

## Management of Cellulitis in Lymphoedema

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### Background

This document has been developed by the Australasian Lymphology Association to provide an Australian perspective and nationally consistent principles on the management of cellulitis in lymphoedema. There are now several international published guidelines which are worthy of recognition within the Australian context. This document was developed using the *Consensus Document on the Management of Cellulitis in Lymphoedema British Lymphology Society 2005 and 2010*, and the *International Consensus Document on Best Practice for the Management of Lymphoedema, Lymphoedema Framework 2006*, to be consistent with *Australian Antibiotic Therapeutic Guidelines Edition 14, 2010*.

### Definition

Cellulitis presents with an acute spreading inflammation of the skin and subcutaneous tissues characterised by pain, swelling, warmth and erythema. It may be associated with lymphadenopathy, fever and systemic toxicity. If the rash progresses; blistering of the skin may occur.<sup>1,2</sup>

Cellulitis in the lymphoedema affected area may be variable in presentation and may differ from classical cellulitis. Onset may be sudden over minutes or slow over weeks. Skin manifestation may be preceded by systemic symptoms and often are accompanied by exacerbation of existing lymphoedema. Symmetrical involvement of both legs is uncommon in cellulitis and should suggest an alternative diagnosis. Inflammatory markers including WCC, CRP or ESR may not always be elevated. Therefore the decision to start treatment with antibiotics should not depend on blood test results but on the clinical presentation. Prompt treatment is essential to avoid further damage to the lymphoedematous part which, in turn, may predispose to repeated attacks.

The causative bacterium of cellulitis in lymphoedema is almost always *Streptococcus pyogenes*. Streptococcal bacteria are nonpenicillinase producing gram positive cocci, which remain susceptible to narrow spectrum antibiotic such as phenoxymethyl penicillins. Use of narrow spectrum antibiotics is recommended to minimise resistance development in other bacteria/organisms.<sup>3</sup>

In wound associated cellulitis or if pus or abscess are present the causative organism is likely to be *Staphylococcus aureus*. *Staphylococcus aureus* is penicillinase producing gram positive cocci which has a high level of resistance to narrow spectrum antibiotics. Microbiology and antibiotic resistance testing should be undertaken to identify antibiotic resistance.

### Management

#### 1. Acute Cellulitis

The decision whether hospital admission is indicated should be assessed on the level of systemic upset:

- Signs of septicaemia – hypotension, tachycardia, severe pyrexia, confusion, tachypnoea or vomiting are absolute indicators for admission;
- Continuing or deteriorating systemic signs, with or without deteriorating local signs, after 48 hours of antibiotic treatment;
- Unresolved or deteriorating local signs with or without systemic signs despite adequate trials of first and second line antibiotics.<sup>2</sup>

#### 1.1 Management At Home

It is recommended that the patient be assessed by a doctor to establish a baseline and then monitored daily.

Record:

- Extent and severity of rash – if possible mark, or photograph the border of the erythema.
- Level of systemic upset – pulse, temperature, rate of breathing etc.
- C Reactive Protein/Erythrocyte Sedimentation Rate/White cell count (WCC may not be elevated);
- Microbiology of any cuts or breaks in the skin before antibiotic is commenced.<sup>2</sup>

Prescribe:

- Oral Phenoxymethylpenicillin 500mg 6 hourly (for patients over 100kg give 1G);
- If there is any evident Staph Aureus infection, eg. Folliculitis, pus or dermatitis; prescribe Dicloxacillin or Flucloxacillin 500mg 6 hourly;
- For patients hypersensitive to penicillin; prescribe Cephalexin 500mg 6 hourly;
- For patients allergic to penicillin; prescribe Clindamycin 300mg 8 hourly.

If there is no response or a poor response (unresolved inflammation or development of systemic symptoms) to oral penicillin or Dicloxacillin after 48 hours, then Clindamycin 450mg 8 hourly should be substituted as the second line of oral treatment or hospital admission considered.

Antibiotics should be continued for at least three weeks or longer depending on progress. Redness of the area may persist after treatment.

Bed rest and elevation of the affected part is essential. Ensure adequate general hydration.

Paracetamol may be taken as necessary.

Remove compression garments and avoid manual lymphatic massage during the acute attack, but recommence usual compression as soon as the patient is tolerant of usual activity and compression. If the swelling persists, lymphoedema practitioner assessment is recommended to review compression garment to ensure correct fit.

## 1.2 Intravenous Home Based Therapy

If this service is available for initial therapy prescribe:

- Cephazolin 2G IM daily with Probenecid 1G oral daily OR
- Cephazolin 2G IM 12 hourly<sup>3</sup>

A switch to oral Cephalexin 500mg 6 hourly should not be made before the temperature is normal for 48 hours, inflammation is much improved and C Reactive Protein is falling.

Cephalexin should be continued for a further 14 days.

## 1.2 Antibiotics “In Case”

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,<sup>2</sup>

Prescribe:

- Dicloxacillin 500mg 6 hourly, Cephalexin can also be used;
- For those allergic to penicillin, prescribe Clindamycin 300mg 8 hourly.

Antibiotics should be commenced immediately when familiar symptoms of cellulitis start, and a medical opinion should be sought as soon as possible.

## 1.3 Antibiotics During Therapy

Patients undergoing intensive complex lymphoedema therapy and who are known to have suffered cellulitis in the past may benefit from antibiotic cover during treatment.

Prescribe:

- Phenoxyethylpenicillin 500mg daily is recommended during the period of intensive treatment. Cephalexin can also be used;
- For those allergic to penicillin, prescribe Erythromycin 250mg daily

## 2. Recurrent Cellulitis

Antibiotic prophylaxis should be offered to lymphoedema patients who have two or more attacks of cellulitis in a 12 month period, despite diligent skin care and treating all contributing risk factors.

Prescribe:

- Phenoxyethylpenicillin 500mg daily or 250mg BD. Cephalexin can also be used;
- If allergic to penicillin, Erythromycin 250mg daily should be the first choice;
- If the patient weighs over 100kg, dosage should be doubled.

Dosage may be reduced to 250mg daily after one year of successful prophylaxis and discontinued after two years without recurrence. However, prophylaxis may need to be lifelong if

cellulitis recurs after two years of successful prophylaxis and good skin care. Those patients in whom first line antibiotic prophylaxis fails may need alternative strategies including a trial of Clindamycin 150mg daily. An increase in the dose of prophylactic antibiotic during the summer months may be considered if recurrences are noted during this time.

Prevention of recurrent cellulitis require optimal management risk factors including interdigital scaling, dermatitis and open wounds and weeping lymphangiectasis (lymph blisters). These need to be treated topically.<sup>2</sup>

Other risk factors such as diabetes, obesity, and poor mobility require specific management.

Wounds, both traumatic and surgical may require higher or more prolonged antibiotic cover if recurrent cellulitis has occurred previously.

Good skin care reduces bacterial skin colonization and the likelihood of cellulitis recurrence.

Recommend:

- Chlorhexidine 4% total body wash twice weekly for four weeks then weekly for three months
- Bactroban Nasal Gel or equivalent to the nostrils at night for ten days.
- All bed linen and clothes should be washed in hot water and dried in the sun.
- Use disposable sponges or one use face washers.

There is evidence that complex lymphoedema therapy reduces the frequency of cellulitis attacks. Control of swelling is important. The lymphoedema affected limb should be considered to be immuno-suppressed.<sup>2</sup>

## 3. Inflammatory Dermato-Sclerosis

This condition presents as a red itchy inflamed area affecting the lower legs with venous insufficiency and lympho-venous oedema being the underlying problem. It can be confused with acute cellulitis however it is commonly bilateral and there are no accompanying systemic symptoms of cellulitis. Management is topical corticosteroid, compression and further venous investigation.<sup>2</sup>

## References

1. British Lymphology Society. Consensus Document on the Management of Cellulitis in Lymphoedema. 2010. [www.thebls.com](http://www.thebls.com)
2. Lymphoedema Framework. Best Practice for Management of Lymphoedema. International Consensus. [www.lympho.org](http://www.lympho.org).
3. Therapeutic Guidelines Limited. Therapeutic Guidelines: Antibiotic. Version 14. eTG complete, 2010. [www.tg.com](http://www.tg.com)

*“Disclaimer Guidelines are prepared having regard to general circumstances. It is the responsibility of the practitioner to have express regard to the particular circumstances of each case, and the application of this guideline in each case. This guideline has been prepared having regard to current information however the practitioner should consider any information, research or material which may have been published or become available subsequently. While the ALA endeavors to ensure that this guideline is as current as possible at the time of its preparation, it takes no responsibility for matters arising from individual or changed circumstances or information or material which may have become available subsequently.”*