

Background

- Nasal fractures represent the most common fracture in facial trauma.
- The role of prophylactic antibiotics during treatment and recovery is debated, given low infection rates and risks of antibiotic therapy.
- No studies exist studying prophylactic antibiotic use for the treatment of nasal fractures, while adjusting for fracture severity and fracture type
- We assessed the impact of prophylactic antibiotic use on infection rate following traumatic nasal fracture within a large cohort of patients all managed by closed reduction.

Methods

- A retrospective analysis was performed of a prospectively maintained facial trauma database at a Level I trauma center
- Patients who received antibiotics at the time of closed nasal reduction were compared against those who did not receive antibiotics
- Infection rates between groups were analyzed. Multivariate analysis was conducted to control for confounding variables.
- Qualitative analysis was performed for patients who experienced infection.

Results

- 282 patients met inclusion criteria (n=144, antibiotic; n=138, non-antibiotic)
- Six patients experienced infection (1 abscess, 5 sinus infections). There was no difference in infection rate between antibiotic and non-antibiotic group (**Table 1**) (2.0% vs 2.2%, p=0.90)
- When adjusting for potential confounders, the use of antibiotics did not significantly decrease odds of infection (OR 1.7, [0.17-13.6], p=0.64) (**Table 2**)
- No other variables studied were associated with increased odds of infection, including the presence of packing, open fracture classification, or time to intervention
- Increasing severity of injury based by Rohrich Classification did not significantly impact odds of infection (OR 0.68, [0.23-1.9], p=0.46) (**Figure 1, Table 2**)
- All six patients who presented with infections were managed nonoperatively, indicating an overall infection rate of 2.5% at bedside versus 0% in the OR.

Table 1: Univariate Analysis

Outcome	Total	Antibiotic	No Antibiotic	p
Infection	6 (2.1)	3 (2.1)	3 (2.2)	0.90
Abscess	1 (0.3)	1 (0.6)	0	0.36
Sinus Infection	5 (1.8)	18 (11)	21 (14)	0.86
Symptom Duration	19.5 (12.5)	18 (11)	21 (14)	0.86

Table 2: Multivariate Analysis

	Infection v. No infection		
Covariate	OR	(95% CI)	p
Antibiotics	1.7	0.17,13.6	0.64
Age	0.97	0.91,1.0	0.28
Packing	0.18	0.01,1.9	0.19
Splinting	1.3	0.13,29.4	0.84
Open Fracture	1.9	0.08,20.8	0.64
Rohrich Classification	0.68	0.23,1.9	0.46
Time to Intervention	1.5	0.95,2.9	0.16

Conclusion

- Prophylactic antibiotics do not decrease infection rates following nasal fractures managed by closed reduction, including in open fracture cases
- A risk-benefit analysis is warranted for antibiotic prescription in the case of nasal fractures, given known risks of antibiotics and limited benefits
- When skin breaks are appropriately irrigated and managed, we argue against the routine prescription of antibiotics in cases of isolated nasal fracture.

Figure 1: Rohrich Fracture Classification

