MANAGEMENT OF Cellulitis

Nonpurulent Skin and Soft Tissue Infections

This EPPA Clinical Guideline is intended to guide most, but not all, encounters involving cellulitis and should not replace clinical judgment; deviate from or adapt this guideline to meet the individual patient's needs.

Severity

IF Purulent, See Abscess Guideline

Mild

Oral Abx[1]
- 1st: Cephalexin
- Alternate: Dicloxacillin **or** Clindamycin

Discharge

Moderate

IV Abx
- Outpt: Ceftriaxone 1 g (<90kg) or 2g (>90kg) IV **or**
- Inpt: Cefazolin 1g (<90kg) or 2g (>90kg) IV
- Alternate: Clindamycin
- Cephalosporin Allergy: Daptomycin 4mg/kg

Admit or Discharge

Severe

Broad Spectrum IV Abx
- 1st: Piperacillin/Tazobactam or Ceftriaxone + Metronidazole
- Allergy: Aztreonam + Metronidazole
- 2nd: Vancomycin if indicated

Admit

MRSA

Almost all cellulitis (nonpurulent and closed) is strep, consider MRSA coverage if:
- History of MRSA
- Open wound
- Evidence of MRSA elsewhere
- History of abscess or nasal colonization
- Injection drug use

Add:
- TMP/SMX
- Doxycycline (≥ 8 years)

Severity

Mild:
- No systemic symptoms

Moderate:
(Systemic signs/symptoms)
- Temp > 100.4 F or < 96.8 F
- HR > 90
- RR > 20 or Pa CO_2 < 32
- WBC > 12 or <4, or > 10% bands
- Or Failing treatment (appropriate antibiotics for 48 hours and/or clear/dramatic worsening)

Severe:
- Sepsis **or**
- Severe immunocompromise

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References:

- Hepburn MJ, et al. Comparison of Short-Course (5 days) and Standard (10 Days) Treatment for Uncomplicated Cellulitis. *Arch Intern Med.* 2004; 164: 1669-74.
- Jeng A, et al. The Role of Beta-Hemolytic Streptococci in Causing Diffuse, Nonculturable Cellulitis: A Prospective Investigation. *Medicine (Baltimore).* 2010; 89: 217-26.
- Pallin DJ, et al. Clinical Trial: Comparative Effectiveness of Cephalexin Plus Trimethoprim-Sulfamethoxazole Versus Cephalexin Alone for Treatment of Uncomplicated Cellulitis: A Randomized Controlled Trial. *Clin Infect Dis.* 2013; 56: 1754 -62.
- Stevens, et al. Practice Guidelines for the Diagnosis and Management of Skin and Soft Tissue Infections: 2014 Update by the Infectious Diseases Society of America. *Clin Infect Dis*. 2014; 59(2): e10-e52.

Key Points:

Tips

- Cellulitis is almost always strep. Staph (including MRSA) should be considered for purulent infections (see abscess guideline). This guideline also does not necessarily apply to wound infections, diabetic feet, and orbital cellulitis.
- **Cultures** of any kind not routinely recommended for typical cellulitis. Exceptions: Severe immunocompromise (malignancy on chemotherapy, neutropenia, severe immunodeficiency), immersion injuries, and animal bites.
- **Elevate** affected area, treat predisposing factors (edema, skin disorders)

Impetigo and Ecthyma

- **Impetigo:** Begins as erythematous papules that rapidly evolve into vesicles and pustules that rupture, with the dried discharge forming honey colored crusts on an erythematous base.
- Both bullous (MSSA) and nonbullous (MSSA or Strep) impetigo may be treated with oral or topical abx.
- Topical: Mupirocin or Retapamulin BID x5 days.
- Oral: Dicloxacillin or Cephalexin x7 days.
- **Ecthyma:** Deeper infection than impetigo. Lesions begin as vesicles that rupture, resulting in circular, erythematous ulcers with adherent crusts, often with surrounding erythematous edema.
- Oral: Dicloxacillin or Cephalexin x7 days.
  *If MRSA is suspected or confirmed treat with Doxycycline or TMP/SMX.

Necrotizing Fasciitis: Bullae, skin sloughing, hypotension, organ dysfunction

- Add vancomycin and clindamycin
- Consult surgery

Bites

Prophylactic Antibiotics

Generally indicated if:

- Immunocompromise.
- Asplenia.
- Advanced liver disease.
- Edema of affected area (preexisting or due to bite).
- Moderate to severe injuries, especially hand and face.
- Injury penetrates periosteum or joint capsule.

Duration of prophylaxis: 3 – 5 days

Oral Antibiotic Regimens:

- Purulent wounds more likely to be polymicrobial whereas nonpurulent wounds commonly staph and strep.
- **Augmentin** or antibiotic from column A **plus** antibiotic from column B:

A (Activity against *P. multocida*)	B (Anaerobic coverage)
• Doxycycline • TMP/SMX • Penicillin VK • Cefuroxime • Moxifloxacin	• Metronidazole • Clindamycin

[1] Oral Antibiotic Dosing (duration 7 days)

Adults

Cephalexin: 500 mg QID*
Clindamycin: 300-450 mg QID
Doxycycline: 100 mg BID
Dicloxacillin: 500 mg QID
TMP/SMX: DS 1-2 tabs BID*
Metronidazole: 500 mg TID
Cefuroxime: 500 mg BID*
Moxifloxacin: 400 mg daily
*consider need for renal dosing

Pediatrics

Cephalexin: 25-50 mg/kg/day, divided QID
Clindamycin: 25-30 mg/kg/day divided TID
Doxycycline (≥ 8 years):
≤ 45 kg: 4 mg/kg/day divided BID
> 45 kg: 100 mg BID
TMP/SMX: 8-12 mg/kg/day (based on TMP component) divided BID
Metronidazole: 30-50 mg/kg/day divided TID