The management of secondary lymphoedema

- a guide for health professionals APRIL 2008

NATIONAL BREAST AND OVARIAN CANCER CENTRE

WHAT IS SECONDARY LYMPHOEDEMA?

Lymphoedema is the regional accumulation of excessive amounts of protein-rich fluid in body tissue causing swelling. It occurs when the demand for lymphatic drainage exceeds the capacity of the lymphatic circulation. The condition usually affects the limb(s) although it can also involve the trunk, breast, head and neck or genital area. Secondary lymphoedema is acquired following surgery, radiotherapy, trauma or other damage to the lymphatic system following treatment for cancer.
Secondary lymphoedema can develop at any time after surgery or radiotherapy.

AT RISK POPULATION

Incidence

Conservative estimates suggest that at least 20% of survivors from breast, gynaecological, prostate cancer or melanoma will experience secondary lymphoedema.

More specifically, the incidence of secondary lymphoedema associated with vulval cancer is estimated at 36-47%, breast cancer 20%, cervical cancer 24% and melanoma 9-29%[1].

Lower incidence rates are often associated with minimally invasive procedures such as sentinel node biopsy.

Risk factors for developing secondary lymphoedema

Key risk factors include extent of surgery, lymph node dissection and radiation treatment. Other factors include trauma, infection, body mass index (BMI) and immobility.

Precautionary measures

Risk reducing measures aim to minimise limb swelling and blockage to lymph transport.

The evidence relating to risk reduction strategies is scarce and is derived from studies utilising breast cancer patients.

Clinical procedures

It is currently unknown whether certain procedures such as injections, IV cannulations, blood pressure monitoring and excising skin lesions increase the risk of lymphoedema. Therefore, as a precaution, use the untreated limb for these actions whenever possible.

Patient actions

There are a range of other actions that can be suggested to minimise a patient's risk of lymphoedema, however evidence supporting or refuting the effectiveness of these actions is scarce:

- avoid hot baths, spas and saunas as this may exacerbate swelling
- if the patient is planning air travel or a long-haul road or train trip (e.g. longer than 4 hours) discuss additional preventive measures such as:
  - application of compression garment if patient has a history of lymphoedema or if they regularly wear a garment
  - elevation of affected limb
  - frequent exercise or movement whenever possible.

Early intervention

Intervention at an early stage can have a significant impact on reducing the risk of developing lymphoedema and the severity of lymphoedema if it develops.

Patients should be encouraged to resume normal activity after surgery and not restrict movement of their limb(s)/body part.

Early warning signs of lymphoedema

Patients should be educated about the early warning signs and encouraged to inform a health professional about their concerns. It is important to note that early warning signs can be intermittent and can develop months or years before the onset of persistent swelling.

Early warning signs include:

- transient swelling following exercise or physical activity
- feelings of heaviness in the affected limb/body part
- aching, pain or tension in the affected limb/body part
- tightness and fullness (a 'bursting' feeling) in the limb/body part
- clothing, shoes or jewellery feeling tighter.

ASSESSMENT

History

Consider details of:

- cancer treatment
  - surgery
  - lymph node removal
  - radiotherapy
  - complications (e.g. post-operative infection)
- trauma to limb
- cellulitis, infection and ulcers
- travel history.

Physical evaluation

Conduct a physical examination of:

1. Affected limb/body part to assess

- subcutaneous tissue
  - pitting/non-pitting oedema
  - tissue tone
- presence and severity of swelling by measuring circumference of affected limb (trunk or head and neck region) and compare this with unaffected limb using a tape measure[2]
- condition of skin
  - dry
  - cracked
  - infection/tinea
  - bruising
  - flaking
- presence of Stemmer's sign – thickened skin at the base of the second toe or middle finger, compared with the unaffected limb indicates lymphoedema
- weight and height (e.g. BMI)
- cardiac and respiratory parameters
- joint mobility
- axillary cording.

2. Original site of cancer treatment and recent medical imaging to exclude tumour recurrence.

Acute onset

If there is an acute onset or a patient with existing lymphoedema experiences an exacerbation, they should be assessed for tumour recurrence or deep vein thrombosis (DVT) and referred as appropriate.

Investigations that may assist with assessment include:

- CT scan
  - to exclude masses/tumours
- Duplex scan
  - to exclude venous insufficiency/DVT.

TREATMENT AND MANAGEMENT

General management principles

Effective management can reduce symptom severity and improve quality of life

Infection control is essential to reduce the risk of developing or exacerbating lymphoedema

Acknowledging patient concerns and challenges of living with lymphoedema is important and should include practical and emotional aspects

Patients require support to enable daily, long term management of the condition

Effective management options may include:

- education on care of the limb/body part including skin care to maintain a protective barrier against infection
- psychosocial support.

Specific management issues:

Cellulitis

People with lymphoedema are prone to recurrent episodes of cellulitis.

Urgent antibiotic treatment is essential to control the spread of infection

- dicloxacillin/flucloxacillin 500mg orally q6h for 7–10 days

or

- clindamycin 450 mg orally q8h for patients allergic to penicillin). Refer to antibiotic guidelines[3].

Patient should be advised to:

- rest in bed and elevate the affected limb/body part
- continue use of compression garment if comfortable and tolerable
- cease lymphatic drainage if part of routine care until cellulitis resolved.

In cases of frequent recurrence, consider continuous prophylaxis

- phenoxymethylpenicillin 250 mg orally bid for 6 months initially.

Weight management

Weight management is essential, as excess body weight may slow lymphatic flow.

Patient education

Patients should be educated about the importance of:

- skin care
  - good skin care is essential to ensure healthy skin acts as a barrier to infection
  - moisturising the skin, keeping it free of ulcers and other infections such as tinea
  - avoid constrictions (e.g. jewellery, tight clothes, shoes) to the affected limb/body part
- foot care
  - feet should be cleaned and dried daily
  - any infection/injury should be treated promptly.

Referral

Consider referral to appropriately qualified lymphoedema practitioner or clinic for assessment if:

- symptoms unresponsive to management
- visible swelling and/or clinical pitting
- obvious discrepancy in limb sizes
- patient experiences functional, joint or mobility problems.

If symptoms are severe, early referral without a period of monitoring is appropriate.

Specialised treatment

Specialised treatment to be provided by an appropriately qualified lymphoedema practitioner may include:

- **manual lymphatic drainage (MLD)** – studies show that volume reductions are achieved by MLD, however larger reductions are achieved when it is combined with compression therapy
- **compression bandaging/ individually fitted garment**
  – long-term use of compression is effective in reducing and/or controlling limb swelling
- **complex physical therapy** involves 2-4 weeks of manual lymphatic drainage, followed by compression bandaging, skin care and prescribed exercises undertaken by the patient
  – favourable outcomes have been demonstrated following complex physical therapy, however some of the evidence is inconsistent and further research is required to define an optimal strategy.

Psychological and emotional wellbeing

Implementing psychosocial care strategies helps patients and their families/carers to take a positive role in the management of their lymphoedema and to achieve improvements in their quality of life.

Encourage patients to talk about their general psychological and emotional well-being, and explore any specific concerns or sources of distress.

Check clinical issues including:

- anxiety
- depression
- interpersonal functioning
- coping with physical symptoms
- body image and sexuality
- lack of motivation
- ability to cope.

Other treatments

Surgery

Surgery is generally only recommended for those patients with secondary lymphoedema when conservative treatment options have not been effective.

Pharmacological interventions

It is important to note that:

- diuretics are ineffective in lymphoedema
- some medications may exacerbate the condition (e.g. antihypertensives, steroids, HRT, anti-inflammatory agents)
- there is no conclusive evidence that benzopyrones are effective in secondary lymphoedema treatment.

Low Level Laser Therapy and Pneumatic Pumps

Further research is required to validate treatment doses and regimes. A small number of studies suggest that these treatments may have benefits in achieving volume reductions.

Alternative therapies

There are a range of alternative treatment options that have been used in the treatment of lymphoedema, however research findings on their effectiveness are scarce. These treatments include ultrasound therapy, hyperbaric oxygen therapy, vitamin E supplementation, microwave therapy, acupuncture and moxibustion, mulberry leaf, aromatherapy oils, magnetic fields, vibration and hyperthermia.

RESOURCES

Lymphoedema Compression Garment Programs

Partial financial assistance to purchase lymphoedema compression garments is available to pension holders and low income earners in some States and Territories. Private health insurers may also provide assistance.

Australasian Lymphology Association (ALA)

The ALA website **www.lymphology.asn.au** provides information and support for lymphoedema practitioners and health professionals, including measurement guidelines.

Consumer support groups exist in each State and Territory

National Breast and Ovarian Cancer Centre (NBOCC)

A number of useful resources can be found on the NBOCC website **www.nbocc.org.au**. These include:

- a range of consumer resources about secondary lymphoedema following treatment for cancer
- *Clinical practice guidelines for the psychological care of adults with cancer* produced in association with National Cancer Control Initiative
- *Cancer- how are you travelling?* Includes a 'distress thermometer' self assessment tool to help people explain how they are feeling
- *Psychosocial care referral checklist for patients with cancer* Assists health professionals to identify patients at higher risk of psychosocial distress who may benefit from additional assessment and appropriate referral for psychosocial care.

References

1. NBOCC. *Review of research evidence on secondary lymphoedema: incidence, prevention, risk factors and treatment*, 2008
2. Australasian Lymphology Association Standards Committee. *Setting a National Standard for Measurement of Lymphoedematous Limb*, 2004
3. *Therapeutic Guidelines: Antibiotic*, 2006. Version 13:274-277

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ASSESSMENT

PATIENT HISTORY

- cancer treatment
  - surgery
  - lymph node removal
  - radiotherapy
  - complications (e.g. post-operative infection)
- trauma to limb
- cellulitis, infection, ulcers
- travel history

PHYSICAL EXAMINATION OF

1. Affected limb/body part to assess

- subcutaneous tissue (pitting/non-pitting oedema)
- presence and severity of swelling (measurement of limb circumference)
- condition of skin
- presence of Stemmer's sign
- weight and height (e.g. BMI)
- cardiac and respiratory parameters
- joint mobility
- axillary cording

2. Original site of cancer treatment, including recent medical imaging → ***If abnormality investigate and refer***

EARLY INTERVENTION

If NO swelling detected, initiate 'at risk' education and/or review patient education about:

- early warning signs that may appear months or years before onset of swelling:
  - transient swelling
  - feelings of heaviness, aching, pain or tension, tightness and fullness in limb/body part
  - jewellery, clothing or shoes feeling tighter
  - impaired movement or loss of function
- skin care
- travel
- injuries and risk of infection
- exercise/weight issues
- psychological support
- optimising limb function

Precautionary measures

Clinical procedures - as a precaution use the untreated limb for injections, IV cannulations, blood pressure monitoring and excising skin lesions. It is currently unknown whether these procedures increase the risk of lymphoedema.

Patient actions that can be suggested to minimise risk:

- avoid hot baths, spas and saunas
- if planning air, long-haul road or train trip (e.g. longer than 4 hours) discuss additional preventive measures such as:
  - application of compression garment if patient has a history of lymphoedema or if they regularly wear a garment
  - elevation of affected limb
  - frequent exercise or movement

TREATMENT AND MANAGEMENT

If SWELLING IS DETECTED initiate the following management:

- skin care
- infection control → ***cellulitis**** → ***Urgent antibiotic treatment is essential***
- physical exercise
- weight management
- psychosocial support
- co-morbidities
- monitor and review medications/garments
- promote self management

Promote team management approach for regular review of patient

REFERRAL

Initiate referral to appropriately trained lymphoedema practitioner or clinic if:

- symptoms unresponsive to management
- there is visible swelling/clinical pitting
- obvious discrepancy in limb sizes
- there are functional, joint or mobility problems

If symptoms are severe, early referral without a period of monitoring is appropriate.

SPECIALISED LYMPHOEDEMA TREATMENT

- manual lymphatic drainage (MLD)
- garment management/bandaging
- complex physical therapy
- special exercises

ACUTE ONSET/EXACERBATION

If NEW ONSET or exacerbation of lymphoedema detected on physical examination consider:

- tumour recurrence → ***Investigate appropriately and refer***
- DVT → ***Investigate appropriately and refer***

*Urgent antibiotic treatment for cellulitis

- dicloxacillin/flucloxacillin 500mg orally q6h for 7–10 days

or

- clindamycin 450 mg orally q8h for patients allergic to penicillin

Advise patients to:

- rest in bed and elevate the affected limb
- continue use of compression garment if tolerable
- cease lymphatic drainage until cellulitis resolved

If frequent recurrence consider continuous prophylaxis

- phenoxymethylpenicillin 250 mg orally bid for 6 months initially

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