CASE REPORT

Multidisciplinary Approach of Panfacial Fracture: A Case Studies

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ABSTRACT

Facial injuries are often associated with head injuries. Cases of facial fractures with head injuries require evaluation and treatment to prevent further complications. The purpose of this report is to present and discuss the management of open depressed and panfacial fractures associated with head injuries resulting from motorcycle accidents. A 38-year-old woman complained of facial and mouth injuries resulting from a motorcycle accident. Clinical examination revealed facial asymmetry, bilateral right frontal and periorbital swelling, hematoma, facial swelling and lacerations. 3 dimensional Computer Tomography scan image shows epidural bleeding leading to right frontal lobe recess and wide face. The patient was diagnosed with a mild head injury, skull base fracture anterior fossa, open depression in the right iliac crest, epidural bleeding in the right iliac crest, all facial fractures, and multiple soft tissue injuries. Treatment in this case includes primary therapy, cranial debridement, open reduction internal fixation, and Le Fort I osteotomy. In the evaluation and treatment of head injuries, priority should be given to treating the maxillofacial bones associated with head injuries. Open reduction and internal fixation (ORIF) achieved excellent results in terms of function and aesthetics in the treatment of facial fractures.

Malaysian Journal of Medicine and Health Sciences (2024) 20(SUPP12)224-227 doi:10.47836/mjmhs20.s12.35

Keywords: Maxillofacial trauma, Head injury, Panfacial fracture, Open depressed fracture, Multidisciplinary approach

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INTRODUCTION

Most facial bones arise in association with various subunits of the craniomaxillofacial (CMF) skeleton. The severity of these injuries is determined by many factors, such as their aetiology, the reasons for the intervention, the patient’s previous impact, and others. Road traffic accident (RTA) car accidents/violence often involve the entire face. The correct definition of a “panfacial fracture” is difficult because there are many different forms of this fracture. Fractures involving more than one bone in the face are called panfacial fractures. It can be defined as “destruction affecting the upper, middle and lower thirds of the face with at least one fracture in the condyle, palate and frontonaso-orbitoethmoid (FNOE) complex.” When skull base or neurosurgical involvement occurs, it is called a craniofacial fracture (1)(2)(3).

These cases are difficult to treat because each case has a unique pattern of hard and soft tissue injury. This needs to be coordinated because these injuries occur with multiple injuries involving multiple systems. Airway compromise, severe bleeding, large open wounds, severe ocular/orbital trauma, and ongoing surgery are the only indications for emergency surgical intervention. The oral surgeon’s goal should be early restoration of form and function of the hard and soft tissue (2).

The Global Road Traffic Safety Report (2015) shows that road traffic accidents (RTAs) kill more than 1.25 million people, injure 15-20 million and cost many countries 3% of their gross domestic product (GDP). Low- and middle-income countries, which own 54 percent of the vehicles, account for 90 percent of RTA deaths, mostly among people ages 15 to 44, particularly if fractures become a complication which may have huge impact on patient’s quality of life. RTA is the leading cause of death in three-quarters of men aged 15-29. In fact, in most developing countries, economics and public health are taken for granted due to inadequacy of infrastructure and resources. Damage to the entire face is usually caused by the impact force of a gunshot wound to the RTA or CMF

bone and also has the relative cause of affecting mainly the cranial or cervical spine, with a lower Glasgow Coma Scale. These injuries may also result in injuries such as bone/lung crushes, pneumothorax or abdominal injuries, and side and abdominal injuries that require emergency treatment (3).

All facial bones can cause serious problems such as difficulties in chewing, swallowing, speaking, hearing and vision. Early treatment of fractures caused by the above problems is necessary. Non-displaced fractures may be left in place for a few days to give some time for other serious injuries to heal. It is necessary to understand that all aspects of the face need to be treated urgently (within 15 days, other conditions) (4).

The journal authors hope that surgical case reports can provide valuable information and enhance readers' understanding of surgical procedures and rare clinical conditions.

CASE REPORT

A 38-year-old woman arrived at the emergency room after a car accident, presenting with decreased consciousness and facial swelling. Physical examination revealed clear airway, intact cervical vertebrae, normal breath sounds, vital signs within normal range, and a Glasgow Coma Scale (GCS) score of 15.

Further extraoral examination showed facial asymmetry, edema, and hematoma in the frontal and periorbital regions, as well as injuries to the heart, frontal area, eye, nasolabial folds, and lips.

Intraoral examination revealed lacerations in the upper jaw and lips, with irregular edges, bone based, and involvement of the lip muscles and gingiva.

Computer Tomography scan (CT scan) showed epidural signs and blood-filled right frontal lobe depression. Suspicion of subarachnoid hemorrhage in the right temporal sulcus was noted. Fracture on the right frontal lobe, right zygomatic bone, right upper orbital rim, both infraorbital rims, both ethmoid sinuses, both posterior and anterior walls of the maxillary sinuses and right lower bone, nasal septum, double-sided cardboard. Both maxillary hematosinus, both ethmoid bones and both sphenoid bones. Tearing of the right frontal region associated with subcutaneous emphysema in the right frontal region, on both sides of the palate, in both eyes, and in the right lower jaw.

We diagnosed the patient with mild craniocerebral trauma, skull base fracture in the anterior cranial fossa, <1 table open stress fracture in the right frontal lobe, epidural bleeding in the right frontal lobe. Traumatic optic neuropathy in the left eye, damage to the face (open depression bone in the right frontal, right orbital fracture and zygomatico complex dextrorotation, type 2 left zygomatic bone and palate, right coronoid fracture process and right accessory symphysis fracture), points of injury in the upper lips, Laceration in the right frontal lobe, periorbital region, on both sides, nasolabial folds, lower lip, palate, gingival of teeth 43-44 region. In this case, treatment is a combination of oral surgery, ophthalmology and neurosurgery. In the Department of Oral and Maxillofacial Surgery, simple bracing with intraoral sutures was performed on teeth 41-44 region. Primary suturing at margo and supraciliary bone performed in ophthalmology. The neurosurgeon performed a craniectomy, debridement, and extraoral suturing. The patient received postoperative medication in the form of antibiotic injection intravenously, analgetic injection intravenously, antiemetic injection intravenously, and steroid anti-inflamation injection intravenously, mouthwash, hyaluronic acid gel, and chloramphenicol zalf to treat intraoral and extraoral scars.

The next surgery was performed by the oral surgeon, refracturing, right parasymphysis of lower jaw bone and bilateral infraorbital rim open reduction internal fixation and Le Fort I osteotomy were performed.

Fig. 1: (a) Clinical picture of physical examination, (b) Clinical picture of extra oral examination, (c) Clinical picture of intra oral examination, (d) 3D Head CT-scan (Source: personal documentation)

DISCUSSION

There is currently no general definition of panfacial fractures. Some authors define it as a fractured structure covering the middle and lower thirds of the face. Some authors describe it as a broken pattern covering the upper, middle and lower thirds of the face. Tissue damage and bone loss are associated with facial fractures. After a facial fracture, severe post-traumatic

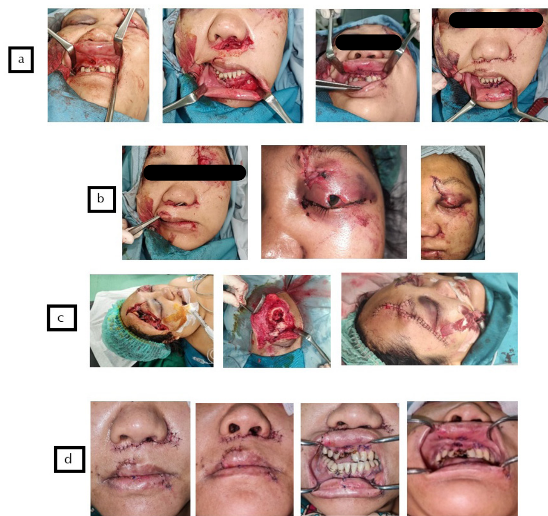

Fig. 2: (a) Simple wiring procedure at teeth 41-44 region, (b) Hecting primer PS, margo. and supracilier OS, (c) Craniectomy debridement and suturing extra oral, (d) Clinical picture of intral oral on the first day after surgery (Source: personal documentation)

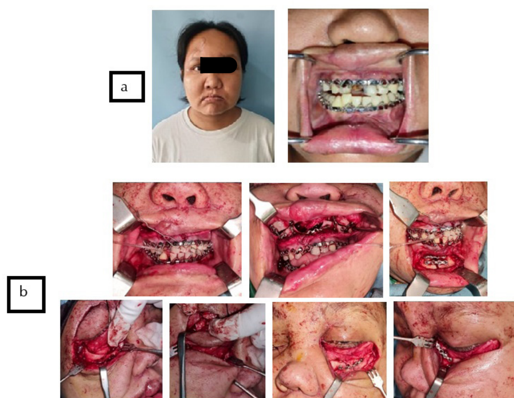

Fig. 3: (a) Clinical picture of pre operation, (b) Refracturing, Open reduction internal fixation at parasymphysis of mandibula dextra et rima orbita inferior aspect bilateral, and Osteotomy Le Fort I (Source: personal documentation)

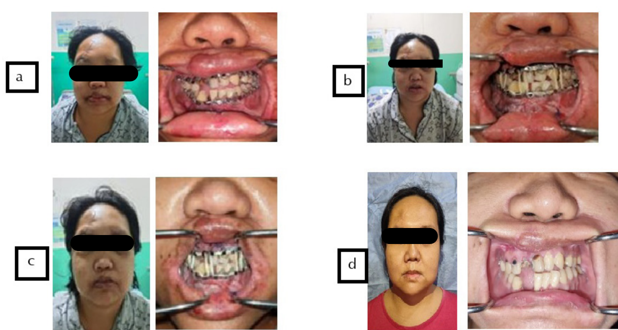

Fig. 4: (a) Condition of patient post operation day 1, (b) day 2, and (c) day 3, (d) 4 months prior (Source: personal documentation)

pain and deformities may occur. The most important step in the treatment of panfacial fractures is to create a treatment plan. Early treatment of these fractures will help reduce and prevent tissue damage. There are complex injuries affecting multiple facial regions, requiring detailed planning and collaboration among healthcare specialists from various disciplines (5).

Continuous treatment of the entire face is an injury that occurs due to the severity of other injuries or the lack of surgical intervention at that time. These patients may develop symptoms such as recurrent disease, eye symptoms such as enophthalmos and epiphora, jaw changes such as malocclusion and trismus, and facial flattening or asymmetric widening. He and colleagues studied 33 patients with facial fractures at least 4 weeks after the injury. All 33 patients had malocclusion, 20 (60.6%) had limited mouth opening, and 5 (15.2%) had open mouth. True temporomandibular joint (TMJ) ankylosis was defined as <15mm opening, and 12 patients (36.4%) had enophthalmos or ptosis. Unfortunately, after approximately 2-3 weeks after the injury, bone malunion and soft tissue atrophy begin, which can make reconstruction difficult (1, 5).

Kim et al. A study conducted by. It examined a total of 53 patients who underwent surgery at one institution (Wonju Severance Christian Hospital) between January 2011 and December 2015. Most surface cracks are suitable for internal methods. Given that external projection is the most important aspect of whole-face osteopenia, external projection is preferred over the middle-out sequence. Oral and maxillofacial surgeons need to be able to solve this problem (2).

Complications associated with full-face trauma include bone fractures in the frontal sinuses, nasal and frontonasal ethmoid bones, malar bones, maxilla, and mandible. Vision problems are the most common of all types, and depending on the type of panfacial fracture, patients experience different types of damage to other organs. Orthopedic, neurological and psychological disorders are also associated with different types of fractures. Brain damage, hypovolemic shock and cardiac arrest are the main causes of death. Considering that patients with panfacial fracture with damage to the frontal region may experience serious and life-threatening complications after surgery, surgeons should consider conservative treatment in the back of the intensive care unit (3).

These cases are difficult to treat because each case has a unique pattern of hard and soft tissue injury. This needs to be coordinated because these injuries occur with multiple injuries involving multiple systems. Airway compromise, severe bleeding, large open wounds, severe ocular/orbital trauma. In this case, we use the head CT scan as a diagnostic tool to measure the accuracy of the fracture line. Use oro endotracheal tube. Open reduction and internal healing were performed on the first day after surgery.

Post-operative rehabilitation is accomplished with a variety of medical management support, including chlorhexidine rinses, oral antibiotics, and maintenance of oral hygiene with soft foods. Sold as agreed for a month. Additional mouth stitches are removed one week later. The patient is recovering and the treatment process is

not good either. Postoperative stability was satisfactory, but unfortunately our patient had an asymmetric orbital line. There are some places that are difficult to correct, such as one of the zygomatic arches and the process of the body of the zygomatic bone. Only treatment of the zygomatic arch and the roots of the zygomatic arch can cure the face and width.

Another area that poses the biggest problem in terms of post-operative recovery and tissue repair is the medial canthus region, which can cause facial asymmetry. Deep tissue, inappropriate median canthal distance, and residual nasal asymmetry can be avoided when reapproaching the median collateral ligament (MCL) muscle using transnasal wires or cantilevered microplates and microanchors. The nasorbital area plays an important role in the beauty of the face. Inadequate repair of the lateral canthus and inner circle and inadequate bone support are the most common causes of surgical failure (5).

CONCLUSION

In the evaluation and treatment of head injuries, treatment of facial fractures with head trauma should be prioritized due to their potential life-threatning nature and propensity to cause subsequent complication. Open reduction and internal fixation (ORIF) achieved excellent results in terms of function and aesthetics in the treatment of facial fractures. Reconstruction and repair of panfacial damage should be done step by step approach to the reconstruction and repair of panfacial injuries. When treated in a phased manner, adequate fracture reduction is possible, even if complex. Occlusion is still the basis of proper alignment. Postoperative complications should be avoided.

ACKNOWLEDGEMENT
The authors would like to express their gratitude to the Oral and Maxillofacial Surgery Department, Faculty of Dentistry, Padjadjaran University, and RSUP Dr. Hasan Sadikin for their support and collaboration in this case study. Special thanks to the multidisciplinary team, including the neurosurgery and ophthalmology departments, for their invaluable contributions to the patient's treatment and recovery. We also extend our appreciation to the patient and her family for their cooperation and trust throughout the treatment process. Finally, we acknowledge the Malaysian Journal of Medicine and Health Sciences for providing a platform to share our findings.

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