

LSN

THE LYMPHOEDEMA
SUPPORT NETWORK

because lymphoedema matters



MANAGEMENT OF CELLULITIS IN LYMPHOEDEMA

This information has been produced and verified by accepted experts in their field. It reflects current best practice and evidence based research where appropriate. It has been designed to assist you in managing your condition and is not intended to replace advice you may receive from your healthcare practitioner. If you or your healthcare practitioner would like to ask any questions or require details of the research used to develop this information, please contact the Lymphoedema Support Network on 020 7351 4480.

Introduction

This fact sheet has been produced as a resource for your GP or medical team involved in your care. It is intended to offer guidance on the management of cellulitis in lymphoedema and how best to manage the situation.

This fact sheet is based on a Consensus Document produced by medical experts and facilitated by the Lymphoedema Support Network. The document was originally produced in October 2005 and has been revised in August 2010. It is jointly owned by the Lymphoedema Support Network and the British Lymphology Society.

It makes recommendations about the use of antibiotics for cellulitis in patients with lymphoedema, and advises when admission to hospital is indicated.

Prompt treatment is essential to avoid further damage to the affected part, which in turn may predispose to repeated attacks.

If you suspect you may have an episode of cellulitis – or have had a number of attacks in the past – please take this fact sheet to your GP, Consultant and/or your lymphoedema practitioner.

What is Cellulitis?

Cellulitis is an acute spreading inflammation of the skin and subcutaneous tissues characterised by pain, warmth, swelling and erythema. In lymphoedema, attacks are variable in presentation and, because of differences from classical cellulitis, are often called acute inflammatory episodes. Cellulitis will be the term used here (related terms: erysipelas, lymphangitis). Most episodes are believed to be caused by *Group A Streptococci* (Mortimer 2000, Cox, 2009). However, microbiologists consider *Staph aureus* to be the cause in some patients (e.g. Chira and Miller, 2010). A recent Cochrane review concluded that it was not possible to define the best treatment for cellulitis in general based upon existing evidence (Kilburn et al 2010). Furthermore, the treatment of cellulitis in lymphoedema may differ from conventional cellulitis.

For more information about cellulitis, see the LSN fact sheet ‘What is Cellulitis?’

Features of Cellulitis in Lymphoedema

Cellulitis can vary from patient to patient and episodes can vary in presentation.

Some episodes are accompanied by severe systemic upset, with high fever or rigors; others are milder, with minimal or no fever. Increased swelling of the affected area may occur. Inflammatory markers (CRP, ESR) may be raised. It is difficult to predict response to treatment.

Other features may include:

- Onset over minutes (as opposed to hours as in classical cellulitis)
- Polymorphic rash – no defined border
- Systemic symptoms first (e.g. ‘flu’ like symptoms, nausea and vomiting, high fever)
- May grumble over a period of weeks

Treatment of Cellulitis

1. ACUTE ATTACK OF CELLULITIS

1.1 A decision whether hospital admission is indicated should be based on the level of systemic upset:

- signs of septicaemia (hypotension, tachycardia, severe pyrexia, confusion, tachypnoea or vomiting) are an absolute indication for admission;
- continuing or deteriorating systemic signs, with or without deteriorating local signs, after 48hrs of antibiotic treatment;
- unresolving or deteriorating local signs, with or without systemic signs, despite trials of first and second line antibiotics.

1.2. Management at home

- 1.2.1 It is essential that the patient is closely monitored, ideally by the GP. To establish a baseline to monitor progress, record:
- extent and severity of rash – if possible, mark and date the edge of the erythema (may be difficult in lymphoedema as the rash is often blotchy);
 - level of systemic upset;
 - CRP/ESR/white cell count may be helpful in diagnosis and monitoring of treatment;
 - Microbiology of any cuts or breaks in the skin before antibiotics are started.
- 1.2.2 Oral amoxicillin 500mg 8-hourly is the treatment of choice. If there is any evidence of *Staph aureus* infection e.g. folliculitis, pus formation or crusted dermatitis, then flucloxacillin 500mg 6-hourly should be prescribed in addition or as an alternative. Microbiologists suggest that the use of single agent Flucloxacillin for all cellulitis covers both *Strep.* and *Staph.* infections. This is, therefore, an acceptable alternative. (See www.thebls.co.uk or www.lymphoedema.org for more detailed discussion of the relative merits of Amoxicillin and Flucloxacillin).
- 1.2.3 Patients who are allergic to penicillin should be prescribed erythromycin 500mg 6-hourly or clarithromycin 500mg 12-hourly (see also 3.1-3.3).
- 1.2.4 If there is no or a poor response (unresolving inflammation or development of systemic symptoms) to oral amoxicillin after 48 hours, then clindamycin 300mg 6-hourly should be substituted as second line oral treatment.
- 1.2.5 Antibiotics should be continued until all signs of acute inflammation have resolved; this often means taking antibiotics for 1-2 months and the course of antibiotics should be for no less than 14 days from the time a definite clinical response is observed.
- Skin changes e.g. discolouration / staining may persist for months or longer following severe cellulitis and do not necessarily require ongoing antibiotics.
- 1.2.6 Bed rest and elevation of the affected part is essential. Avoid compression garments during the acute attack. However, they should be replaced as soon as the affected area is comfortable enough to tolerate them.
- 1.2.7 Appropriate analgesia, e.g. paracetamol, as necessary. It is probably advisable to avoid NSAIDs e.g. ibuprofen during the acute attack as these medications may be associated with complications such as necrotizing fasciitis.
- 1.2.8 When the inflammation is sufficiently reduced, wearing of compression garments and normal levels of exercise may resume. A return to work depends on the patient's occupation, and there being no deterioration when normal levels of exercise are established.
- 1.2.9 Unusual circumstances, e.g. animal bite or lick preceding an attack, or a failure of infection to respond to above recommendations, should prompt discussions with a local microbiologist.

1.3. Management in hospital

- 1.3.1. Choice of antibiotics in hospital is largely dependent on local rules. Recommended first line treatment is amoxicillin 2g 8-hourly iv but iv Benzylpenicillin 1.2-2.4g 6-hourly may be an appropriate alternative to the amoxicillin. Hospital guidelines commonly recommend single agent iv Flucloxacillin 2g 6hly, as this is felt to cover both *Staph.* and *Strep.* infections (Leman and Mukherjee, 2005).
- 1.3.2. If there is no or a poor response to this combination after 48 hours, clindamycin 600mg 6-hourly iv should be substituted for both.
- 1.3.3 Penicillin allergic patients should receive clindamycin as in 1.3.2.
- 1.3.4 For the treatment of ano-genital cellulitis the recommended first line treatment is amoxicillin 2g 8-hourly iv plus gentamicin 5mg/kg iv daily; dose to be adjusted according to renal function and assay. NB: Local hospital guidelines may differ from this.
- 1.3.5 Monitoring of CRP / ESR / WCC (blood tests), temperature and microbiology (wound swabs) of any cuts or breaks in the skin are recommended before antibiotics are started. Blood cultures may be appropriate.
- 1.3.6 Extent and severity of rash – if possible, mark and date the edge of the erythema (may be difficult in lymphoedema as the rash is often blotchy).
- 1.3.7 A switch to oral treatment with amoxicillin 500mg 8-hourly, or clindamycin 300mg 6-hourly should not be made before:
 - Temperature down for 48 hours;
 - Inflammation much resolved;
 - CRP falling.Then continue as in 1.2.5-1.2.9

1.4. Antibiotics “in case”

- 1.4.1. The risk of further attacks of cellulitis in lymphoedema is high. It is recommended that patients who have had an attack of cellulitis should carry a two week supply of antibiotics with them particularly when away from home for any length of time, e.g. on holiday. Amoxicillin 500mg tds is recommended or, for those allergic to penicillin, clarithromycin 500mg bd. Antibiotics should be started **immediately** familiar symptoms of cellulitis start but a medical opinion should be sought as soon as possible.
- 1.4.2. There is evidence that decongestive lymphatic therapy (DLT) reduces the frequency of attacks (Ko et al 1998). Control of the swelling is therefore important. Patients undergoing intensive DLT and known to have suffered cellulitis in the past during DLT may benefit from antibiotic cover in case cellulitis is provoked.
 - Patients who have not experienced previous episodes of cellulitis do not require antibiotics during intensive treatments.
 - It is recommended that patients with a history of previous episode(s) of cellulitis during DLT are prescribed a prophylactic dose of antibiotic for the duration of the intensive treatment.
 - For patients already receiving prophylactic antibiotics it is recommended that a therapeutic course of antibiotics are prescribed for the duration of the intensive treatment.

- 1.4.3. Patients undergoing surgical procedures on the lymphoedematous region should receive a therapeutic course of antibiotics commenced before surgery (oral or iv as appropriate) as described previously (see points 1.2.2 or 1.2.3) or as indicated by the procedure.

2. RECURRENT CELLULITIS

- 2.1. Antibiotic prophylaxis should be offered to patients who have two or more attacks of cellulitis per year. Penicillin V 500mg daily (1g if weight >75kg) should be the first choice. The dose may be reduced to 250mg daily after one year of successful prophylaxis. Prophylaxis may need to be life-long if relapse occurs when antibiotics are discontinued after a two year period of successful prophylaxis. For those allergic to penicillin, erythromycin 500mg daily is recommended; if this is not tolerated then clarithromycin 250mg daily is an alternative (see also 3.1-3.3). It is recommended that patients requiring antibiotic prophylaxis for ano-genital cellulitis should receive trimethoprim 100mg daily taken at night.
- 2.2. Apart from the swelling, other risk factors for recurrent cellulitis including cracked, macerated, inter-digital skin, dermatitis, open wounds including leg ulcers, and weeping lymphangiectasia (leaking lymph blisters on the skin surface) should be treated. Treatment of inter-digital fungus should be with application of terbinafine cream daily for two weeks. This may be followed by maintenance treatment, providing the skin is unbroken, with alcohol wipes daily.
- 2.3. It may not be possible to fully prevent further episodes of cellulitis even with prophylactic antibiotics. However, there may be a reduction in the frequency of cellulitis and / or the severity of episodes. If the response to first line prophylactic antibiotics is inadequate then alternative strategies including trials of other prophylactic antibiotics e.g. clindamycin 150mg daily or cefalexin 125mg daily or doxycycline 50mg daily may need to be considered. In these circumstances, review by local specialist lymphoedema services and advice from microbiologists is recommended. There is a need to balance the use of certain antibiotics (eg clindamycin, cefalexin) as prophylaxis against the risk of predisposing to *C.difficile* infections.

3. DRUG INTERACTIONS

- 3.1. It is recommended that the prescriber checks individual drug interactions particularly when prescribing macrolides e.g. erythromycin, and clarithromycin. The most common interactions are outlined below (3.3-3.4).
- 3.2. Patients who have experienced an anaphylactic reaction to penicillin should not be given antibiotics from the cephalosporin family e.g. cefuroxime, cefotaxime, ceftazadime and cefalexin.
- 3.3. For patients receiving a statin e.g. simvastatin or atorvastatin who are penicillin allergic (not anaphylaxis) the recommended first line antibiotics are cefalexin 500mg taken 8-hourly or doxycycline 200mg taken for the first day and then 100mg daily. Patients requiring prophylactic antibiotics should be offered cefalexin 125mg taken at night or doxycycline 50mg daily.
- 3.4. It is known that many of the different groups of antibiotics alter the anti coagulant effect of coumarins e.g. warfarin. It is advised that the interactions are checked before prescribing antibiotics for patients receiving coumarins.

4. RECOMMENDATIONS FOR THE TREATMENT OF CELLULITIS IN CHILDREN WITH LYMPHOEDEMA

- 4.1. As in adults, cellulitis in children may present with local symptoms of pain, discomfort, redness or swelling with or without general ill health and malaise. It is important to treat early and recognise that those children who present with systemic symptoms of infection or have deteriorating local signs should be seen in hospital and treated aggressively with intravenous antibiotics.
- 4.2. The management of cellulitis in children with lymphoedema should follow the previous sections (1-3) with reference to appropriate documents (e.g. BNF) to determine the required antibiotic dose(s).
- 4.3. It has been suggested that children requiring hospital admission should receive amoxicillin plus flucloxacillin. If there is any suspicion of toxic shock syndrome clindamycin should be prescribed in addition to amoxicillin and flucloxacillin.

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Consensus Panel:

Dr Vaughan Keeley, Consultant in Palliative Medicine, Derby Hospitals NHS Foundation Trust. 1, 2 (Chair)

Professor Peter S. Mortimer, Consultant Dermatologist at the Royal Marsden and St George's Hospitals, London. 1, 2

Professor John Welsh, Consultant in Palliative Medicine, Beatson Oncology Centre, Greater Glasgow NHS. 1

Dr Christopher Cefai, Senior Lecturer in Microbiology, North East Wales Trust. 1

Dr Robert Twycross, Emeritus Clinical Reader in Palliative Medicine, Oxford University. 1

Dr Andrew Hughes, Consultant in Palliative Medicine, St Oswald's Hospice, Newcastle. 1, 2

Dr Caroline Cooke, Consultant in Palliative Medicine, The Leicestershire Hospice (LOROS). 1

Dr Ellie Bond, Staff Grade Doctor in Palliative Medicine, St Oswald's Hospice, Newcastle. 1

Dr Sue Rudd, Staff Grade Doctor in Palliative Medicine, Derby Hospitals NHS Foundation Trust. 1

LSN Trustees. 1, 2

Dr Gillian Foster, Associate Specialist, Strathcarron Hospice, Stirlingshire. 2

Mr Alex Munnoch, Consultant Plastic Surgeon, Ninewells Hospital, Dundee, Scotland. 2

1. Member of original consensus panel

2. Member of 2009/10 update consensus panel

Acknowledgements:

Dr Fiona Howarth, Microbiologist, Sherwood Forest Hospitals.

Dr Sayed Bukhari, Microbiologist, University Hospitals Leicester.

Julia Lacey, Antimicrobial Pharmacist, Derby Hospitals NHSF Trust.

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Katie Riches, Research Nurse, Derby Hospitals NHSF Trust.

This information was revised in 08/2010. It will next be reviewed in 08/2012 or before, should the LSN become aware of significant changes in practice.

The Consensus Panel and the LSN/BLS would welcome any comments from users. All comments should be sent to the LSN office.

LYMPHOEDEMA IS THE SWELLING OF THE LIMBS AND BODY DUE TO THE ACCUMULATION OF LYMPH.

Lymphoedema affects at least 100,000 men, women and children in the UK causing swelling of the limbs or body and an increased risk of infection (cellulitis). However, it remains an underestimated health problem and is little known or understood by many medical practitioners.

The Lymphatic System

Lymph is a colourless fluid which forms in the body. It normally drains back into the blood circulation through a network of vessels and nodes. Lymph nodes act as filter stations and they play an important part in the body's defence against infection, by removing excess protein, cells (which may include cancer cells) and micro-organisms.

Why does lymphoedema occur?

If the drainage routes through the lymphatic system become blocked or damaged, lymph accumulates in the tissues and swelling (oedema) occurs. Unlike other oedemas, lymphoedema leads to changes in the tissues such as fibrosis (hardness) and an increased risk of infection. The swelling can then become even more difficult to control.

Primary and Secondary Lymphoedema

Primary Lymphoedema develops as a result of a fault within the lymphatic system itself – usually as a result of genetic underdevelopment or weakness of the lymph conducting pathways. It can affect children and men or women at any age.

Secondary Lymphoedema is the result of damage to lymphatic pathways. This maybe the result of treatment for cancer following surgery or radiotherapy. It can also occur as a result of infection, severe injury, burns, or any other trauma that can damage the lymphatic nodes/vessels. It can also arise as a result of the venous system not working efficiently (i.e. those who have had a deep vein thrombosis (DVT), varicose veins or varicose ulcers). Those patients suffering from lack of muscle movement (i.e. those suffering from a stroke or Multiple Sclerosis) may also be at risk.

EARLY DIAGNOSIS AND EARLY TREATMENT ARE VITAL TO CONTROL LYMPHOEDEMA.

Become a member of the LSN – see next page.

The LSN is a registered charity founded in 1991. It provides vital information and support for people with lymphoedema, while working towards the availability of better national resources for lymphoedema treatment.

What the LSN offers to members:

- Telephone information and support line
- Quarterly newsletters containing current information on lymphoedema, research and treatment
- A wide range of fact sheets
- A frequently updated website
- Self-help DVDs
- School packs

The LSN relies solely on membership subscriptions and donations. Please help us to continue our vital work by becoming a member and/or making a donation.

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APPLICATION FOR MEMBERSHIP

Mr, Mrs, Miss, Ms. SURNAME _____

First names _____

Address _____

_____ Post Code _____

Telephone (Home) _____

(Work) _____

- I have Lymphoedema
- I am a Health Care Professional
- Other (please specify) _____

I would like to join the LSN and enclose a cheque made payable to the LSN for _____

- Annual UK subscription £15.00
- Annual overseas subscription £30.00
- Donation to support the work of the LSN of _____

Total _____

Please send to:
The Lymphoedema Support Network
St Luke's Crypt, Sydney Street, London SW3 6NH

Fact sheets available:

Coping following a mastectomy/lumpectomy

Breast oedema

Prevention of upper limb lymphoedema

Recreational exercise with lymphoedema

Manual Lymphatic Drainage Therapy

Skin care for people with lymphoedema

The use of compression garments in lymphoedema management

Holidays and travel

Prevention of lower limb lymphoedema



For information and help, please contact

The Lymphoedema Support Network
St Luke's Crypt, Sydney Street, London SW3 6NH

Telephone: 020 7351 4480 (Information and Support)

020 7351 0990 (Administration)

Facsimile: 020 7349 9809

e-mail: adminlsn@lymphoedema.freereserve.co.uk

Website: www.lymphoedema.org

Registered Charity No. 1018749

Patron Zoë Wanamaker CBE

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