


Trends in Maxillofacial Trauma During COVID-19 at a Level I Trauma Center

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Facial trauma makes up nearly 1.5 million emergency room visits in the US per year.^{1,2} Facial injuries are more common in men, and are often due to assaults, falls, and motor vehicle collisions.^{2,3} When COVID-19 was declared a global pandemic in 2020, it resulted in significant worldwide restrictions including social distancing, stay-at-home orders, and travel bans. There was also excessive strain on hospital resources, personnel, and capacity, resulting in the cessation of elective surgical procedures. Most published studies on trauma patterns during the pandemic are in the general and orthopedic surgery literature.^{4,5} We sought to explore the effects of these social and health care system changes on facial trauma at a level 1 trauma center compared to pre-pandemic times.

We reviewed all adult facial surgery consultations involving maxillofacial fractures at Vanderbilt University Medical Center from March through August 2018, 2019, and 2020. Facial surgery consultations at this institution are shared by Otolaryngology, Plastic Surgery and Oral/Maxillofacial Surgery. We collected data on fracture type and location, operative status and interventions performed, and hospital admission. Fracture types included nasal bones, orbital floor, midface (malar, maxilla, and zygoma), mandible, skull vault, skull base, and other unspecified facial bones.

Upon review of bony facial trauma patients in 2018–2020, there was no difference in basic demographic variables. The total number of facial trauma consultations for facial fractures increased each year, with 239 in 2018, 289 in 2019, and 361 in 2020. Fracture patterns across all three years were similar, with nasal bone fractures the most common consultation (42%) followed by fractures of the midface (malar, maxillary, and zygoma bones, 41%).

Compared to 2018–2019, the 2020 cohort had a smaller number of total fracture types ($p < 0.001$), with more patients having only 1–2 facial fractures. In 2020, facial fractures were less

likely to be managed operatively compared to prior years (36% operative in 2020, 38% in 2019, and 46% in 2018, $p = 0.03$) (Table 1).

Our review of facial trauma consultations involving maxillofacial fractures shows fewer facial fractures per patient and a decrease in operative management in 2020 compared to prior years. These findings are significant, as they may be secondary to restrictions related to the COVID-19 pandemic. Multiple facial fractures are typically seen in high-speed mechanisms including motor vehicle accidents.⁶ With social distancing and stay-at-home orders, this could have led to differences in the mechanism of injury resulting in patients with fewer total number of fractures. The decrease in operative management of fractures may be associated with cessation of elective procedures, limited hospital staff, and limited hospital resources. Although there was an increase in total number of facial trauma consultations, this may be due to the growing population in our area.

The decrease in total number of fracture types per patient and decrease in operative management during the COVID-19 pandemic is interesting, and formal studies to evaluate factors underlying these trends may be beneficial as the pandemic continues to affect our patients and health care systems. Significant hospital resources at many tertiary medical centers are dedicated to caring for trauma patients, and an understanding of the effects of major national and global events and public health crises on trauma patterns is necessary to best prepare for and respond to these circumstances.

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Table I. Total number of facial fractures per patient and operative status in 2018–2020. P-values calculated using Pearson's chi-square test.

Number of facial fractures	2018 N = 239	2019 N = 289	2020 N = 361	p-value
1	93 (39%)	127 (44%)	178 (49%)	< 0.001
2	52 (22%)	73 (25%)	103 (29%)	
3	45 (19%)	43 (15%)	51 (14%)	
4	21 (9%)	27 (9%)	14 (4%)	
5	19 (8%)	12 (4%)	10 (3%)	
6+	9 (4%)	7 (2%)	5 (2%)	
Operative Status				
Operative	111 (46%)	109 (38%)	130 (36%)	0.03
Non-operative	128 (54%)	180 (62%)	231 (64%)	

Midface includes fractures of malar, maxillary, and zygoma bones per diagnosis code used at this institution.

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References

- Laloo R, Lucchesi LR, Bisignano C, et al. Epidemiology of facial fractures: incidence, prevalence and years lived with disability estimates from the Global Burden of Disease 2017 study. *Injury prevention : journal of the International Society for Child and Adolescent Injury Prevention*. 2020;26(suppl 1):i27.
- Allareddy V, Allareddy V, Nalliah RP. Epidemiology of facial fracture injuries. *Journal of Oral and Maxillofacial Surgery*. 2011;69:2613-2618.
- Boffano P, Kommers SC, Karagozolu KH, Forouzanfar T. Aetiology of maxillofacial fractures: A review of published studies during the last 30 years. *British Journal of Oral and Maxillofacial Surgery*. 2014;52:901-906.
- Ghafil C, Matsushima K, Ding L, Henry R, Inaba K. Trends in trauma admissions during the COVID-19 pandemic in Los Angeles County, California. *JAMA Network Open*. 2021;4(2):e211320. doi:10.1001/jamanetworkopen.2021.1320. PMID: 33616667; PMCID: PMC7900857
- Sherman WF, Khadra HS, Kale NN, Wu VJ, Gladden PB, Lee OC. How did the number and type of injuries in patients presenting to a regional level I trauma center change during the COVID-19 PANDEMIC WITH A STAY-AT-Home Order?. *Clinical Orthopaedics & Related Research*. 2021;479(2):266-275. PMID: 32969846; PMCID: PMC7899709. doi:10.1097/CORR.0000000000001484.
- Peltola EM, Koivikko MP, Koskinen SK. The spectrum of facial fractures in motor vehicle accidents: an MDCT study of 374 patients. *Emergency Radiology*. 2014;21:165-171. <https://doi-org.proxy.library.vanderbilt.edu/10.1007/s10140-013-1173-1>.