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PREOPERATIVE SURGICAL PLANNING IN ORBITO ZYGOMATICOMAXILLARY FRACTURES-A REVIEW

Dr. VIVEK MUTHULINGAM[1], Dr. R. BALAKRISHNAN[2],Dr.Dhanalakshmi P[3]
Department of Oral and Maxillofacial Surgery, Sree Balaji Dental College and Hospital, Pallikaranai.

Name of the Authors – 1. Dr. S. VIVEK MUTHULINGAM
Assisstant Professor
Department of Oral and Maxillofacial surgery
Sree Balaji Dental College and Hospital, Pallikaranai.
2. Dr. R. BALAKRISHNAN
Professor
Department of Oral and Maxillofacial Surgery
Sree Balaji Dental College and Hospital, Pallikaranai
3. Dr. Dhanalakshmi P
Post-graduate student
Department of Oral and Maxillofacial Surgery
Sree Balaji Dental College and Hospital, Pallikaranai
Correspondence to – Dr. S.Vivek muthulingam
Name of the Department – Oral and Maxillofacial surgery
Sree Balaji Dental College and Hospital
Pallikaranai, Chennai – 100
Ph no.: 9884395994
Email of author –vivek86@gmail.com

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ABSTRACT:

In maxillofacial surgery, orbito-zygomaticomaxillary (OZM) fractures provide complex complications that require careful preoperative preparation. The methodical approach to decision-making and key surgical techniques for efficient treatment of OZM fractures are examined in this paper. Surgical intervention is determined by clinical examination and imaging, especially CT scans, with an emphasis on treating functional impairments and structural abnormalities. While orbit reconstruction addresses deficits in orbital floor integrity, fracture detection promotes stability across critical fracture margins. Optimal results are ensured by tailored access techniques and a methodical surgical sequence that optimize fracture reduction and repair. For patients with OZM fractures, preoperative planning is essential to achieve a both functional and aesthetic replacement.

Keywords: preoperative planning, orbito-zygomaticomaxillary fractures, surgical Approach

Dr. VIVEK MUTHULINGAM / Afr.J.Bio.Sc. 6(5) (2024). 9015-9018

INTRODUCTION:

In maxillofacial surgery, orbito-zygomaticomaxillary (OZM) fractures pose complex complications that require careful preoperative planning for the best possible outcomes. To properly treat OZM fractures, this article explores the methodical decision-making process and necessary surgical techniques.

1. **Determining Surgical Intervention**: Choosing whether or not to perform surgery is the first stage in preoperative planning. This decision is guided by both radiographic results and clinical assessment. Intervention is necessary if there are indications of skeletal deformity, changes in globe position, or functional abnormalities related to OZM fractures. The necessity for surgical correction is confirmed by imaging, notably CT scans, especially when there has been displacement or comminution.
2. **Identification of Fractures to Address**: It is essential to know which OZM complex elements need to be taken care of. Correct anatomical alignment is ensured when at least three fracture borders remain stable. The zygomaticofrontal, infraorbital rim, and zygomaticotemporal junctions should also be accessed with utmost importance, taking into account rotational and displacement variables.
3. **Imaging Modalities in Preoperative Planning:** The various imaging used in preoperative planning, such as Computed tomography (CT) scans and three-dimensional (3D) reconstruction. Explain how these modalities provide essential information about fracture extent, displacement, and involvement of adjacent structures.
4. **Virtual Surgical Planning (VSP) and CAD/CAM Technology**: Discuss the role of virtual surgical planning and computer-aided design and manufacturing (CAD/CAM) technology in preoperative planning. Highlight how these tools allow for precise simulation of surgical procedures and the fabrication of patient-specific implants.
5. **Reconstruction of the Orbit**: Fractures involving the orbital floor may necessitate reconstruction, contingent on factors like defect size and displacement. Periorbital access facilitates repair while considering the integrity of surrounding structures.careful planning ensures the restoration of Orbital volumeand conservation of periorbital Continuation.

6. **Choosing Access Types**: Access strategies are tailored to fracture severity, with communition commanding the extent of surgical exposure. Local approaches, such as intraorbital and periorbital incisions, give targeted access to specific fracture factors. Alternatively, coronal approaches offer comprehensive visualization,albeit with heightened complexity and potential for morbidity.
7. **Surgical Sequence:** A methodical surgical sequence optimizes fracture reduction and fixation. Starting with the Zygomaticofrontal suture, the subsequent way addressesthe orbital rim, maxillary buttress, and zygomaticotemporal junctions. Each fixation point Is carefully chosen to restore facial anatomy and function, minimizing postoperative complications.

DISCUSSION:

In Maxillofacial surgery, orbito-Zygomaticomaxillary (OZM) fractures present problems that must be carefully planned for in advance and precisely executed during surgery to provide positive results. The purpose of this article is to get deeper into the intricacies of treating OZM fractures by highlighting important factors in Preoperative evaluation, surgical decision-making, and postoperative care. the first step in treating OZM fractures is a thorough assessment to ascertain whether surgery is required. This decision is dependent upon a detailed analysis of the clinical signs and symptoms in addition to radiographic imaging, specifically CT scans. Clinicians can precisely determine the necessity for surgical repair by looking for skeletal abnormalities, orbital malposition, and functional impairments indicative of fracture involvement. This first evaluation forms the basis for the next preoperative planning, directing the choice of surgical techniques specific to each patient's unique presentation. Achieving the best possible results requires identifying each of the fracture components that need to be addressed. To successfully restore anatomical alignment and functional integrity, the stability of fracture edges needs to be carefully considered. At key junctions, including the zygomaticomaxillary, zygomaticofrontal, infraorbital rim, and zygomaticotemporal regions, surgeons need to carefully evaluate displacement and rotational considerations. Surgeons can address the underlying pathology and minimize unnecessary surgical trauma and related risks by emphasizing precision intervention in these important areas.

Restoring the orbit introduces new complications that need to be carefully considered, especially when orbital floor fractures are involved. Reconstructive attempts are largely guided by factors including soft tissue integrity, defect size, and displacement. Periorbital access gives surgeons the visibility and dexterity they need to work around these complex anatomical aspects, makingeffective restoration while reducing the possibility of long-term functional deficiencies and cosmetic abnormalities. Surgeons can maintain periorbital continuity and restore orbital volume to improve overall quality of life and improve patient outcomes.

Whether using a local or coronal approach, the method of access chosen must take into account the fracture's complexity as well as the unique requirements of each patient. Local techniques allow precision intervention with low morbidity by providing targeted access to specific fracture components. Coronal techniques, on the other hand, provide a thorough picture of the complete OZM complex but may come with more complexity and a higher risk of morbidity. To choose the best course of action for each patient, surgeons must carefully balance these factors to maximize results while lowering risks and problems.

CONCLUSION:

Preoperative planning is the basis of successful OZM fracture management enabling surgeons to navigate the complications of facial trauma with perfection and efficacy.by sticking to methodical decision-making processes and tailored surgical approaches, optimal outcomes can be achieved, ensuring functional and esthetic restoration for patients with OZM fracture and a multidisciplinary strategy that includes careful preoperative planning, accurate surgical execution, and thorough postoperative care is required for the optimal therapy of OZM fractures. Through the utilization of sophisticated imaging methods, customized surgical plans, and an organized strategy for fracture fixation and reduction, medical professionals can attain the best possible results and raise patient satisfaction in this difficult clinical situation.

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