The American Journal of Medical Sciences and Pharmaceutical Research
(ISSN – 2689-1026)
VOLUME 05 ISSUE 11 Pages: 48-51
SJIF IMPACT FACTOR (2020: 5. 286) (2021: 5. 64) (2022: 6. 319) (2023: 7. 396)
OCLC – 1121105510
Publisher: The USA Journals

Journal Website: https://theamericanjournals.com/index.php/tajmspr

Research Article

ORBITAL WALL FRACTURE IN COMBINED INJURIES OF BONES OF THE FACIAL SKELETON

Submission Date: November 20, 7023, Accepted Date: November 25, 2023,
Published Date: November 30, 2023 |
Crossref doi: https://doi.org/10.37547/TAJMSPR/Volume05Issue11-07

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ABSTRACT

Combined injury of the maxillofacial region remains one of the topical problems of maxillofacial traumatology. Combined trauma to the maxillofacial region requires joint medical care by several specialists. Trauma of the upper and middle zones of the face is often accompanied by trauma of the eye socket, paranasal sinuses. They are difficult to diagnose, in case of untimely diagnosis and rendered assistance lead to secondary defects and deformities. Damage to the walls of the orbit, leads to scarring changes in the fiber of the eye socket, eye muscles, persistent diplopia, ocular nerve impingement, persistent eye asymmetry, decreased or loss of vision is the cause of frequent disability.

KEYWORDS

Fracture depth, bony orbit, extraocular muscles, and orbital fiber cause diplopia, decreased visual acuity, cosmetic defect, hematoma, cosmetic defect.

INTRODUCTION

Damage to the walls of the orbit in combined injuries of the middle zone of the face ranges from 20 to 80%, more often the lower and inner wall of the eye socket is damaged up to 90%.

At external impacts on the orbit, there are mechanical injuries accompanied by damage to soft tissues and bone structures. Contusion trauma of the orbit leads to a violation of binocular vision. Deformation of the lower contour of the bony skeleton of the orbit during trauma, as well as the extent of the fracture in the anteroposterior direction (fracture depth) may not be noticed during initial examination due to pronounced edema and hematoma of the eyelids. Small changes in the bony orbit, extraocular muscles, and orbital fiber cause diplopia, decreased visual acuity, cosmetic

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defect, and problems in social and professional adaptation of the patient.

Thus, the increase in the total number of traumatism, combined damage of bone and soft tissue anatomical structures of the middle zone of the face, trauma of the eyeball and its musculoskeletal apparatus dictates the need for timely diagnosis of such conditions for preoperative planning and postoperative control.

The purpose of this study was to evaluate the nature of orbital wall injury in combined facial bone injuries.

Material and methods of research. 76 patients with trauma of the upper and middle facial zone in the multidisciplinary clinic of the Tashkent Medical Academy from 2020 to 2023 were under observation. Of them men made up 67% and women 33%. The age of patients was from 19 to 48 years. Domestic trauma was noted in 36% of patients, auto trauma in 38%, sports trauma in 12%, and falls from height in 14 patients.

Research Methods: The patients were examined by a neurosurgeon, intensive care specialist, maxillofacial surgeon, otolaryngologist, and ophthalmologist. We paid attention to the clinical picture of orbital injury and functional visual impairment. The clinical signs of orbital injury are as follows: Presence of edema and hematoma of soft tissues around the orbit, asymmetry of the orbit, exophthalmos or enophthalmos presence of emphysema of the eyelids and eye socket, displacement of the eyeball, violation of its mobility, development of diplopia, ptosis of subcutaneous emphysema of periorbital tissue, narrow ocular slit. Functional visual disturbances were diagnosed by ophthalmologists in the form of decreased visual acuity, damage to the muscles of the eyeball, changes in the optical media of the eye, retina and optic nerve. X-ray and multispiral computed tomography (MSCT) study of the orbit was performed. Lesions of the inferior wall of the orbit were noted in 56% of the examined patients, 23% had lesions of the medial wall, 12% of patients had lesions of the lateral wall, and 9% of patients had lesions of the lateral wall of the orbit.

Depending on the general condition of the patients, we divided them into 2 groups. The severity of the general condition of the patients was determined on the basis of the Glasgow consciousness score.

1- Group consisted of 33 patients (their general condition was assessed as extremely severe or severe).

2- The group consisted of 43 patients (their general condition was assessed as moderately severe).

The following surgical interventions were performed in all patients:

Table No. 1.

Type of operation	Number operations
Repositioning of the zygomatic bone (within 1-5 days)	23

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Open repositioning of the zygomatic bone (within 1-3 days)	7
Open osteosynthesis of the upper jaw (within 1-3 days)	5
Nasal bone repositioning (on the first day)	41
Total	76

To prevent orbital complications in the postoperative period, we performed antibacterial therapy.

Results of the study and discussion

Patients with damage to brain structures underwent resuscitative measures from the first day. Repositioning and fixation of bone fragments were performed on the 5-6th day, i.e., after improvement of the general condition, but in the postoperative period we did not achieve improvement of visual acuity and the desired cosmetic effect. Restoration of the orbital contour was achieved by surgical intervention. 19% of the patients in this group had a decrease in vision, complete loss of vision was observed only in 3%. Asymmetric position of the eyeballs in the orbit remained in 22% of patients.

In patients with moderate severity, 28% of patients showed a decrease in visual acuity on the first day. All patients in this group underwent repositioning and fixation of bone fragments in the first day after injury. After treatment at discharge low visual acuity was noted only in 5% of patients. Asymmetric position of eyeballs in the orbit of this group was noted in 8.2% of patients. It should be noted that visual acuity disorders in both the first group and the second group were noted in patients with damage to the inferior and medial walls of the orbit.

CONCLUSIONS

Thus, in severe combined injuries of the orbital walls, vision loss is noted in 5% of patients. The inferior and medial wall of the orbit is more often affected in combined injuries than other parts of the orbit. Fractures of the inferior and medial wall of the orbit most often lead to complications such as exophthalmos, enophthalmos, displacement of the eyeball, disturbance of its mobility, development of diplopia, ptosis, facial deformities, reduction or loss of vision.

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