Periorbital/Orbital Cellulitis

Clinical Practice Guideline

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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

Patient presents with diffusely red, tender, swollen eyelid/periorbital area

***High Risk Patients include any patients with following conditions/circumstances**:
- Failed course of appropriate outpatient antibiotics
- Use of any immune-modulating medications (ie. Chronic steroids, biologics, chemotherapeutics)
- Concern for CNS infection
- ANC <1000
- Poorly controlled diabetes mellitus (Hgb A1c >7.5)

Any proptosis, pain or restricted EOM, severe or persistent headache, vision changes
OR ill appearance +/- fever
OR age <3 yo/limited exam
OR meets *high risk criteria

no → **Consider Periorbital Cellulitis**

yes → **Consider Orbital Cellulitis**

Consider Periorbital Cellulitis

If Appropriate for Discharge see Antibiotic Choices *Appendix A

If Not Appropriate for Discharge see Antibiotic Choices *Appendix A

Improvement → Transition to PO abx → If Appropriate for Discharge see Antibiotic Choices *Appendix A

Worse in first 24 hours or no improvement in 48 hours
- Obtain CRP
- Consider abx escalation
- Consider ID consult
- Consider imaging

Consider Orbital Cellulitis

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

CT reveals orbital involvement

no → **Consider Periorbital Cellulitis**

yes →

Initial Management of Orbital Cellulitis

Admit to General Wards

Nutrition:
- NPO

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

Consults
- ENT
- Ophthalmology
- Neurosurgery if CNS extension
- ID if *high risk criteria or antibiotics needed for >2 weeks
- Endocrinology if poorly controlled DM

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

no → **Transition to oral antibiotics when patient has improved edema, able to open eye, is afebrile for 24- 48 hrs and has full EOM**

yes →
- Repeat CRP
- Consider Repeat CT vs MRI/ MRV

Imaging reveals improvement

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

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	Q24h	max 2g/dose
MRSA Suspected[1]	Clindamycin	13mg/kg/dose	IV	Q8h	max 600mg/dose
History of clindamycin-resistant MRSA[2]	Ampicillin/ sulbactam AND Vancomycin	75mg of ampicillin/kg/dose Use Vancomycin Panel in Epic	IV	Per Panel	max 2g ampicillin/dose
Allergy to first-line therapy	Clindamycin	13mg/kg/dose			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	75mg of ampicillin/kg/dose Use Vancomycin Panel in Epic	IV	Q6h	If penicillin allergy, use vancomycin (per panel) + ceftriaxone 50mg/kg/dose q24h + metronidazole 10mg/kg/dose (max 500mg/dose) q8h
Concern for CNS extension on exam[3] or imaging	Vancomycin AND Ceftriaxone AND Metronidazole	Use Vancomycin Panel in Epic 50mg/kg/dose 10mg/kg/dose	IV	Per Panel Q24h Q8h	 max 2g/dose max 500mg/dose

Duration: 14-21 days (consider >14 days if presence of 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 culture results

[1]MRSA Suspected: history of MRSA infection or frequent SSTI in patient or immediate family members

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

[3]Signs 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 Site[1]					
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 600mg/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: 7 days

Microbes to consider: *S. aureus, S. pyogenes,* oral anaerobes*, Strep pneumoniae. H influenzae* now uncommon in immunized children.

[1]Known 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)