Cellulitis – Paediatric Full Clinical Guideline

Reference no.: CH CLIN C41

1. Introduction

Cellulitis is a spreading bacterial infection of the dermis and subcutaneous tissues. For the purposes of these guidelines, erysipelas will be classified as a form of cellulitis rather than a distinct entity. The most common infective organisms are streptococci (esp. Strep.pyogenes) and Staph. aureus. Less common organisms inc Strep. pneumoniae, Haemophilus influenzae, Gram-negative bacilli and anaerobes.

Research data on the risk factors for developing cellulitis is minimal. However, a case control study in 1999 found that a potential site of entry (eg. leg ulcer, toe web intertrigo, traumatic wound), lymphoedema, leg oedema, venous insufficiency and being overweight were all factors that may predispose to cellulitis.

2. Aim and Purpose

This is a guideline outlining the assessment and investigations for diagnosing and treating patient with suspected cellulitis in children who present to the Children's Emergency Department (CED), MIU, ED QHB and PAU.

3. Definitions, Keywords

Necrotising fasciitis is a life-threatening infection of fascia & sub-cutaneous tissues. It may initially be mistaken for cellulitis but is associated with disproportionate pain & tenderness, rapidly advancing soft tissue involvement & signs of sepsis. Necrotising fasciitis is a medical and surgical emergency that requires prompt surgical exploration & debridement, PICU involvement & broad spectrum IV antibiotics.

4. Main body of Guidelines –

Eron Classification

A classification system can serve as a useful guide to admission and treatment decisions. This classification was devised by Eron for skin and soft tissue infections:

Class I patients have no signs of systemic toxicity, have no uncontrolled co- morbidities and can usually be managed with oral antimicrobials on an outpatient basis.

Class II patients are either systemically ill or systemically well but with a co-morbidity such as IDDM or morbid obesity which may complicate or delay resolution of their infection.

Class III patients may have a significant systemic upset such as acute confusion, tachycardia, tachypnoea, hypotension or may have unstable co-morbidities that may interfere with a response to therapy or have a limb threatening infection due to vascular compromise.

Class IV patients have sepsis syndrome or severe life threatening infection such as necrotizing fasciitis.

Laboratory Investigations

Clinical findings alone are usually adequate for diagnosing cellulitis, particularly in non-toxic immunocompetent patients.

Although non-specific, nearly all patients have a raised white cell count and elevated ESR or C-reactive protein. Normal results make a diagnosis of cellulitis less likely.

Where there is an open wound, drainage or an obvious portal for microbial entry, a swab should be taken for culture.

Blood cultures are rarely positive (2-4%) and contaminants may outnumber pathogens

Blood cultures should not be undertaken routinely but be reserved for patients where the infection has been graded as Class III or Class IV where they are more likely to yield the causative organism.

Treatment (see algorithm Appendix 1 & 2)

There is evidence that oral antibiotics are more effective than intravenous antibiotics for mild to moderate cellulitis. Consider that cellulitis in children usually has an entry point of infection, and this should be considered when considering antibiotic choice (typical vs atypical –see below). Please note that the antibiotic dosing quoted in this guideline (Appendix 1) equates to the higher dose range of the BNFc and reflects our practice to treat cellulitis as a severe infection. If using IV clarithromycin please administer as a 60 minute infusion, ideally in to a large vein, as it is very irritant.

Atypical Cellulitis

Risk Factor	First line	Penicillin Allergy
Human Bite	Co amoxiclav	Clarithromycin and Metronidazole
Cat/Dog bite	Co amoxiclav	Clarithromycin and Clindamycin
Exposure to freshwater at site of skin break	Ciprofloxacin and Flucloxacillin	Ciprofloxacin and Clarithromycin

Suitable for Home Management with intravenous cannula? (I.E. ambulatory)

- Age > 1 year
- Cellulitis covering < half limb
- No Child protection concerns
- Parents have own transport
- Parents able to manage child at home and clinician feels safe for discharge with intravenous cannula in situ.

5. References (including any links to NICE Guidance etc.)

BNFc July 2015. BMJ publishing group

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6. Documentation Controls

Reference Number CH CLIN C41	**Version:** V003		**Status** Final	
Version / Amendment History	Version	Date	Author	Reason
	V001	Nov 15	Dr Gis Robinson	
	V002	Apr 21	Dr Gis Robinson	This document is now joint with RDH & QHB
	V003	Sept 24	Dr Stewart Hunter	Renewal of guideline
Intended Recipients: Paediatric Consultants & Nursing staff at UHDB				
Training and Dissemination: Cascade the information via BU newsletter and address training				
Development of Guideline: Dr Stewart Hunter **Job Title: Paediatric Consultant**				
In Consultation with: (Relevant peer review) Consultants for both RDH and QHB				
Linked Documents: (Nice guidance/Current national guidelines)				
Keywords: Cellulitis; Pruritis Erythema; Necrotising Fasciitis; Cellulitis				
Business Unit Sign Off			**Group:** Paediatric Guidelines Group **Date: 09/10/2024**	
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Review Date			October 2027	
Contact for Review			Dr Stewart Hunter	

7. Appendices

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ORAL ROUTE:

FLUCLOXACILLIN

1 month–2 years 125 mg 4 times daily

2–10 years 250 mg 4 times daily

10–18 years 500 mg 4 times daily

OR

CLARITHROMYCIN (if Penicillin allergic)

Body-weight under 8 kg 7.5 mg/kg twice daily

Body-weight 8–11 kg 62.5 mg twice daily

Body-weight 12–19 kg 125 mg twice daily

Body-weight 20–29 kg 187.5 mg twice daily

Body-weight 30–40 kg 250 mg twice daily

Child 12–18 years 500 mg twice daily

IV ROUTE:

AMBULATORY

CEFTRIAXONE

<50kg= 50mg/kg once daily (to a maxof 1g)

>50kg or >12 years old 1g daily

OR

CLARITHROMYCIN (if Penicillin allergic

Child 1 month–12 years 7.5 mg/kg (max.500 mg) every 12 hours

Child 12–18 years 500 mg every 12 hours; max. duration 5 days

If unable to attend for bd abx consider Tecioplanin OD

INPATIENT

FLUCLOXACILLIN

Child 1 month–18 years
50 mg/kg every 6 hours (max. 2 g every 6 hours

OR

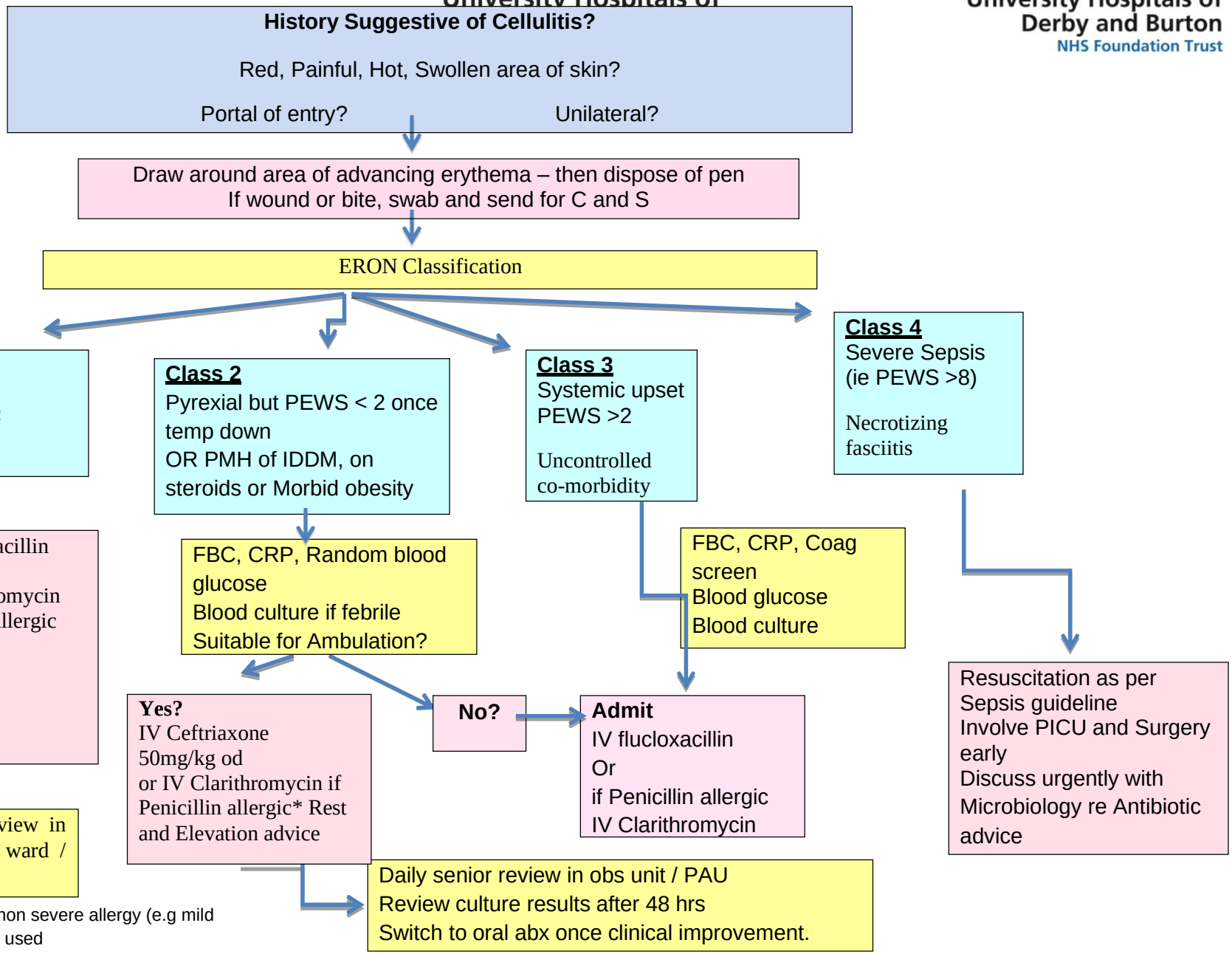
CLARITHROMYCIN (if Penicillin allergic

Child 1 month–12 years 7.5 mg/kg (max.500 mg) every 12 hours

Child 12–18 years 500 mg every 12 hours; max. duration 5 days

Appendix 2-

Treatment Algorithm



*Penicillin allergy- in children with a non severe allergy (e.g mild rash only) Ceftriaxone should still be used