

Periorbital/Orbital Cellulitis

Clinical Practice Guideline

Exclusion Criteria:

- Less than 1 year old
- Traumatic eye injury
- Prior eye or sinus surgery
- Abnormal eye or maxillary-facial anatomy
- Known immunocompromise or malignancy
- Clinical signs of severe sepsis/shock

Suspicion for orbital or periorbital cellulitis

*High Risk Patients include any patients with following conditions/circumstances:

- Failed course of appropriate outpatient antibiotics
 - Recent steroid)
- Concern for CNS infection
 - ANC <1000
- Poorly controlled diabetes mellitus (Hgb A1c >7.5)

Orbital signs (proptosis, restricted or painful extraocular movements, chemosis, vision changes) or, severe or persistent headache,
OR ill appearance +/- fever
OR age <3 yo/limited exam
OR meets *high risk criteria

Consider Periorbital Cellulitis

Document photo in chart Consider Labs

- CBC
- CRP
- MRSA Nares

Considerations for Admission:

- Antibiotic failures (>48)
- Poor PO compliance
- Rapid progression
- SIRS

Consider Orbital Cellulitis

Document photo in chart

Imaging

- Urgent CT orbits with IV contrast using STEALTH protocol
- Consider MRI if concern for intracranial involvement (discuss with Radiology)

Labs

- CBC with diff
- BUN/Cr
- CRP
- BCX, if meeting *high risk criteria, ill appearing, or unimmunized
- MRSA nares

CT reveals orbital involvement

yes

Initial Management of Orbital Cellulitis

Nutrition:

- NPO

Consults

- Ophthalmology (in ER)

Medical Management

- Initiate IV antibiotics (first dose in Emergency Department) *Appendix A
- Nasal therapies on floor if sinus involvement/no known entry site *Appendix B

Consider Consults to

- ENT (after discussion with ophthalmology if any of the following are present)
 - Planned OR
 - Concern for vision compromise
 - Subperiosteal abscess >1 cm
- Neurosurgery if CNS extension
- ID if *high risk criteria or antibiotics needed for >2 weeks

If Appropriate for Discharge see Antibiotic Choices *Appendix A

If Not Appropriate for Discharge see Antibiotic Choices *Appendix A

Improvement

Worse in first 24 hours or no improvement in 48 hours

Transition to PO abx

- Trend CRP
- Consider abx escalation
- Consider ID consult
- Consider CT orbits with contrast

Transition to oral antibiotics when patient has improved edema, able to open eye, is afebrile for 24- 48 hrs and has full EOM

Worsening in the first 24 hours or NO improvement in the first 48 hours

yes

- Consult ENT
- Repeat CRP
- Consider Repeat CT vs MRI/MRV
- Document photo in chart

Imaging reveals improvement

no

- Consult ID
- Surgical Considerations

Appendix A

Orbital Cellulitis

	Drug	Dose	Route	Frequency	Notes
First-Line	Ampicillin/sulbactam	75mg of ampicillin/kg/dose	IV	Q6h	Max 2g ampicillin/dose
Unimmunized for age	Ceftriaxone	50mg/kg/dose	IV	Q12h	Max 2g/dose
MRSA suspected¹	Clindamycin	13mg/kg/dose	IV	Q8h	Max 600mg/dose
History of clindamycin-resistant MRSA²	Ampicillin/sulbactam AND Vancomycin	75 mg of ampicillin/kg/dose Use Vancomycin Panel in Epic	IV	Q6h Per panel	Max 2g ampicillin/dose
Allergy to first-line therapy	Clindamycin	13mg/kg/dose	IV	Q8h	Max 600mg/dose If unimmunized for age, add ceftriaxone 50mg/kg/dose (max 2g/dose)
Concern for imminent sight-threatening infection based on exam by ophthalmology	Ampicillin/sulbactam AND Vancomycin	75 mg of ampicillin/kg/dose Use Vancomycin Panel in Epic	IV	Q6h Per panel	If penicillin allergy, use vancomycin (per panel) + ceftriaxone 50mg/kg/dose q24h (max 2g/dose) + metronidazole 10mg/kg/dose (max 500mg/dose) q8h
Concern for CNS extension on exam³ or imaging	Vancomycin AND Ceftriaxone AND Metronidazole	Use Vancomycin Panel in Epic 50mg/kg/dose 10mg/kg/dose	IV	Per Panel Q12h Q8h	Max 2g/dose Max 500mg/dose

Duration: 10-14 days (consider >14 days if presence of complicated infection, undrained abscess, complicated course or slow to improve)

Microbes to consider: *S. pneumoniae*, *S. pyogenes*, anginosus group streptococci (*S. anginosus*, *constellatus* & *intermedius*), *H. influenzae*, *M. catarrhalis*, *S. aureus*, oral anaerobes. Consider Gram-negative rods s/p trauma.

If surgery performed, tailor therapy based on operative cultures results.

¹MRSA suspected: history of MRSA infection or frequent SSTI in patient or immediate family members

²Approximately 80% of MRSA locally are susceptible to clindamycin. If patient has history of clindamycin-resistant MRSA, add vancomycin to ampicillin-sulbactam

³Signs of optic nerve or CNS involvement:

- Change in visual acuity
- Severe headache
- Pupillary defect
- Altered mental status
- Bilateral symptoms
- Seizure

Appendix A

Periorbital Cellulitis					
	Drug	Dose	Route	Frequency	Notes
Known Entry Site¹					
First Line Oral	Cephalexin	20mg/kg/dose	PO	Q8h	Max 1g/dose
Oral Alternative - Cephalosporin allergy or MRSA suspected	Clindamycin	13mg/kg/dose	PO	Q8h	Max 600g/dose
First line IV	Clindamycin	13mg/kg/dose	IV	Q8h	Max 600mg/dose
IV Alternative - Clindamycin allergy	Vancomycin	Per panel	IV	Per panel	
No known entry (often associated with sinusitis or unimmunized)					
First Line Oral	Amoxicillin-clavulanate	45mg/kg/dose	PO	Q12h	Max 2g/dose
Oral Alternative - Penicillin allergy	Clindamycin	13mg/kg/dose	PO	Q8h	Max 600mg/dose
First line IV	Ampicillin-sulbactam	75mg of ampicillin/kg/dose	IV	Q6h	Max 2g ampicillin/dose
IV Alternative - Penicillin allergy	Clindamycin	13mg/kg/dose	IV	Q8h	Max 600mg/dose
Duration: 5-7 days Microbes to consider: <i>S. aureus</i>, <i>S. pyogenes</i>, oral anaerobes, <i>Strep pneumoniae</i>, <i>H. influenzae</i> now uncommon in immunized children. ¹Known entry site: evidence of scratch or trauma on history or physical exam					

Appendix B

Systemic Steroids	
Systemic steroids are generally not recommended as there is no evidence that they improve recovery in orbital cellulitis. May consider on a case by case basis as per consultants	
Nasal Therapies in Orbital Cellulitis	
Age	Treatment
1-4 years old	Nasal Saline spray (Ocean Spray) TID
	*Oxymetazoline nasal spray: 1 spray in each nare twice daily; Maximum duration of therapy: 3 days
4 years or older	Nasal Saline spray (ie. Ocean Spray) TID
	(Could consider saline irrigation in child with more severe sinus disease after discussion with ENT)
	*Oxymetazoline nasal spray: 2 sprays in each nostril twice daily; Maximum duration of therapy: 3 days
	Upon completion of oxymetazoline start Fluticasone propionate: 1 spray (50 mcg/spray) in each nostril once a day
*Oxymetazoline FDA approved for children >6 years old and should only be used for pediatric inpatients under supervision	
Fluticasone approved for children aged 4yrs and older (once daily until 12yo; 1-2 sprays BID for children. >12yo and adults)	