Cellulitis Pathway

This pathway applies to lower limb cellulitis in adults expected to be caused by *S. pyogenes* or other beta-haemolytic streptococci. Note these **Exclusions from this pathway:** water-associated infections, human or animal bite-associated infections, diabetic foot infections, facial or orbital cellulitis, upper limb cellulitis, boils, severe obesity and paediatric patients. For these patients see eTG: Antibiotic Skin and soft tissue infections or call ID for advice.

Step 1. Does this patient have cellulitis of the lower limb?

Consider alternative diagnoses such as acute contact dermatitis, eczema (including venous eczema), deep/superficial venous thrombosis, chronic venous insufficiency, septic bursitis, gout, vasculitis and lipodermatosclerosis. Note, bilateral cellulitis is very uncommon.

Step 2. Classify the patient's cellulitis and treat accordingly

Class I

1. No systemic symptoms/ signs
   AND
2. No significant comorbidity that requires stabilisation or that may complicate resolution of infection

Class II

1. Mild-moderate systemic symptoms/signs
   OR
2. Otherwise stable comorbidity that may complicate resolution of infection
   OR
3. Not responding to appropriate oral therapy after 48 hours

Class III

1. Significant systemic symptoms/ signs
   OR
2. Unstable comorbidities (e.g. poorly controlled diabetes, severe peripheral arterial diseases, immunosuppression)
   OR
3. Limb threatening infection

Class IV

1. Severe systemic symptoms/ signs
   OR
2. Necrotising fasciitis

Consider for parenteral antibiotic therapy via HITH
See Step 3

Outpatient management with oral antibiotics

Mark margin of cellulitis with a skin marker

Investigations

- Swab exudate (if present)
- Other investigations (as indicated)

Antibiotics

- Dicloxacillin 500mg PO 6-hourly for 7-10 days
- If mild penicillin hypersensitivity:
  Cephalexin 500mg PO 6-hourly for 7-10 days
- If immediate penicillin/ beta-lactam hypersensitivity or MRSA:
  Clindamycin 450mg PO 8-hourly for 7-10 days (300mg if < 60kg)

Provide completed patient information brochure and emphasise need for strict limb elevation

Advise patient to follow up with GP within 48-72 hours (with discharge summary)

Inpatient management with IV antibiotics

Mark margin of cellulitis with a skin marker

Investigations

- Swab of exudate, blood cultures (if febrile), FBE, CRP, UEC, LFT, others (as indicated)

Antibiotics

Moderate-severe cellulitis:

- Flucloxacillin 2g IV 6-hourly
- If mild penicillin hypersensitivity: Cephazolin 2g IV 8-hourly
- If immediate penicillin/ beta-lactam hypersensitivity or known MRSA colonisation/infection:
  Lincomycin 600mg IV 8-hourly
  OR
  Vancomycin 25-30mg/kg IV loading dose, followed by 15mg/kg 12-hourly, adjusted for renal function (as per eTG)

For necrotising skin/ soft tissue infections: See The Therapeutic Guidelines Antibiotic and consult ID – needs urgent surgical/ orthopaedic consultation for debridement

Refer patient for admission under general medicine

- Please ensure elevation of affected limb

Step 3. Assess suitability of patients with Class II cellulitis for parenteral antibiotic therapy via HITH

		NO	YES
1	Is there orbital or facial cellulitis?		
2	Is there upper limb involvement?		
3	Is the cellulitis associated with a diabetic foot ulcer?		
4	Is it associated with exposure to water (e.g. sea, river, creek, lake)?		
5	Is the patient morbidly obese? (likely under-dosing of Cephazolin – call ID for advice)		
6	Is it associated with and animal or human bite?		
7	Is there necrosis or a requirement for surgical debridement?		
8	Is the cellulitis rapidly progressive or the tissue damage extensive?		
9	Is it associated with critical limb ischemia?		
10	Does the patient have significant renal dysfunction (e.g. eGFR<30 or concern over deteriorating renal function)?		
11	Is the patient significantly immunocompromised?		
12	Is the patient known to be colonised with MRSA?		
13	Is the patient taking medications that interact with probenecid (esp. methotrexate, also caution with sulphonylureas)? Or involved in competitive sport? (probenecid is a banned masking agent)		
14	Is the patient unable to care for themselves (or unable to receive appropriate supportive care)?		

If "YES" to any of the above, admit as per a Class III patient, OR contact ID to discuss appropriate antibiotic regimen and suitability for HITH

If "NO" to all of the above

Parenteral Antibiotics via HITH

Mark the margin of cellulitis with a skin marker

Investigations

- Swab exudate, FBE, UEC, LFT, CRP, others (as indicated)

Insert a PIVC using Aseptic Non-Touch Technique per Hospital Policy

Antibiotics

- Cephazolin 2g IV 24-hourly + Probenecid 1g PO 24-hourly
- OR, If immediate or severe penicillin or cephalosporin hypersensitivity use Lincomycin 600mg IV q8h (OR1.8g/24h continuous infusion)
- Give the first dose in ED
- Write a prescription for 5 days (per the example below) to give to HITH with referral
- Note, no other IV antibiotics can be prescribed to be administered via HITH without ID approval

Refer to HITH

- In hours contact HITH via switch, or in person
- After hours:
  - PAH: admit to MAPU or SSU for HITH review the following morning
  - QE2: ask patient to return to ED 13:00 the following day for HITH assessment
  - Redland: admit to EPU or ward for HITH review the following morning
  - Logan: complete HITH admission pack and leave at HITH office for recall the following day

Provide completed patient information brochure and emphasise the need for strict limb elevation

Example of Antibiotic Prescription for HITH Patients

Drug name and form	Strength	Dose, route, frequency, duration	Quantity	Rpts (OP only)	Supply Y/N	Approval number if required
Cephazolin vials	1g	2g daily IV	10	-	Y	Non-PBS
Probenecid tablets	500mg	1g daily PO	10	-	Y	Non-PBS

Drug name and form	Strength	Dose, route, frequency, duration	Quantity	Rpts (OP only)	Supply Y/N	Approval number if required
Lincomycin vials	600mg/2ml	600mg q8h IV	15	-	Y	Non-PBS

OR

Drug name and form	Strength	Dose, route, frequency, duration	Quantity	Rpts (OP only)	Supply Y/N	Approval number if required
Lincomycin vials	600mg/2ml	1.8g/24h CIV	15	-	Y	Non-PBS

Ongoing Management of HITH Patients

HITH patients will be reviewed daily by HITH.

Likely duration of IV antibiotics 2-5 days, followed by oral antibiotics (as per recommendations for 'outpatient management with oral antibiotics'), to complete a total of 1-2 weeks treatment depending on progress.

If there are concerns regarding clinical deterioration of patient they should be referred back to hospital for admission.

Secondary Prevention of Cellulitis

Seek and treat tinea with 2% miconazole topically.

If venous insufficiency is present (and no contra-indications e.g. arterial insufficiency – check ABI) refer to physio OPD for fitting and supply of compression stockings. Ensure good skin condition by using emollients (e.g. aqueous cream or sorbolene, or white soft paraffin if skin is very dry). If venous eczema is present a short course of topical steroid (e.g. betamethasone valerate 0.05%) may be required. See eTG Dermatology re: General treatment of dermatitis

For some patients with recurrent episodes of cellulitis, antibiotic prophylaxis with phenoxymethylpenicillin is indicated (refer to ID clinic).

Links

Patient Information Brochure

References

1. Eron L.J. Infection of skin and soft tissues: outcome of a classification scheme. *Clin Infect Dis* 2000;31:287
2. Therapeutic Guidelines Limited. Therapeutic guidelines: Antibiotic. Version 14. Melbourne: Therapeutic Guidelines Limited; 2010
3. Thomas, K. S., et al. Penicillin to prevent recurrent leg cellulitis. N Engl J Med 2013;368:1695-1703.