoms of ascites**

- Discomfort or pain due to distension
- SOB
- Nausea and vomiting
- Early satiety

**Recognising ascites clinically/investigations**

- Unnecessary investigations should be avoided therefore
- If the ascites is clinically apparent ie tense abdomen and fluid thrill – no USS is needed
- However, USS will be required if
  1. The diagnosis uncertain,
  2. A drainage point needs to be marked,
  3. There is a possibility the ascitic fluid is loculated
- Bloods should be taken (including clotting) and results checked prior to the procedure
- The procedure may go ahead only if Platelet > 50, INR<1.4, APTT within normal limits
- Patients on Warfarin will not be offered this procedure
- Patients on Tinzaparin or Clexane should **omit their dose for 24 hours** prior to procedure
- Aspirin should be stopped **5 days prior to the procedure**
- Rarely bloods may be omitted if a terminally ill patient is thought to benefit from the procedure regardless of the blood results. One may consider giving the patient a dose of Vitamin K prior to the procedure.

**Consent to procedure/place of procedure**

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• Warn of bleeding risks, hypovolaemia, infection, bowel perforation, failure to drain ascites, very low risk of PE
• Explain that the patient may feel washed – out post procedure, and may take 3 days to feel better
• Also, sometimes there may be some pain during or after the procedure. Extra analgesia will be made available.
• Occasionally there may be leakage from the drain site that requires a dressing or stoma bag and can take a few days to stop. It should not stop the patient going home.
• **Document that the patient understands and accepts these risks.**
• The patient should also be made aware of the basic Resuscitation facilities
• The patient may be admitted for at least an overnight stay

**Procedure**

**General points**
• Patients generally tolerate the procedure well
• Clamping of the drain is discouraged as this increases the risk of infection and may block the drain

**Drainage times**
• The drain should be left on free drainage until 5 litres drained
• Clamp for 2-4 hours
• Free drainage again for a further 5 litres or to dryness and then remove
• If the patient is frail, symptom relief may be achieved by draining as little as 2L

**List of equipment**
• Bonnano catheter     Dressing Pack
• Sterile gloves     10 ml syringe x 2
• orange needle/blue needle   green needle
• lidocaine 1% 10mls (or 2%5mls)  scissors
• blade (straight)    incontinence pad
• povidine iodine or chlorhexidine
• catheter bag with valve (overnight bag)
• mepore dressings , wound pads, sleek, opsite or tegaderm depending on user preference/stock

**Technique**
• Stop diuretics on morning of drainage
• Baseline observations
• Check for allergies to iodine/lidocaine
• Ask the patient to urinate beforehand
• Ensure the patient is comfortable lying on the bed on top of an incontinence pad
• Recheck for ascites – area dull to percussion, fluid thrill, shifting dullness
• Prepare the skin over the RIF or LIF avoiding liver, distended bowel or bladder, intra-abdominal masses, scars (bowel may be adhered to scar) and the Inferior epigastric artery which runs inferiorly 5cm either side of the midline (Mc Burney’s point).
• Aseptic technique
• Raise a bleb to the skin with local anaesthetic (orange needle)
• Anaesthetise down to peritoneum using green needle, aspirating repeatedly whilst advancing the needle.
• **Ascitic fluid should be easily withdrawn. Stop if it is not.**
• AtMake a 2mm incision through anaesthetised skin and advance Bonnano catheter whilst simultaneously aspirating on the empty syringe

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*Macnamara P. Paracentesis – an effective method of symptom control in the palliative care setting? Palliative medicine 2000; 14, p62-4. Limited vol drainage can be enough to relieve symptoms*
• When ascitic fluid found, hold the needle still and advance the catheter until the flange touches the skin and then withdraw needle.
• Attach drainage bag
• Secure with dressing and pads (if using)
• **Drain should not be fixed with sutures**
• Check Bp if dizzy or unwell
• Remove drain after paracentesis drained to dryness or 10litres and place a dressing over wound.
• If the abdomen is still obviously draining ascites through the drainage site, place stoma bag over drainage site instead.

**Aftercare**
• Check Bp after drain removed
• Keep patient in overnight for observation/
• Reassess analgesia – may need to go up or down
• Fill in the audit proforma
• Decide how to follow up and inform GP
• Assess whether the procedure has benefited the patient
• Record symptom improvement/ no benefit in patients documentation

PLEASE INCLUDE A COPY OF THE CARE PLAN TO BE ATTACHED TO THE POLICY
# Audit Form for Paracentesis

## Patient Demographics

<table>
<thead>
<tr>
<th>Age</th>
<th>Sex</th>
<th>1° malignancy</th>
<th>Site(s) of mets</th>
<th>Co-morbid conditions</th>
<th>Admitted from where?</th>
<th>Performance status?</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

## Symptoms/reason for Paracentesis (please circle)

- SOB
- Pain/discomfort
- Nausea/vomiting
- Early satiety

<table>
<thead>
<tr>
<th>Yes/no</th>
<th>Yes/no</th>
<th>Yes/no</th>
<th>Yes/no</th>
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</thead>
</table>

## Medications

- Diuretic – dose frequency
- Aspirin
- Tinzaparin
- Stopped correctly?

<table>
<thead>
<tr>
<th>Yes/no</th>
<th>Yes/no</th>
<th>Yes/no</th>
</tr>
</thead>
</table>

## Investigations (please circle)

- USS?
- YES/NO
- Reason?
- Marking site/diagnosis/loculation

## Technique

- Venflon
- YES/NO
- Bonnano
- YES/NO

## Baseline Bp Post - drain Bp

<table>
<thead>
<tr>
<th>Total drained</th>
<th>Time taken</th>
<th>Drain to dryness?</th>
<th>Complications</th>
<th>Actions taken</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>YES/NO</td>
<td>Hypotension YES/NO</td>
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<td></td>
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<td>Bleeding YES/NO</td>
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<td>Pain during procedure YES/NO</td>
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<td>Continued drainage after removal YES/NO</td>
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<td>Signs of infections YES/NO</td>
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<td>Dry tap YES/NO</td>
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<td>Problems with drain YES/NO</td>
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<td></td>
<td>Feeling 'washed out' YES/NO</td>
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<td></td>
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<td>Others YES/NO</td>
<td></td>
</tr>
</tbody>
</table>

## Outcome

- Date of admission
- Date of procedure
- Date discharge/death

<table>
<thead>
<tr>
<th>Died</th>
<th>Discharge where?</th>
<th>Length of stay?</th>
<th>complication delayed discharge?</th>
</tr>
</thead>
<tbody>
<tr>
<td>yes/no</td>
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<td>Yes/no</td>
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<table>
<thead>
<tr>
<th>Discharge</th>
<th>How long?</th>
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<tbody>
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<td>yes/no</td>
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