INTRODUCTION: Frontal fractures result from high force injuries and have significant morbidity and mortality. By gaining a thorough understanding of the mechanism, associated injuries and related complications of this diagnosis, clinicians will be better able to provide optimal treatment of these patients and ultimately improve outcome.

The purpose of this study was to evaluate our McGill University Health Centre (MUHC) experience with frontal bone fractures and associated injuries.

METHODS: A comprehensive review of the MUHC database was performed. All adult patients presenting with frontal sinus fracture were identified. Patient demographics, mechanism of trauma, fracture type, associated facial injuries, management and related complications were identified. All cases of ocular injury or sequelae were identified and an in-depth review was performed.

RESULTS: Between 2008 and 2014, 1277 patients presented to the MUHC Level 1 trauma center with a facial fracture, 140 of whom had a frontal sinus fracture and met the inclusion criteria. Mean age was 43.5 years, 90% were male and mean hospitalization time was 16.2 days, including those who required prolonged ICU admissions. Among the patients treated surgically, only 2 required reoperation for their facial fractures (1.4%).

A significant proportion suffered concomitant craniomaxillofacial fractures including orbital (79%), maxillary (66%), nasal (64%), zygomatico-maxillary complex (34%), nasoorbitoethmoid (31%), Lefort types I-III (18%) and mandibular (8%). Associated cervical spine injuries were seen in 16% of patients.

Ocular injuries were present in 29% of subjects. The most frequently ocular pathologies were optic neuropathy, ptosis and orbital hematoma, followed by subconjunctival hemorrhage, mydriasis, exotropia, retinal injury, gaze limitation and rectus entrapment. Fifty percent were extraocular in nature, 30% were due to mechanical force, and 6% involved palsy of cranial nerves.

CONCLUSION: Due to the intimate association of the frontal bones with the brain and the orbits, frontal sinus fractures rarely occur in isolation and demand a sophisticated multidisciplinary approach. Given this high rate of ocular injury, the authors propose a modified treatment approach and algorithm. In order to optimize the treatment of systemic injuries and preserve eyesight, fracture repair may need to be postponed and performed in a delayed fashion.

Correlation of Facial Fracture Patterns with Neurotrauma: A Cross-Sectional Study from R Adams Cowley Shock Trauma Center

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INTRODUCTION: Relationships between patterns of facial fractures and the severity of traumatic brain injury (TBI) are poorly understood. The incidence of facial fractures in the setting of TBI has been reported to be as high as 86%.

Since TBI presents along a spectrum of functionality, we have decided to measure it using the validated Glasgow Outcomes Scale (GOS). The purpose of this study is to define the potentially significant relationships between specific patterns of facial fractures and worsening GOS.

METHODS: Patients were identified using ICD-9 codes for TBI from 2011–2014 at R Adams Cowley Shock Trauma Center. These subjects were analyzed to determine the type of facial fracture pattern (based on upper, middle, and lower thirds plus combinations of each), initial Marshall Score, ISS, GCS, and GOS upon discharge. Chi-squared, Kruskal Wallis, and logistic regression analysis with SPSS (IBM Armonk, NY) were used to determine which fracture patterns were associated with a poor outcome.

RESULTS: A total of 844 patients were evaluated. Of these, 76% were male and the mean age for all was 46 years old with a range of 13–97. The GOS significantly worsened with increasing age and ISS. The GOS was significantly better with decreasing GCS. The majority of injuries were due to fall (33%) and motor vehicle collision (24%). The most common facial fracture pattern in our
retrospective series was middle third. Overall, no specific fracture pattern correlated with poor GOS.

CONCLUSION: Outcomes in TBI patients were significantly worse in patients with increasing age, increasing ISS, and decreasing GCS. No specific facial fracture patterns correlated with worse GOS.

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Facial Fractures As a Result of Falls in the Elderly: Concomitant Injuries and Management Strategies

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INTRODUCTION: Mechanical falls are a common cause of facial trauma in the elderly. It has been shown that the likelihood of sustaining a facial fracture due to a fall increases with age following infancy. While craniomaxillofacial fractures are most common during the first three decades of life, elderly patients more frequently require lengthy hospital stays and have shown increased surgical complication rates when compared to younger patients. The goal of this study was to examine facial fractures secondary to mechanical falls in the elderly in order to analyze mechanism of injury, comorbidities, and fracture management.

METHODS: A retrospective review of all facial fractures as a result of falls in the elderly population in a level 1 trauma center in an urban environment was performed for the years 2002 to 2012. Patient demographics were collected, as well as location of fractures, concomitant injuries, and surgical management strategies.

RESULTS: During the time period examined, 139 patients greater than 60 years of age that sustained a fracture of the facial skeleton as the result of a fall were identified. The average age was 75.7, with no gender predominance. There were a total of 205 fractures recorded. The most common fractures were those of the orbit (42.0%), nasal bone (23.4%), zygoma (13.2%), and zygomaticomaxillary complex (7.32%). The average Glasgow Coma Scale on arrival was 12.8. Uncontrolled hemorrhage was noted on presentation in 5 patients. Twenty-one patients were intubated on, or prior to, arrival and 44 required a surgical airway. The most common concomitant injury was long bone fracture (23.5%), followed by cervical spine fracture (18.5%), skull fracture (17.3%), intracerebral hemorrhage (17.3%), and rib fracture (17.3%). Of the 114 patients admitted to the hospital, 53 were admitted to an intensive care setting. The average length of stay was 8.97 days. Sixteen patients expired. Surgical management of fractures was required in 47 of the 139 patients.

CONCLUSION: Facial fractures as a result of falls in the geriatric population represent an increasing number of cases in clinical practice as life expectancy steadily rises. These patients require a specific standard of treatment since they are more susceptible to nosocomial infections, as well as have higher complication rates and longer recovery time. Concomitant injuries such as cervical spine and pelvic fractures can greatly increase risk of mortality.

Peroneal Flap – A Boneless Version of Fibula Flap, an Equivalent of Radial Forearm Flap in the Lower Extremities, and a Feasible Alternative for Head and Neck Reconstruction

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INTRODUCTION: The current mainstream options for soft tissue defects in head and neck reconstruction are radial forearm flap and ALT flap. However, ALT flap could be too bulky in obese patients, and the harvest of radial forearm