



Prophylactic Antibiotics for Facial Fractures Guideline

Background:

Facial fractures are commonly seen among trauma patients. Antibiotic prophylaxis of facial fractures has long been proposed because of the likely involvement of contaminated structures. These structures include the oral cavity and the maxillary, ethmoid, sphenoid, and frontal sinuses. These structures, which are all colonized with various respiratory flora, have been considered sources of infection that could compromise the fracture sites and lead to infections. Unfortunately, there is limited data to support this theory, and most recommendations are based on small retrospective studies.¹⁻⁹ More recent data suggest that long (>24h) course antibiotics do not decrease infection rate compared to short (<24h) course antibiotics in facial fractures. Since strong evidence is lacking in the literature, these guidelines have been developed with the clinical input provided by the Oral and Maxillofacial, Otolaryngology, and Plastics and Reconstructive Surgery services. The goal of this guideline is to standardize care, minimize risk for infection, and promote antibiotic stewardship.

Clinical Practice Guidelines

I. Types of Facial Fractures

1. Open Facial Fractures with Contamination/Compromised Tissue

- a. This includes open mandible fractures, frontal sinus, basilar skull fractures and comminuted open fractures due to penetrating injury
 - Fractures of the frontal sinus that involve the posterior table of the frontal sinus require antibiotic prophylaxis for no more than 7 days
 - Basilar skull fractures with cerebrospinal fluid (CSF) leak will require antibiotic prophylaxis until operative fixation and for 5 days postoperatively or until the CSF leak disappears (whichever is less)
 - Open mandible fractures require antibiotics until operative fixation and for 24 hours postoperatively

2. Non-contaminated Facial Fractures

- a. Fractures of the Upper 1/3 of the Face



- Fractures of the frontal sinus that do not involve the posterior table of the frontal sinus only require a single dose of preoperative antibiotics
- b. Facial Fractures of the Middle 1/3 of the Face
 - Lefort fractures, zygomaticomaxillary complex (ZMC) fractures, orbital wall and floor fractures, maxillary sinus wall fractures, and nasal bone fractures only require a single dose of preoperative antibiotics
- c. Facial Fractures of the Lower 1/3 of the Face
 - Fractures of the non-dentate segments of the mandible, which includes the condyle, subcondylar, and ramus regions, only require a single dose of preoperative antibiotics
 - Fractures of the **dentate segment** of the mandible, which includes the angle, body, parasymphysis, and symphysis regions, require antibiotic prophylaxis until surgical fixation but should be discontinued 24 hours postoperatively

3. Non-Operative Facial Fractures

- a. Facial and orbital fractures that are non-operative, and do not fall into other categories described above will not require antibiotic prophylaxis

4. Facial Fractures in Immunocompromised Hosts

- a. For patients with HIV, if CD4 <14% continue antibiotics for 7-10 days

5. Facial Lacerations

- a. Simple lacerations without tissue loss or contamination should be irrigated and treated with polysporin ointment; they do not require prophylactic antibiotics
- b. Grossly contaminated facial or scalp lacerations should be debrided and treated with antibiotics for no more than 5 days
- c. Earlobe lacerations do not require antibiotic prophylaxis
- d. Lacerations involving the ear cartilage should be debrided and treated with topical sulfamylon or polysporin and antibiotics for no more than 5 days

6. Nasal packing

- a. Role of prophylactic systemic antibiotics for anterior nasal packing to control hemorrhage (rhino-rocket) is controversial and direct evidence is lacking
- b. Treat with antibiotics until nasal packing is removed

II. Antibiotic Choice

- In the setting of facial fractures antibiotics are targeted to respiratory and oral flora:



- For facial/scalp lacerations or fractures requiring <24 hours of perioperative antibiotics Ancef 2g IV every 8 hours
 - For patients weighing >120 kg, use Ancef 3g IV
- For fractures requiring a longer course of antibiotics (see above), the first-line antibiotic for these pathogens is Ampicillin-Sulbactam (Unasyn) 3 grams every 6 hours
- For those patients who are penicillin allergic, the alternative is Clindamycin (Cleocin) 900 mg IV every 8 hours
- If transitioning to oral agent for patient being discharged, Amoxicillin/Clavulanate (Augmentin) 875mg po every 12 hours should be used or Clindamycin 450mg orally every 8 hours if penicillin allergic
- For basilar skull fractures with CSF leak:
 - The first-line antibiotic is Ceftriaxone 2 grams every 12 hours due to improved CNS penetration
- If a patient develops an infection amenable to culture all attempts at obtaining a culture should be undertaken to guide antibiotic therapy

References

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