Nonpurulent Cellulitis

CAUSATIVE MICROORGANISMS
- Group A streptococcus (*Streptococcus pyogenes*)
- Non group A beta-hemolytic streptococci (groups B/C/G)
- *Staphylococcus aureus*

DIAGNOSTIC CONSIDERATIONS
- Acute, unilateral, spreading area of erythema
- Characterized by heat, pain/tenderness, and swelling
- Superficial skin swabs are not recommended for diagnosis
- Important to exclude conditions with similar signs and symptoms:
  - Charcot foot (neuropathic arthropathy)
  - Deep vein thrombosis
  - Erythema migrans (Lyme disease)
  - Gout
  - Lymphedema
  - Venous stasis dermatitis
- Early assessment for red flag symptoms is recommended to rapidly identify complicated skin and soft tissue infection:
  - Animal or human bites
  - Immunosuppression, including asplenia
  - Loss of sensation in the affected area
  - Necrosis, hemorrhagic bullae, crepitus
  - Rapid onset of severe pain, especially if out of proportion to clinical findings
  - Rapid progression despite antibiotic use
  - Significant periorbital involvement
- Blood cultures are recommended if systemic symptoms are present

MANAGEMENT AND PREVENTION CONSIDERATIONS
- Elevation of the affected area (above level of heart) for majority of the day is essential
- Skin should be hydrated to avoid dryness and cracking, avoiding interdigital maceration
- Treat underlying predisposing conditions (e.g. tinea pedis)
- Assess vascular supply if suspicion of arterial insufficiency (e.g. Ankle Brachial Index)
- Long-term management of chronic venous insufficiency and lymphedema with compression

SEVERITY CLASSIFICATION
- Various severity classification schemes have been developed to assist in management
- None of these schemes have been validated and they are meant for guidance only. For example, not every immunocompromised patient has a severe cellulitis.
**EMPIRIC TREATMENT**

- Antimicrobial choice and route of administration should be guided by severity of illness

<table>
<thead>
<tr>
<th>Place in therapy</th>
<th>Antibiotic regimen</th>
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<tbody>
<tr>
<td><strong>MILD</strong></td>
<td></td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; line</td>
<td>Cephalexin</td>
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<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; line</td>
<td>Cefuroxime&lt;sup&gt;1&lt;/sup&gt;</td>
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<tr>
<td>Alternative if unable to use any beta lactam</td>
<td>Clarithromycin</td>
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<td><strong>MODERATE</strong></td>
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<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; line</td>
<td>Cefazolin&lt;sup&gt;1,2&lt;/sup&gt;</td>
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<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; line</td>
<td>Cloxacillin&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; line</td>
<td>Ceftriaxone&lt;sup&gt;2&lt;/sup&gt;</td>
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<tr>
<td>Alternative if unable to use any beta lactam</td>
<td>Vancomycin&lt;sup&gt;2&lt;/sup&gt;</td>
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<tr>
<td><strong>SEVERE</strong></td>
<td>Immediate expert consultation</td>
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* Probenecid not required if:
  - CrCl less than 50 ml/min AND using cefazolin q12h OR
  - CrCl less than 30 ml/min AND using cefazolin q24h

1. 1<sup>st</sup> line in patients with IgE mediated penicillin allergy
2. Can transition to oral therapy when systemic symptoms resolved for at least 24 hours
3. Dose adjustment required for renal dysfunction

**DURATION**

- Usually 5-7 days

**SPECIAL CONSIDERATIONS**

- Erythema and extension often progress in first 24 hours of treatment. This is not considered a treatment failure.
- Systemic symptoms usually improve in 24-48 hours if on appropriate treatment
- Residual skin discoloration or edema may be present at end of antibiotic course and is not a reason to prolong antibiotics. Full skin healing may take weeks while limb edema can persist for months after signs of infection resolve.

*2 or more of: Temp >38°C or <36°C; respiratory rate >24 breaths/min; heart rate > 90 bpm; WBC >12 or <4 x10<sup>9</sup>/L*
REFERENCES