

“Swollen legs & other body parts!”

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Learning Objectives

- Lymphoedema – is it really a problem??
- Structure & function of the lymphatic system
- Consequences of lymphatic failure
- Why the lymphatic system fails
- Management of Lymphoedema

What is Lymphoedema?

- Lymphoedema is the swelling of any body site (i.e. “chronic oedema”).
- It develops when the lymphatic system cannot drain fluid properly from our tissues.



What is Lymphoedema?

- Lymphoedema is the swelling of any body site (i.e. “chronic oedema”).
- It develops when the lymphatic system cannot drain fluid properly from our tissues.
- There are many causes:
 - > 1000 people/children affected by gene defects in England.
 - 25% of cases are due to cancer treatment.
 - Obesity, being immobile, inflammatory disease, blood pressure drugs, varicose veins, trauma...

How common is Lymphoedema?

- More than **423,000** people in the UK are living with Lymphoedema
- It is as common as Alzheimer's disease, 4 times as common as HIV, and 12 times as common as Multiple Sclerosis.
- 1 in 5 women with breast cancer will get it.

Why must we treat Lymphoedema?

- Lymphoedema is associated with many health problems if left untreated:
 - cellulitis infections, often need hospital admission
 - wounds and leg ulcers
 - mobility problems, pain, psychological issues...

Cost of Cellulitis to the NHS

- Cellulitis causes 400,000 bed days per year in UK (not all cases are due to lymphoedema, but thousands will be)
- Costing more than **£254 million** per year
- Cost savings can be made if we improve treatment of lymphoedema

Back to the Learning Objectives

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Functions of the Lymphatic System

- Protein and fluid homeostasis
- Cellular drainage from tissues
- Immune surveillance
- Fat homeostasis

Physiology

Oedema develops when microvascular filtration exceeds lymph drainage because of:

1) increased filtration e.g. venous hypertension, heart failure.

or

2) impaired flow of lymph e.g.

hypoplasia of lymphatic vessels (primary lymphoedema);
or interruption of lymphatic pathway (secondary lymphoedema).

Consequences of lymphatic failure

- Lymphoedema & elephantiasis skin changes
- Infection
- Increased risk of local malignant changes
- Lymphoedema may turn “fatty”

Clinical pointers to lymphoedema:

- (Lymphoedema is pitting)
- Lymphoedema may improve overnight
- Lymphoedema causes skin thickening and hyperkeratosis
- Diuretics have no longterm impact on lymphoedema
- Mild/mod exercise improves lymph drainage
- More than one attack of cellulitis

Infections

- Viral
- Fungal
- Bacterial

Cellulitis

- Local cellulitis guidelines for acute infection.
- But treat for at least 2 weeks.
- BLS guidelines (www.thebls.com) if not responding to 1st line ABx or recurrent infections.
- Prolonged courses of iv antibiotics (? at home).
- Consider use of prophylactic antibiotics.

Cellulitis Prophylaxis

- Prophylactic penicillin V 250mg bd (or 500mg bd if BMI>33) if 2 episodes per year.
- Erythromycin 250mg bd or Clarithromycin 250mg od if allergic to penicillin.
- Consider using for 1-2 years in order to prevent infection and prevent further lymphatic damage.

Why does the lymphatic system fail?

- Primary lymphoedema
- Secondary lymphoedema

Primary Lymphoedema

- Chronic oedema caused by a developmental abnormality of the lymphatic system, due to a genetic fault.
- Phenotypes vary in age of onset, site, inheritance patterns, associated features, genetic causes.



Primary Lymphoedema Clinics at St George's

- National clinic.
- More than 1000 patients.
- Multidisciplinary approach (geneticists, dermatologists, lymphoedema therapists).
- Rapid access to other specialists: plastic surgeons, infectious diseases, vascular surgeons, gastroenterologists, urologists.
- Focus on genetic diagnosis and management.

Subtypes of Primary Lymphoedema

- Associated with genetic syndromes.
- Associated with systemic lymphatic problems.
- Associated with overgrowth disorders.
- Congenital.
- Late-onset (onset after 1 year of age).

Gene mutations responsible for PL

- VEGFR3
- VEGFC
- KIF11
- CCBE1
- FAT4
- FOXC2
- GJC2
- Noonan
- Turner
- GATA2
- EPHB4
- PIEZO1
- SOX18
- ADAMTS3
- CELSR1

**These only explain 25% of cases.
We have more genes to discover!**

Primary Lymphoedema Summary

- 'Primary lymphoedema': an umbrella term for many different conditions.
- Important to determine the subtype → screen for associated diseases.
- Offer genetic testing for patient +/- family members.
- Important to identify the gene mistakes in order to further understanding of the disease mechanism → improve treatment options.

Secondary Lymphoedema

- **Medications** (calcium channel blockers, steroids)
- **Malignancy** (disease / treatment)
- **Infection** (bacterial / viral)
- **Inflammation** (RA / psoriasis / eczema / acne / cutaneous Crohn's)
- **Trauma**
- **Venous disease**
- **Dependency** (“armchair legs”)
- **Obesity**
- **Lipoedema**

Lymphoedema Management

- Treat the underlying cause (wherever possible) in secondary lymphoedema.
- Primary and Secondary lymphoedema currently have shared management strategies.

Lymphoedema Management

- Conservative therapy (MLD & MLLB / garments)
- Debulking surgery
- Lymphaticovenous anastomosis surgery
- Lymph node transfer procedure
- Liposuction (for select Lymphoedema cases)

“Conservative” treatment for lymphoedema

- Principle is to get the most out of remaining lymph drainage capacity by:-
 - (MLD Massage)
 - Compression (Intensive vs Maintenance)
 - Exercise
- Prevention of infection through:
 - skin care
 - prophylactic antibiotics (if indicated)

Summary / “Clinical Pearls”

- Lymphoedema can develop as a result of genetic abnormalities (primary lymphoedema), or as a result of medical disorders (secondary lymphoedema).
- Calcium channel blockers may cause or exacerbate lymphoedema.
- Cellulitis frequently complicates the situation.
Consider antibiotic prophylaxis.
- Mainstay of treatment is compression, exercise & weight loss. (Surgery may be suitable for select patients).
- Drug therapies are on the horizon....

2 helpful community resources:



Best Practice, Leadership, Support

POSITION PAPER FOR ANKLE BRACHIAL PRESSURE INDEX (ABPI)

Informing decision making prior to the
application of compression therapy

“Routine ABPI measurements for patients with lymphoedema are not required in the absence of significant cardiovascular risk factors and clinical signs or symptoms of PAD (Peripheral Arterial Disease), provided the vascular status has been thoroughly assessed”.



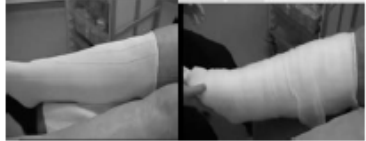


GIG
CYMRU
NHS
WALES

Cydweithrediad
Iechyd GIG Cymru
NHS Wales Health
Collaborative




Lymphoedema Network
Wales 

The Chronic Oedema 'Wet Leg' (Lymphorrhoea) Pathway

Google: “Welsh wet leg pathway”

PATIENT NAME:		DATE OF BIRTH:	DISTRICT NURSE CONTACT:	DATE:
LEVEL 1 SUPPORT BANDAGING	GOAL	INSTRUCTIONS		PHOTOGRAPHS
<ul style="list-style-type: none"> One layer of blue/yellow line tubular stockinette 3 rolls of wool padding One layer of blue/yellow line tubular stockinette 	Stop leaking Provide comfort and support Reduce oedema	<ul style="list-style-type: none"> Wash leg in emollient/ointment/lotion and apply moisturising cream _____ Apply wound dressings as per formulary One layer of blue/yellow line tubular stockinette 3 rolls of wool padding One layer of blue/yellow line tubular stockinette A DOPPLER IS NOT REQUIRED¹		
LEVEL 2 SUPPORT BANDAGING	GOAL	INSTRUCTIONS		PHOTOGRAPHS
<ul style="list-style-type: none"> One layer of blue/yellow line tubular stockinette 3 rolls of wool padding One layer of blue/yellow line tubular stockinette One Actico or short stretch 10cm x 6m 	Stop leaking Provide comfort and support Reduce oedema	<ul style="list-style-type: none"> As above then Apply Short Stretch Bandage inelastic (10cm width) in a spiral application from the base of the toes up the leg with a 50% overlap and stretch up to the knee Apply toe bandages if toes are swollen. See document 'Lymphoedema/Chronic Oedema Toe Bandaging Care Plan'. Or consider using toe caps A DOPPLER IS NOT REQUIRED¹		
LEVEL 3 COMPRESSION	GOAL	INSTRUCTIONS		PHOTOGRAPHS
<ul style="list-style-type: none"> One layer of blue/yellow line tubular stockinette 3 rolls of wool padding One layer of blue/yellow line tubular stockinette Two layers of Actico or short stretch 10cm x 6m 	Stop leaking Provide comfort and support Reduce oedema	<ul style="list-style-type: none"> As above Apply second layer of Short Stretch Bandage inelastic (10cm width) at full stretch in an opposite spiral application from the base of the toes up the leg with a 50% overlap up to the knee. Apply toe bandages if toes are swollen. See document 'Lymphoedema/Chronic Oedema Toe Bandaging Care Plan'. Or consider using toe caps ARTERIAL ASSESSMENT IS COMPLETED PRIOR TO COMPRESSION APPLICATION		

Lymphoedema/Chronic Oedema Toe Bandaging Care Plan

PATIENT NAME:		DATE OF BIRTH:	THERAPIST NAME:	DATE:
PROBLEM	GOAL	INSTRUCTIONS		PHOTOGRAPHS
	To manage toe oedema Or To prevent toe oedema	<ul style="list-style-type: none"> Wash leg in emollient/ointment/lotion and apply moisturising cream _____ Apply 4cm bandage and anchor with a loose turn around the base of the forefoot. This bandage may be folded in half. <p>BANDAGES TYPES: HOSPIFORM / MOLLELAST/ K-BAND</p>		  
ADDITIONAL INFORMATION	AIMS	<ul style="list-style-type: none"> Take the bandage across the dorsum of the foot up to the big toe, wrap around the base of the toe nail – use light tension only While applying the bandage to each toe – ensure all skin is covered and up to the base of the toe nail as shown. Do not bandage the little toe as it rarely swells. See appropriate treatment plan to apply multi-layer Lymphoedema Bandaging if required or follow care plan for leg ulcer management as directed by the Tissue Viability Nurse/District Nurse. 		
	To apply toe bandages			