SSI, and operative complications (including osteomyelitis, nonunion, malocclusion, and hardware infections). Post-Abx complications included Clostridium Difficile colitis, urinary tract infections, pulmonary infections, nervous system infections, bloodstream infections and multidrug resistance identified on re-admission. Difference between groups were analyzed by running ANOVA test for continuous variables and Pearson Chi-squared test for categorical variables.

RESULTS: A total of 75 patients were included in the analysis; 33 (44.0%), 26 (34.7%), and 16 (21.3%) were managed under PS, ES, and OS, respectively. Median age was 30.0 years (IQR: 22.0 – 45.0). Median Injury Severity Score (ISS) was 4.0 (IQR: 1.0 – 9.0). There were no significant differences among baseline demographics or ISS within the three groups. Median total duration for PS: 8.5 days, IQR: 6.3 – 10.0; ES: 8.8 days, 6.8 – 10.5; and OS: 1.8 days, IQR: 0.1–7.8. There was no significant difference in hospital LOS (p=0.44), ICU LOS (p=0.53), or post-op complications (p=0.15). None of our patients had SSI or post-Abx complications. While the total inpatient duration of Abx was not significantly different among services (p=0.37), there were significant differences in outpatient duration of Abx (p=0.007) and total duration of Abx (p=0.003).

CONCLUSION: Outpatient duration of Abx is not associated with post-operative complications including SSI. Given that the duration varies among services, there appear to be no benefit of prolonging Abx prophylaxis. Further studies are needed to study the complications of prolonged Abx use and to explore the benefit of short course Abx in mandibular fractures.

Predictors of Adverse Outcomes in the Management of Mandibular Fractures: An Analysis of 953 Cases

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PURPOSE: Mandibular fractures are the most common isolated facial fractures in the United States and often require surgical treatment with open reduction and internal fixation to prevent infection and promote adequate bone healing. Various clinical risk factors have been associated with increased rates of postoperative complications, including smoking, substance abuse, and surgical approach. However, national outcomes reports are limited, and data are conflicting. Using a national multi-institutional database, we sought to analyze 30-day outcomes after mandibular fracture repair and determine risk factors for complications, readmission, and reoperation.

METHODS: Retrospective review of the American College of Surgeons National Surgical Quality Improvement (ACS-NSQIP) database was performed to identify patients undergoing surgical treatment of mandibular fractures between 2010 and 2015. Case distribution was based on available CPT codes and included open treatment of mandible fracture with external fixation (21454), open treatment of mandible fracture with and without interdental fixation (21462, 21461), and open treatment of complex fractures involving multiple approaches (21470). Preoperative demographic data and postoperative outcomes were analyzed. Primary outcomes included: wound complications (superficial surgical site infection (SSI), deep SSI, and wound dehiscence), overall complications (wound complications and/or medical complications), as well as 30-day readmission and reoperation rates. For risk factors significant on univariate analysis, multivariate analysis was performed to control for confounders.

RESULTS: Review of the database identified 953 eligible patients who underwent surgical treatment of mandibular fractures. Mean age was 34.5 years and 84% of the cohort was male. Fifty percent of patients were active smokers. Wound complications occurred in 38 patients (4.0%) and the overall complication rate was 7.9%. The 30-day reoperation and readmission rates were 2.2% and 3.3%, respectively. Multivariate analysis demonstrated age to be a significant risk factor for 30-day readmission (OR = 1.06, p=0.01) and reoperation (OR = 1.05, p=0.01), as well as overall complications (OR = 1.03, p=0.02). Additionally, active smoking was a significant risk factor for 30-day reoperation (OR = 4.86, p=0.03). The odds of readmission for smokers was more than 3 times higher than non-smokers (OR=3.25; 95% CI 0.93–11.43); however, this approached but failed to reach our threshold for statistical significance (p=0.07).

CONCLUSION: Our analysis demonstrates that surgical treatment of mandibular fractures can be performed safely
and with low rates of wound and overall complications. However, increased age is an independent risk factor for readmission, reoperation, and overall complications. Active smoking was also found to be an independent risk factor for reoperation, with active smokers nearly five times as likely to undergo additional surgery. This is a particularly important finding given that over half of all mandibular fracture patients in our nationwide study were active tobacco users, highlighting the importance of patient education and smoking cessation in the perioperative period within this population.

Pediatric Facial Fracture Surgical Management at a Level 1 Trauma Center

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BACKGROUND: Management of pediatric facial fractures is unique to that of the adult population due to the greater cranium to face ratio, lack of developed sinuses, greater elasticity, and their continued growth. Our study is one of the largest single institution studies performed looking at the surgical management of pediatric facial fractures.

METHODS: We performed an IRB approved retrospective review of pediatric patients (age≤18 years) who presented to a level one pediatric trauma center with ≥1 facial fractures from January 2006 to December 2015. Data abstracted included demographics, fracture location, mechanism of injury, concomitant head and neck injuries, and surgical management. Statistical analysis employed Chi Square tests for categorical variables with p<0.05 for significance. Univariate logistic regression was conducted and variables with a p<0.20 were included in multivariate analysis.

RESULTS: 1277 patients met inclusion criteria, of which 517 (40.5%) patients underwent surgical management for their facial fractures. Comparison of operation rates between gender, ethnicity, and median income based on zip code showed no significant difference. Surgery occurred at a median of 2 days (IQR 1–4 days) following admission with 467 patients (90.3%) receiving intervention during their primary admission. Mandible fractures had the highest operation rate (70.3%) and orbital fractures had the lowest (26.5%) (p<0.001). Other operative rates by bony location were nasal fractures 27.6%, maxillary fractures 46.0%, and zygomatic fractures 48.9%. 314 (24.6%) patients presented with a concomitant skull fracture and showed a lower operative rate (28.3%) for the management of their facial fractures as compared to patients without skull fractures (44.4%, p<0.001). Univariate analysis demonstrated that age, mechanism, type of fracture, and violence were associated with a higher risk of surgical intervention. Concomitant injuries of the skull and cervical spine, need for intensive care, traumatic brain injury, and Hispanic ethnicity were associated with reduced likelihood of surgery. Following multivariate analysis, associations for increased likelihood of surgery remained for increased age and mandible and LeFort pattern fractures. Decreased likelihood for surgery remained for traumatic brain injury. A ROC of the multivariate analysis yielded an area under the curve of 0.82. Looking closer at the patients with traumatic brain injury, they were found to have a higher mortality rate (13.3%) compared to non-TBI patients (1.1%) as well as significantly fewer mandible fractures and more orbital fractures (p <0.001).

CONCLUSION: As patients age, their need for surgical management increases as their bones lose their more absorptive porous nature. Mandible and Le Fort fractures are associated with higher odds of surgical intervention. Presentation with concomitant traumatic brain injury is associated with reduced odds of operative management of facial fractures due to a higher mortality as well as a different fracture pattern such that orbital fractures are more common and mandible fractures are less common.

Cervical Spine Fractures in Pediatric Maxillofacial Trauma: A Single Center Retrospective Review

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