PECULIARITIES IN TREATMENT OF THE TRAUMA OF THE ZYGOMATICO-ORBITAL COMPLEX

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Abstract

The article presents fractures of the zygomatic-orbital complex occur as a result of injuries, and can have negative consequences of an aesthetic nature, worsen visual, respiratory function and lead to a number of complications. Characteristic fractures in this area are damage to the thin bottom of the eye socket, the restoration of which also requires surgical intervention. Therefore, the treatment of a fracture of the zygomatic orbital complex should be carried out in a clinic with an exceptionally high reputation among highly qualified, experienced specialists who will help to correct the consequences of both fresh trauma and long-standing fractures.

Keywords: tenderness, ecchymosis, edema over the malar prominence, lateral orbit, upper and lower eyelids.

Craniofacial neurofibromatosis can lead to not only soft tissue deformity but also bone deformity such as skull and facial bone deformity. Therefore, surgical treatment must focus on not only removing the mass but also correcting the deformed bony structure by remodeling to achieve facial symmetry . Among cases of craniofacial neurofibromatosis, half of the cases present with orbit and eyeball involvement, which makes correction even more difficult. There are two methods of correction of orbital dystopia: Orbital translocation is performed by subperiosteal exposure of the cranio-orbital skeleton and applying osteotomies near the orbit, whereas, orbital remodeling is performed by placing bone grafts and metallic plates in the orbit for reconstruction. A few distinctive classification frameworks have been utilized to portray zygomatic breaks to help with their administration. The well-known Knight and North classification framework from 1961 is based on 6 particular bunches of zygomatic breaks. Breaks without noteworthy uprooting of the zygomatic bone are considered as bunch I breaks. Those with confined relocation

are classified as bunch II, though breaks that are un-rotated (have uprooted bodies) are gather III breaks. Gather IV and V breaks are those that are medially and laterally rotated, individually. In case there's an extra broken line inside the most part, at that point these are categorized as bunch VI breaks.

We used a bicorporal transcranial approach for resection of the mass in the superior orbit followed by zygomatic osteotomies for bone graft and reconstruction of the lateral wall and floor of the orbit for remodeling the orbit. Exacerbation of ptosis was significant despite the successful correction of orbital dystopia. Secondary surgery for ptosis correction was needed for a better cosmetic and functional result. Therefore, we report the sequence of an operative treatment method with a successful outcome for orbital neurofibromatosis and aggravated ptosis. Fractures of the zygomatic orbital complex at the present time they are one of the most common types of fractures among injuries to the bones of the facial skeleton. The use of a mesh made of non-woven titanium material with through porosity avoids soldering of the soft tissues of the orbit, including the muscles of the eyeball, with the plate, which reduces the likelihood of a restriction of the movement of the eyeball in the long term. This is due to a certain thickness and porosity of this mesh. Breaks of the zygomatic Maxillary complex result in corrective deformation as well as utilitarian shortages such as modified vision, confined mouth opening and paresthesia. Exact compensation of the frame and work of the ZMC is challenging since of its multipoint- verbalization inside the cranium facial skeleton and the trouble included in intra-operative appraisal of diminishment at all verbalizations. Administration of ZMC breaks is interesting; The approaches utilized for decrease may be diverse from those for obsession. Need of total visualization of break inclines to over or beneath decrease coming about in sub ideal results.Rationalities of obsession and stabilization are various and far from being obviously true.

With progressions within the imaging innovation, armamentarium and refinement of approaches to break, there's an developing slant towards accomplishing most extreme accuracy in lessening and obsession with negligibly obtrusive surgical standards. This chapter points at explaining the biodynamics of ZMC breaks, the advancement of various procedures for diminishment & obsession beside their method of reasoning and at long last the cutting-edge innovation in administration of broken ZMC.

With the help of an ophthalmometer and a device for determining the position in the intraoperative period, we can bring the eyeball to the physiologically correct position as accurately as possible, which reduces the risk of new complaints or eliminates the preservation of the previous ones for diplopia. Retrobulbar administration of prolonged -acting glucocorticosteroids in the intraoperative period and the inclusion of nonsteroidal anti-inflammatory drugs in combination with diuretics in the postoperative treatment regimen reduces pain and shortens the course of the postoperative period for the patient, which is undoubtedly, a positive indicator. The complex of treatment offered by us maximally reduces the risk of complications, such as diplopia, respectively, increases the effectiveness of surgical treatment of patients with traumatic injuries of the zygomatic orbital complex, which contributes to improving the quality of life of patients with this type of pathology.

The advanced trauma life support protocol is followed in patients who were involved in traumatic accidents. This protocol assesses the airway, breathing and circulation, while taking the necessary steps to ensure that they are adequately maintained. The Glasgow coma scale is used to assess the patient's mental status and a neurological examination where applicable is performed. Furthermore, areas of interest exposed for physical exploration in order to not miss important details that would have a direct impact on the prognosis. Pain is managed accordingly with analgesics and open wound fractures require treatment with a course of antibiotics. If necessary, the patient is given a tetanus shot.

The end of objective in the treatment of a zygomatic fracture is to ensure normal or near normal functionality. This includes the restoration of normal somato-sensory and masticatory function, as well as the cosmetic features of the face. Surgical intervention is not always necessary. This is especially true for stable and non-displaced zygomatic fractures, which require simple observation during healing. Surgery, if necessary, is done ideally within three weeks of the injury and involves closed or open reduction, and fixation with plates and screws. The prognosis, in general, is good.

Zygoma and orbit: ZMC forms the lateral and inferior part of the orbit, protecting as well as supporting the globe and associated soft tissues. The Whitnall's tubercle

present on the zygoma (inferior to the FZ suture) provides attachment to the suspensory ligament of Lockwood that maintains the horizontal axis of the globe. A fracture line located above the Whitnall's tubercle leads to inferior displacement of zygoma as well as the lateral attachment of Lockwood ligament resulting in anti-mongoloid slant to the eye. Thus, ZMC fractures greatly influence the structure and function of the orbit. Further, the contents of the orbit including the globe, extraocular muscles, and orbital fat are intimately related to the zygoma and may be affected in fractures of the ZMC or its surgical manipulation.

Zygoma and mandible: The zygoma and zygomatic arch are anatomically close to the coronoid process of the mandible. Therefore, a fractured zygoma or arch, when retro/medially positioned, may impede mandibular movements . A displaced and untreated fracture of zygoma/arch which is in close proximity to the coronoid process can result in extra-articular ankylosis.

The arch is the key parameter for re-establishing the sagittal projection as well as transverse width of the face . An arch which is bent outward or inward gets shortened . This leads to retrodisplacement of zygoma resulting in altered facial width. It is important to remember that in spite of being referred to as an arch, it does not have an exaggerated curvature. Therefore, overzealous contouring during reduction of zygomatic arch fractures can result in compromised esthetics. The arch is encased by a thick periosteal and fascial envelope which counteracts the displacing forces of the masseter. However, when the periosteal envelope is damaged due to high-velocity injuries, the fracture segments show more displacement. The nerves in close proximity to the ZMC are infra-orbital nerve and zygomatic nerve.

The infra-orbital nerve runs along the ION groove and enters the ION canal giving off the superior dental plexus of nerves before exiting through the ION foramen onto the face. Here it innervates the lower eyelid, lateral aspect of the nose, and upper lip of the ipsilateral side. The zygomatic nerve which enters the orbit through the inferior orbital fissure divides into two branches, the zygomatico-facial and zygomatico-temporal which emerge onto the face through their respective foramina. The zygomaticofacial nerve innervates the skin over the malar area, while the zygomaticotemporal nerve supplies the skin over the anterior temporal region.

These nerves may be injured due to trauma or during surgery. The severity of paresthesia which arises is generally proportional to the degree of displacement of a fractured zygoma. The other nerves whose function may be affected in ZMC fractures are the optic nerve and facial nerve. Blood vessels of importance related to the ZMC are infra-orbital artery and vein which accompany the infra-orbital nerve. Uncontrolled forces delivered during elevation of zygoma may injure these vessels resulting in severe intra-op bleeding.

Fractures of the zygomatic-orbital complex are accompanied by displacement of the eyeball. To bring the eyeball to the correct position during the operation, we suggest using a device to determine the position of the eyeball in the orbit relative to the vertical plane, the Hertel ophthalmometer relative to the frontal plane. As a plastic material for creating the lower wall of the orbit, it is possible to use a mesh of non-woven titanium material with through porosity. To reduce the edema of retrobulbar fiber in the postoperative period, intraoperative retrobulbar administration of prolonged-acting glucocorticosteroids (diprospan 0.5 ml) is advisable. In the postoperative period, it is advisable to use nonsteroidal anti-inflammatory drugs (Diclofenac 3.0 ml daily for 5 days), diuretics (Lasix 1.0 ml for 3 days).

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