When is it lymphedema, when is it not lymphedema?

UNDERSTANDING EDEMA

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Learning Objectives

• How to identify stages of lymphedema
• The Gold Standard of Treatment for Lymphedema
• Differentiating types of swelling
• Recognizing possible cancer recurrence
• Easy tools for lymphedema management
Lymph

• A colorless fluid containing water, protein and white blood cells.
• The lymph fluid is returned to the blood circulation via larger lymphatic vessels (lymphatic trunks), and amounts to approximately 2-3 liters per day
• Edema is a visible and palpable accumulation of excess levels of lymph fluid within the tissues.
“Clinically, edema can be defined as a visible and palpable swelling caused by an increase of the fluid content of the interstitium.”
Edema

“...all types of lymphatic failure lead to edema.”

(FÖLDI, FÖLDI, and KUBIK 2003)
Edema and Lymphedema

Edema is a symptom of an underlying condition; Only in lymphedema is edema the primary sign of a disease condition.
Lymphedema

Definition:
• 1: Chronic edema (swelling) of at least 3 months persistence.
• 2: The swelling is minimally responsive to elevation.
• 3: There must be one or more secondary skin changes.
  • Skin thickening;
  • Cellulitis;
  • Skin flaking;
  • Lymphorrhea.

Dr. David Keast, MSc MD FCFP, Pathways Magazine, Spring 2017,
Types of Lymphedema

• **Primary**
  – Arises from genetic abnormality.

• **Secondary**
  – Results from physical reduction of transport capacity of the lymph system due to trauma, including surgical removal of lymph nodes.
Lymphedema Stages

Stage 0, or latent:

A subclinical state where swelling is not evident despite impaired lymph transport.

This stage may exist for months or years before edema becomes evident.
Stages of Lymphedema

Stage 1

The onset of evident and palpable swelling. The limb responds to elevation and swelling reduces overnight.
Stages of Lymphedema

Stage 2

Swelling is evident, does not respond to elevation or overnight rest.
Pitting is becoming evident.
Stages of Lymphedema

Stage 3

Swelling is prominent, tissue is fibrotic turning hard. Pitting may be absent due to hardness of skin.

Skin changes become evident. Skin thickening, hyperpigmentation, increased skin folds, and warty overgrowths may all develop.
Gold Standard of Treatment

Complex Decongestive Therapy

Agreed upon worldwide by professional and scholarly organizations.

Cheap, effective, non-invasive combination of therapeutic techniques.
CDT

- Manual Lymph Drainage
- Compression Therapy
- Decongestive Exercises
- Skin Care
CDT

• Two Phase Treatment:
  – Phase 1: Intensive Phase.
    • Clinical treatment by a Certified Lymphedema Therapist. Reduction of swelling is achieved, patient receives education in lymphedema and self-care of the condition. Intensive phase continues until edema is resolved or patient is ready for daytime compression.
CDT

• Two Phase Treatment:
  – Phase 2: Management Phase.
    • Clinical treatment goals have been met.
    • Patient is able to wear elastic compression during the day.
    • Patient is able to self-bandage at night.
    • Patient is responsible for management of lymphedema.
    • This management may utilize return visits to their lymphedema therapist for MLD and monitoring of condition.
Differentiating Types of Swelling

“Most cases of lymphoedema are diagnosed on the basis of the medical history and physical examination. The choice of investigations used to elucidate the cause of the swelling will depend on the history, presentation and examination of the patient.”

Differentiating Types of Swelling

Rule out:

Unilateral limb swelling:
- acute deep vein thrombosis
- post-thrombotic syndrome
- arthritis
- Baker's cyst
- presence/recurrence of carcinoma.

Differentiating Types of Swelling

Symmetrical swelling:
- congestive heart failure
- chronic venous insufficiency
- dependency or stasis oedema
- renal dysfunction
- hepatic dysfunction
- hypoproteinaemia
- hypothyroidism/myxoedema
- drug induced (e.g., calcium channel blockers, steroids, non-steroidal anti-inflammatories)
- lipoedema.

Differentiating Types of Swelling

Blood tests:

- full blood count (FBC)
- urea and electrolytes (U&Es)
- thyroid function tests (TFTs)
- liver function tests (LFTs)
- plasma total protein and albumin
- fasting glucose
- erythrocyte sedimentation rate (ESR)/C-reactive protein (CRP)

Lympoedema Framework. Best Practice for the Management of Lymphoedema.
Differentiating Types of Swelling

Physician provides diagnosis.

Physician will order tests deemed necessary.

Any questions about diagnosis will be referred back to the physician.
Lymphatic Sufficiency and Insufficiency

Factors:
• Lymphatic Load = LL
  – H2O, Proteins, Cells, Fat

• Lymph Time Volume = LTV
  – LTV= amplitude & frequency of intrinsic contractions

• Transport Capacity = TC
  – TC= Max LTV
  – 10x LL Intact system

• Functional Reserve = FR
  – Diff between TC & LL

(FÖLDI, FÖLDI, and KUBIK 2003)
Characteristics of Lymphedema

*Lymphedema has a slow onset.*
It took 7 years for this thin arm to become this large, swollen arm.

*Lymphedema is progressive.*
Over time, the limb will become larger.

*Lymphedema is usually not bilateral.*
Lymphedema of more than one limb does occur, especially in primary lymphedema that appears at a very young age; usually lymphedema affects only one limb.
**Characteristics of Lymphedema**

*Lymphedema is bilaterally asymmetric.*
This means that the two limbs will look different, even if two limbs are affected.

*Lymphedema is pitting edema.*
Due to its high protein nature, lymphedema exhibits pitting. In very early or very progressed stages it may not pit.

*Lymphedema usually begins distally,* in the hand or foot. There are exceptions.

*In lymphedema, skin health is usually good.* If there is a wound it may be slow to heal, but there is no ulceration or very dry skin.
Characteristics of Lymphedema

In lymphedema, cellulitis infection is common. With cellulitis there is heat, redness, pain and the patient feels sick, as though they have the flu. Antibiotics must be started immediately and manual lymph drainage treatments must be discontinued until symptoms clear up. Some patients are highly susceptible to cellulitis, some never or only rarely get it.

Lymphedema shows positive Stemmer sign. This is a skin fold test performed just below the toes to diagnose lower extremity lymphedema. It is performed on the fingers for upper extremity lymphedema.

Lymphedema is rarely painful. It is very uncomfortable but rarely painful. Some patients do report pain.

In lymphedema of the leg, the foot is affected. In lymphedema of the arm the hand may or may not be involved.

The picture at right shows bilateral asymmetry.
Characteristics of Lipedema

*Lipedema* is a chronic disease of fat distribution. The body is large from the hips down.

*Unlike lymphedema, lipedema is bilaterally symmetrical.* Both legs will look the same.

*Unlike lymphedema, lipedema is painful.* The legs can be very tender to the touch, and it is often painful to try to wear compression hose.

*Unlike lymphedema,* lipedema does not affect the feet.

*Unlike lymphedema,* the skin will have a cottage cheese texture.

The lipedema patient will often tell of unsuccessful weight loss attempts. Lipedema does not respond to dieting. MLD can be minimally useful.
Characteristics of Edema due to Congestive Heart Failure

Unlike lymphedema, swelling will be bilaterally symmetrical. Both feet and legs will be affected.

Unlike lymphedema, swelling will be minimally pitting with minimal perseverance of pitting.

Unlike lymphedema, patient may be short of breath and wheezy when reclining and dizzy upon standing. They may report regularly sleeping in an easy chair to facilitate breathing.

Patient may actually have a diagnosis of cardiac edema, congestive heart failure or enlarged heart. Manual lymph drainage is contraindicated. Refer back to physician.
Characteristics of CVI

Chronic Venous Insufficiency

*Unlike lymphedema,* skin is often dry and flaky and responds minimally to moisturising.

*Unlike lymphedema,* swelling may be absent or minimal.

*Unlike lymphedema,* feet are not swollen.

*Unlike lymphedema,* bilateral symmetry is often observed.

*Unlike lymphedema,* hemosiderin staining occurs.

*Unlike lymphedema,* ulceration can occur.

Edema can be present in later stages.

Compression is indicated; MLD may be indicated in some cases where edema is present.
Characteristics of Edema

Due to Trauma or Surgery

Unlike lymphedema, onset of swelling is sudden.

Unlike lymphedema, swelling is red, tight and shiny. The patient may report that the swelling hurts.

Unlike lymphedema, onset of swelling will be associated with a traumatic event such as injury or surgery.

Edema may be pitting, but pitting will be softer and faster to refill.

Unlike lymphedema, lymph system is healthy and intact. MLD may be indicated.
Characteristics of Edema

Obstructive Edema Due to Cancer

Unlike lymphedema, onset may be sudden or less gradual.

Unlike lymphedema, swelling may be red, tight and shiny.

Unlike lymphedema, pitting will be minimal or absent.

Unlike most lymphedemas, swelling will start proximally and progress distally.

Unlike lymphedema, there may be pain. If patient is unaware of any illness, refer back to physician. Swelling may be the only symptom of a new or recurring malignancy.
Other Edemases

Swelling may be due to:

**Infection**: swelling will be red, tight, shiny and painful with rapid onset. Severe infection can damage the lymphatics, leading to lymphedema.

**Infestation**: in subtropical countries a person might contract filariasis, leading to lymphedema.

**Radiation**: in some cases radiation treatment can damage lymphatics and lead to swelling or lymphedema. This is less common than it used to be.

**Self-Inflicted**: more common in Europe where lymphedema is better recognised and covered by national health insurance. It is done to get disability. Swelling will be softer and have a more definite starting point.
Mixed and Other Edemas

*Phlebo lymphostatic edema:* chronic venous insufficiency can lead to overloaded or damaged lymphatics. Lymphedema mixed with CVI can result. This is sometimes referred to as phlebo-lymphedema.

*Lipo-lymphedema:* in later stages of long-standing lipedema the lymphatic system can become overwhelmed, resulting in lymphedema mixed with lipedema. The lymphedema responds to treatment but the lipedema will respond minimally and over time.

*Post traumatic chronic edema:* in some cases edema caused by trauma may lead to true lymphedema. This can be the result of a variety of factors.

*Dependent edema:* edema due to inactivity. Patients in wheelchairs or otherwise confined may develop this low protein edema. Sometimes seen in stroke patients where the hand is hanging due to paralysis.
Reference Sources


Thank you for your attention!