

CELLULITIS

Definition: acute, spreading inflamm of superficial & deep dermis & subq fat often complicating a wound or ulcer

Predisposing factors: lymphedema, trauma/entry site (ulcer, wound, skin breakdown), venous insuffic/ edema, obesity, DM, tinea pedis

Pathogenesis: poorly understood; bacteria density in affected tissue often low, unless underlying abscess or ulcer; bacterial toxins + cytokines create changes in skin & systemic rxns

Typical organisms: *S. aureus*, Grp A strep, Non-grp A hemolytic strep, pneumococcus

Atypical organisms:

Buccal cellulitis: *H. influenzae*

Penetrating injury: *Pseudomonas*

Bad diabetic foot: aerobic GNR (*Enterobacteriaceae*, *Pseud.*, *acinetobacter*); anaerobes (*bacteroides*, *peptococcus*)

Human bites: oral anaerobes (*bacteroides*, *peptostreptococci*); *Eikenella*; *viridans*; *S. aureus*

Dog/cat bites: *Pasturella* sp, *S. aureus*, *S. intermedius*, *N. canis*, *H. felix*, *Capnocytophaga*, anaerobes, *Fusobacterium*, *C. Canimorsus*

Salt water exposure (esp in cirrhosis): *Vibrio vulnificus*

Fresh water or leeches: *Aeromonas* sp

Fish/clam handler: *Erisipelothrix rhusiopathiae*

H&P**

- assess for predisposing factors & any precipitants: trauma, IVDU (?needle exposure to tap water or saliva), bites (human/animal/insect), H₂O exposure (salt/fresh), fish spine exposure, seafood ingestion

- classic signs of cellulitis: local warmth/swelling/pain/redness +/- lymphadenitis +/- regional LAD, often lacks sharp demarcation, fever/chills, myalgias, altered mental status in elderly; assess for crepitus (nec fasc, gas gangrene), fluctuance (abscess)

**ALWAYS keep in mind SxSi suggesting alternate dx: DVT, septic arthritis, necrotizing fasciitis (rapid spread, pain out of proportion to cellulitis, toxic pt, bullae), osteomyelitis (always need to r/o in diabetic foot)

Investigations

Dx is clinical; use surgical marker to outline involved area on initial exam, then follow w/ serial exams

- Cx of aspirates not routinely needed; punch biopsy Cx's an option if specific bacterial data needed

- BCx's rarely positive (<5%) so warranted in pts w/ systemic Si, non-responders to tx, unusual exposures, recurrent infxns

- consider swabbing nares for MRSA to help tailor abx coverage

- consider imaging as needed

- plain films: soft tissue gas in nec fasc; lytic lesions in chronic (>2-6 wk) osteo; soft tissue swelling in cellulitis

- CT: periosteal rxn & cortical/medullary destruction in osteo; soft tissue gas in nec fasc

- MRI: early chg's in osteo; best tissue contrast views in nec fasc

- c/s surgery if suspect necrotizing fasciitis; clinical dx is usually more timely than imaging

Management

1) rest & elevate limb +/- cool dressings

2) if clinically mild w/ range of motion & wt bearing intact, may start w/ PO abx & follow closely; more severe clinical manifestations should be started on IV abx, then switch to PO

- 1st gen ceph or pncillase-resistant pcn; erythromycin if pcn allergic, add gram neg coverage if DM (note: clindamycin will cover most community acquired MRSA, but vanc needed for nosocomial MRSA)

- erythema can get a bit worse after starting abx b/c bactericidal activity releases inflammatory enzymes

Initial Treatment	Subsequent Treatment
Cefazolin, 1.0 g intravenously every 6–8 hr	Dicloxacillin, 0.5 g orally every 6 hr or Cephadrine, 0.5 g orally every 6 hr or Cephalexin, 0.5 g orally every 6 hr or Cefadroxil, 0.5–1.0 g orally every 12–24 hr
or	
Nafcillin, 1.0 or 1.5 g intravenously every 4–6 hr	Same as above
or	
Ceftriaxone, 1.0 g intravenously every 24 hr†	Same as above
or	
Cefazolin, 2.0 g intravenously once daily, plus probenecid (1.0 g orally once daily) ‡	Same as above
If methicillin-resistant <i>S. aureus</i> is suspected or patient is highly allergic to penicillin	
Vancomycin, 1.0–2.0 g intravenously daily	Linezolid, 0.6 g orally every 12 hr
or	
Linezolid, 0.6 g intravenously every 12 hr	Same as above