

## Lymphoedema

Lymphoedema is characterised by swelling of certain parts of the body, caused by problems with the lymphatic system. Any part of the body can be affected by lymphoedema, but it tends to target the arms and legs. Around 300,000 Australians will experience lymphoedema at any given time.

Normally, fluid and proteins leak into the body tissues regularly from the blood. This tissue fluid bathes the cells, supplies their nutritional needs and receives back the products of their metabolism. The lymphatic system is a network of tubes throughout the body that drains this fluid (called lymph) from tissues and empties it back into the bloodstream. When this system is not working properly, lymphoedema can occur.

Women who have undergone surgery and radiotherapy for treatment of breast cancer are particularly susceptible to lymphoedema of the arm and, sometimes, the adjacent chest wall on the affected side. Men and women who have had surgery and radiotherapy for the treatment of cancer of the prostate, bowel or reproductive systems are also prone to lymphoedema of the legs or groin areas.

### Symptoms of Lymphoedema

The symptoms of lymphoedema may include:

- The affected area feels heavy
- The skin feels tight and close to bursting point
- The skin is hotter than other areas of the body
- Aching
- Pins and needles
- Darting pains
- Painful joints
- Swelling.

### The lymphatic system

The main roles of the lymphatic system include managing the fluid levels in the body, filtering out bacteria, and housing types of white blood cells crucial to the body's ability to fight infection. Muscular movements and contractions of the larger lymph vessels pump the lymph through the network of tubes. One-way valves in the vessels prevent the lymph from travelling backwards. The lymph is cleared of micro-organisms in glands of tissue called lymph nodes, located around the body. The lymph is eventually returned to the bloodstream, mainly through blood vessels in the neck.

### Swelling, inflammation and risk of infection

Oedema (temporary swelling) occurs when the lymphatic system can't efficiently remove excess fluid from tissues. A sprained ankle, for example, may be swollen for a few days or weeks. Lymphoedema occurs when the lymphatic system is injured or obstructed. The excess fluid and proteins in the tissue cause swelling and decrease the amount of oxygen available to the cells. The extra proteins cause inflammation, which leads to fibrosis if lymphoedema is not treated.

The combination of extra proteins and body heat provides a perfect breeding ground for bacteria and fungus. These infections place greater stresses on the already labouring lymphatic system and hospital admission may be required in severe cases.

### Primary lymphoedema

Primary lymphoedema is characterised by structural problems with the lymphatic system. The vessels may pump sluggishly or there may be insufficient numbers of vessels, or both may occur. Primary lymphoedema may be present before birth (congenital lymphoedema) or may develop during puberty (lymphoedema praecox) or middle age (lymphoedema tarda).

For those people who have a structural problem with the lymphatic system, the risk of developing a secondary lymphoedema overlying it is higher if they have surgery or radiotherapy for cancer treatment or other surgeries.

## Secondary lymphoedema

Secondary lymphoedema is caused by obstructions in the lymphatic drainage system. This may be due to:

- **Surgery** – particularly cancer-related surgery where lymph nodes are removed.
- **Radiotherapy** – the x-rays used to kill cancer cells may damage or destroy the nearby lymph nodes.
- **Trauma** – an injury to a lymphatic vessel may not heal properly.
- **Parasites** – such as worms, which may inhabit and block a lymphatic vessel.
- **Lack of movement** – muscular contractions are required to help pump the lymph through the vessels. Lack of movement allows the lymph to pool, particularly in the legs.
- **Allergy** – allergic reactions may affect the lymphatic system.

## Lymphoedema following treatment for breast cancer

Swelling of the arm, the remaining breast tissue or the chest can follow breast cancer surgery if the nearby lymph nodes in the armpit are removed. Radiotherapy can also cause swelling. Although the incidence varies – depending on the number of lymph nodes removed, whether radiotherapy was given and a range of other factors – around 10 per cent of women will experience lymphoedema to some degree with radiotherapy alone, while up to one-third of women who undergo both radiotherapy and surgery (and have other risk factors) will be affected. Lymphoedema can occur at any stage after the intervention, even 20 years later.

## Diagnosis

Lymphoedema is diagnosed with a number of different tests, including:

- **Physical examination** – taking into account the person's prior medical history.
- **Scans** – specialised x-rays, including CT scans and especially lymphoscintigraphy (which gives a functional picture of the lymphatic system).
- **Bioimpedance** – to detect fluids.
- **Perometry** – to detect limb volume and circumference changes.
- **Tonometry** – to detect changes in the toughness (fibre) of the limb.

## Treatment

Lymphoedema can be treated in a number of ways, including:

- **Complex physical therapy (CPT)** – combines compression, lymphatic draining, special exercises and skin care techniques.
- **Compression bandages** – to promote lymph flow.
- **Lymphatic drainage massage** – to manually move the lymph to a previously cleared, unaffected area and increase what drainage is present in the limb.
- **Special exercises** – muscular movement helps to pump lymph.
- **Medications** – such as benzopyrones (Paroven) to help remove excess proteins and associated fluid from the tissues.
- **Massage** – the person or their carer can be taught massage techniques.
- **Low-level laser therapy** – which can soften fibrotic tissue and help stimulate poorly functioning lymph vessels.
- **Electrical stimulation** – of the muscular elements of the lymph vessels and surrounding musculature.
- **Various forms of vibratory massage** – all of which in some way vary the tissue pressure and encourage uptake of fluids and their contents into the lymph vessels.

## Surgery

Surgical procedures are not suitable for everyone and are best considered when all other efforts fail. The different types of surgery that may be used include:

- **Lymphatic transplant operations** – lymphatic vessels from a normal limb are surgically transferred into the affected area.
- **Lympho-venous anastomosis** – an existing, but blocked lymphatic vessel is joined to a vein.
- **Liposuction** – excess superficial tissue is sucked out between the skin and muscle layers. (This is most beneficial in the middle, fatty stage of lymphoedema.)

## Self-help

Areas of the body affected by lymphoedema are prone to infection. Suggestions to manage lymphoedema include:

- Pay particular attention to skin care to reduce the risk of infection.
- Avoid cuts, abrasions or other tissue injuries in the affected area.
- Don't allow your skin to be sunburned.
- Avoid direct heat, such as hot baths, saunas and sunbathing.
- Have your bra professionally fitted.
- Don't wear tight jewellery.
- Try not to sit down for long periods of time or, if you do, elevate the affected limb.
- Take regular and gentle exercise. (Tai chi and chi gong have recently been shown to be very effective for arm lymphoedemas). Even higher levels of exercise can be beneficial but talk to your health professional before starting any new activity.
- Make sure that any medical procedures such as injections, blood tests or blood pressure readings are taken from the unaffected arm if possible. If this is not possible, make sure that any wound site is well cleaned and signs for any early infection are reacted to.
- Avoid carrying heavy loads for any length of time, as this does not allow good lymph fluid clearance from the tissues.

## Where to get help

- Your doctor
- NURSE-ON-CALL Tel. 1300 60 60 24 – for expert health information and advice (24 hours, 7 days)
- Lymphoedema Support Groups in each state
- Financial assistance to purchase compression garments is available for people who are pension card holders through the Lymphoedema Compression Garment Program Tel. 03 8458 4988

## Things to remember

- Lymphoedema is characterised by swelling of certain parts of the body, caused by problems with the lymphatic system.
- Women who have undergone surgery and radiotherapy for treatment of breast cancer are particularly susceptible.
- Treatment options include massage, medications, compression bandages, special exercises and surgery.

**This page has been produced in consultation with, and approved by:**

Lymphoedema Association of Australia

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