Seroma Aspiration Guidance

Responsible person (s)

Breast care nurse (clinical nurse specialist)

Process

This work instruction details the practice of seroma/lymhocele aspiration for staff working within the Breast Department that have been adequately trained.

Definition

A seroma is a pocket of straw-coloured fluid that sometimes develops as a result of surgery (1). It can develop gradually over days to weeks and is not associated with any bruising. A lymphocele refers to a collection of lymph fluid as a result of surgery involving axillary lymph nodes specifically. For the remainder of this document seroma aspiration will refer to both types of collections. Within studies it is shown that approximately 50% of patients following axillary dissection require further aspiration (3). There has been much debate whether the use of post-operative drains have an impact on seroma formation. A study that compared the incidence with or without a drain saw 8.3% of patients in the drain group and 50% in the no drain group requiring aspiration (4).

Presentation

A seroma presents as a visible swelling to an area of surgery. On palpation fluid movement can be felt. The presence of a seroma can increase the risk of infection, prolong hospital stays and delay the start of adjuvant cancer treatments such as chemotherapy or radiotherapy (6).

Causes

As a result of tissue removed or undermined during surgery, a cavity is created. This permits the collection of serous fluid. This may resolve spontaneously, however this is dependent on influencing factors such as position, patient mobility and gravity. A seroma differs from haematomas; the fluid contains no red blood cells and a haematoma collection usually would become apparent in the first 24-48 hours after surgery. It is associated with firmness and bruising pain when palpated. A seroma is softer when palpated and collects over a longer period of time. This may range from a few days to weeks after surgery. Seromas can be uncomfortable due to their size, but should not be painful. Pain could be a sign of infection so should be carefully assessed to exclude this.

Indications for seroma drainage

It is appropriate to aspirate a seroma when:

- It is visible to the naked eye, is palpable fluid and is free from infection; a clearly infected area should be assessed by the clinical team.

- It is causing pain, discomfort and/or pressure/tightness
- Is affecting the function of the associated area
- Any previous aspiration that is over 100ml, indicative of a potentially substantial seroma

Contraindications for seroma aspiration

It is not appropriate to aspirate a seroma when:

- Presence of breast implant that could be ruptured (ultrasound guidance necessary)
- Swelling is minimal resulting in no alteration to function and no associated pain. Repeated aspirations of small collection carry a risk of introducing infection. In addition it may delay the normal process of locating alternative routes to which the fluid can drain resulting in a longer period before the seroma settles down.
- There are signs of infection in the surrounding tissue, which may or may not exist in the seroma. Should be assessed by a medical clinician
- There is a high risk of blood vessel rupture during the procedure
- The swelling pulsates
- The presence of haematoma is suspected
- The patient had an implant in the associated area that can be ruptured
- The patient is undergoing treatment or has pre-existing condition that could complicate aspiration, such as clotting disorders: chemotherapy: radiotherapy
- The patient does not consent to the procedure
- The operator (performer) is not comfortable to undertake the procedure

Potential complications resulting from seroma aspiration

- Damage to underlying structures e.g. pneumothorax, blood vessel puncture
- Local infection/systemic infection
- Drainage fails to resolve the seroma
- Fluid aspirated includes pus
- Seroma development is recurrent or increases

Patient selection criteria

- Seroma to chest wall following mastectomy
- Seroma to axilla following lymph node biopsy/axillary clearance
- Seroma in lateral aspect of upper back in the latissimus dorsi muscle region following use of this muscle as a donor for reconstruction

Patient exclusion criteria

- Patient who does not consent to having the procedure
- Any patient who has an implant in place that could be punctured during aspiration

- In patients where surgery has been anatomically complicated
- Where swelling is minimal and causing no discomfort
- In patients undergoing chemotherapy/radiotherapy
- Pulsating swellings which could have a vascular component

Technique

Only competent practitioners will undertake aspirations. These individuals will have attained a proficient level of undertaking the procedure under supervision.

The nurse will complete a comprehensive assessment and determine that the patient and presenting seroma meet the criteria for seroma aspiration outlined in this document.

The nurse will ensure none of the contraindications apply to the patient prior to considering the procedure.

The nurse will prepare the patient by fully explaining the procedure and obtain informed verbal consent.

- Prepare equipment:
    - *Trolley
    - *Sterile dressing pack and sterile gloves
    - *Skin prep and antiseptic
    - *20-30ml and 50ml syringes
    - *Sterile needles (16g white and 21g green)
    - *3 way tap for large seromas
    - *Antiseptic skin preparation solution
    - *Sterile bowl/jug for aspirate
    - *Sterile dressing
    - *Gauze
    - *Sharps container
    - *Universal container and Microbiology request form if indicated
- Prepare and position the patient
- Set out a trolley and equipment adhering to a strict non-touch technique with sterile equipment.
- Prepare skin around anticipated puncture site
- If the volume is anticipated to be more than one syringeful, then attach a syringe to the 3-way tap and the needle to the end of the 3-way tap. If the volume is considered to be one syringeful or if no access to a 3-way tap, then attach the needle directly to the syringe.
- Insert needle at a 45 degree angle towards the seroma with bevel pointing upwards. Keep the needle as parallel as possible to the underlying structures to prevent puncturing them. Special care must be taken with the chest to avoid puncturing the lung.
- Entry through the surgical scar may assist with reducing discomfort as this will be insensate; however aiming for the pointing of the seroma is more likely to be the best access for aspiration.
- There will be some resistance to the needle as it passes through the skin and once the needle is in the seroma the resistance should cease. At all times the needle should be kept as shallow as appropriate to avoid underlying structures but allow access to the seroma.

- If the seroma cannot be accessed, an ultrasound guided procedure may be indicated; to be discussed with the medical team if indicated.
    - Once through the skin and in the fluid pocket, gently draw back on the syringe. If there is resistance then it is not in the fluid space and may need to be carefully positioned.
    - Gentle re-positioning of the needle can assist in seroma drainage but insertion of a new needle may be needed if the collection is not in one area.
    - No more than 3 unsuccessful attempts should be made before seeking advice from a senior nurse or medical team.
    - If a three way tap is not available but syringe is full syringe can be disconnected and use a second syringe. Continue process until the seroma is resolved
    - If using a three way tap alter to halt fluid flow between syringe changes
    - If the fluid is cloudy a specimen can be sent for microbiology as it may indicate an infection. This can be sent in universal pot with request form
    - When seroma has resolved remove the needle and discard in the sharps bin
    - Apply pressure over the entry site with gauze for 1 minute
    - Clean area and apply a sterile dressing
    - Advise the patient that the dressing can be removed in 24hrs
    - Ensure the patient is aware of action to take if the seroma re-collects or has any other concerns including signs of infection.
    - Record patient's consent for the procedure within the medical notes
    - Record the amount and colour of the fluid in the medical notes
    - Recurrent aspirations may be required and should be discussed with the consultant in charge of the patient's care

Potential problems

- Unable to aspirate the fluid, could be due to incorrect placement of the needle. This may require re-positioning or re-insertion of needle.
- Pneumothorax, if the patient suddenly describes shortness of breath or chest pain. Stop immediately apply pressure to wound and seek immediate medical review of patient.
- Aspirating bright red blood. If this then becomes straw like it is due to puncturing a small blood vessel and aspiration can continue. However if the fluid remains bright red then it is due to a larger blood vessel being punctured. The needle should be removed and pressure put over the area for at least 5 minutes. If after this it continues, bleep the appropriate medical team while continuing to administer pressure.
- The patient finds it too uncomfortable. The procedure should be abandoned.
- The patient develops an infection 48 hours after the aspiration. Ensure that patient knows the signs to look out for and that they have the correct contact details of whom to call.

This is in-keeping with the NMC standards that there must be an appropriate plan of care for seroma drainage (5).

Staff group

- Registered nurse at band 6 or above with recognised education and experience in breast surgical nursing.
- Nurse/allied health professional willing to undertake training and carry out this procedure.
- The nurse would have successfully completed relevant assessment and training prior to unsupervised seroma aspiration as outlined within this document.

Training

- Observing aspirations performed by a senior team member already assessed as competent in the procedure.
- Under supervision of a competent practitioner, the nurse will be assessed as outlined in the 'Seroma aspiration competency sheet' included in this document (see page 8).
- Maintenance of competency is dependent on continued practice of the procedure. If the practitioner has not aspirated a seroma for a period of 6 months a competent practitioner will need to re-assess them.
- The nurse must have seen and been appropriately assessed in aspiration of seroma at each of the anatomical locations appropriate to that unit/centre before undertaking the procedure unsupervised.

Assessment of competence

- Assesses seroma is present and meets criteria for aspiration
- Describes the procedure for seroma aspiration
- Identifies the purpose of the procedure
- Assesses the risk factors and discusses these with the patient
- Confirms patient consent
- Prepares patient, environment, equipment ensuring risks are minimised and adheres to Trust infection control policy.
- Undertakes seroma aspiration effectively demonstrating infection control principles.
- Communicates with the patient throughout the procedure
- Monitors patient's condition throughout the procedure, responding appropriately to any effects the procedure has on the patient.
- Documents the outcome if the procedure appropriately
- Educates the patient to be observant in problems resulting from seroma aspiration such as infection, haematoma or pneumothorax, and actions to take should concerns arise
- Interprets and reports findings appropriately
- Quality assesse equipment used e.g. ensures in date
- Disposes of equipment used appropriately and safely

References

1 http//en.wikipedia.org/wiki/seroma Accessed (12, Feburary 2015).

2 Douherty, l and Lister,SE (2008).The Royal Marsden Hospital Manual of Clinical Procedures. Seventh Edition .

3 Petrek,JA, Peters,M and Nori,S (1990) Axillary Lympadenectomy.Arch.Surg 125, 378-382.

4 Zavostky J, Jones RC and Brenna, MB (1984) Evaluation of axillary Lymphedenectomy without axillary drainage for breast conserving therapy. Annals of Surgical Oncology,158, 327-330.

5 Nursing and Midwifery Council, The code of professional Conduct and Ethics. May 2008.

6 Thompson,D, Sadideen,H and Furniss, D, (2013) Would drainage after axillary dissection for carcinoma of the breast. The Cochrane Collaboration. Wiley & Sons LTD.

With special thanks to Jane Holden whose guidelines were used in the development of this policy.

Seroma Aspiration Competency Sheet

Patient **Seroma Area:**	**Date:**		**Assessed by:**
Criteria	**YES**	**NO**	**Signed**
Identifies presence of seroma			
Lists criteria met by this patient for seroma aspiration			
Explains the purpose and risks of the aspiration to the patient			
Fully describes the procedure to the patient and appropriately addresses questions			
Prepares patient, environment and equipment			
Undertakes a seroma aspiration demonstrating infection control principles			
Monitors the patient's condition and communicates with patient throughout the procedure.			
Responds to the effects the procedure has on the patient			
Document outcome of procedure appropriately			

Disposes of equipment appropriately			
Educates patient about problems to observe and action to take			

_____ has been assessed to perform aspirations and is deemed competent to undertake unsupervised, meeting Clinical Guidance.

Signed _____ Date _____