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Improvement of Surgical Treatment with Combined Sculoorbital Injuries

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Abstract

Purpose of the research: Improving surgical treatment of bottom orbital fractures in children, with the use of auto-cartilaginous block, without destroying the integrity of the rib and collagen membrane. Material and methods: We performed 12 operations according the proposed methods. During analyzing the results of the restoration of the orbital bottom published by most authors, the obvious problem is a lack of common criteria for evaluating the effectiveness of surgical treatment. Perhaps, this circumstance explains it and significantly differences presented in the data when different authors use the same methods of plastic surgery of the lower orbital wall. Material and methods:We performed 12 operations according the proposed methods. During analyzing the results of the restoration of the orbital bottom published by most authors, the obvious problem is a lack of common criteria for evaluating the effectiveness of surgical treatment. Perhaps, this circumstance explains it and significantly differences presented in the data when different authors use the same methods of plastic surgery of the lower orbital wall.

Index terms— bottom fractures of the orbit, surgical treatment, auto-cartilaginous block.

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2 I . Actuality

espite the significant successes of maxillofacial surgery, the rehabilitation of patients with bottom orbital fractures is one of the actual problems of modern maxillofacial surgery and ophthalmology in particular. In the structure of traumatic brain injuries, fractures of the lower wall of the orbit account for 7.9% [1].

One of the main problems of bottom orbital fractures is enophthalmos of the eyeball, accompanied with prolapse and sharp limitation of eye movements. The typical reason for limiting movement of the eyeball is the interposition of the orbital tissue and perforation in the maxillary sinus, followed by a partial or complete decrease function of the visual analyzer, leading to disability. According to B.L. Polyak(in 1972), with the trauma of the above localization, damage of the visual analyzer occurs in 57% of cases [2].

The problem of surgical treatment of injuries lower wall of the orbit in maxillofacial surgery started to study in detail a little more than 20 years ago, although some works have been encountered before. Also, very interesting information on the diagnosis and treatment of fractures of this localization is presented in the writings of V.A. **??**elchenko (1988), V.A. Stuchilova (1988), Yu.A. Medvedev (1984, 1992), F.T. Temerkhanova (2000) [3, **??**,5,6,7].

The main purpose of surgical treatment for fractures of the lower orbital wall is to restore its anatomical integrity and functional perfection, which is achieved either by repositioning and holding the fragments in the correct position, or by replacing a bone defect using of transplants.

A so-called "blow-out" or isolated fracture is distinguished into a separate group (J.M.Converse, B. Smith 1956) [8] when sharply increases intraorbital pressure as a result of a blow to the eyeball, which leads to damage of thin lower walls. Moreover, the eyeball may remain intact (S.N. Bessonov, 2001) [9].

Experimental researchhas shown that fractures caused by wave-like deformation are limited to the front half of the inner part of the bottom of the orbit, do not extend to the medial wall, and are not accompanied by infringement of soft tissues.

Using a traditional x-ray examination does not provide information about the state of the deep sections of the orbit and a lower group of extraocular muscles,also it is impossible to determine the dislocation of the eyeball. In this regard, computed tomography has become an integral part of diagnostic research. The necessity of compulsory computed tomography for all patients with the trauma of this localization was indicated by E.K. Kolesnikova [10], 1995; S.H. Miller (1972) [11], N.A. Rabukhina (2006) [12].

3 a) Purpose of the research

To improve surgical treatment of bottom orbital fractures with the use of auto-cartilaginous block, without destroying the integrity of the rib and collagen membrane in children.

4 Material and Methods

In the department of pediatric maxillofacial surgery at the clinic of the Tashkent State Dental Institute, 12 patients with this pathology were admitted for the period 2012-2017. The age of patients ranged from 8 to 17 years. We performed 12 operations using the proposed method. This method is different for its ease of execution and its technical characteristics justify itself in the anatomical and functional restoration of the damaged area of the face providing good aesthetic results.

We carried out antibacterial and general healthimproving therapy in the postoperative period. 2-3 D 13 weeks after the operation and then for three months, physiotherapy was recommended, including magneto and laser therapy.

5 b) Complaints on admission

Swelling in the upper and lower eyelids of the right eye, limitation, and pain during movement of the eyeball.

Anamnesis Morbi: A patient was injured during a football match.

Status local: Soft tissue edema of the upper and lower eyelids of the right eye determined on visual examination. The skin of the upper and lower eyelids is cyanotic, palpation is painless. The movement of the right eye is limited to the upward and outward side. On palpation, nasal bones are without pathology.

On (multi-slice spiral computed tomography) MSCT diagnostics determined lower wall's fracture of the right eyeball and punching of the right eyeball to a depth of 1.5-2 cm. in the maxillary sinus. Based on (multi-slice spiral computed tomography) MSCT diagnostics and general condition of the child, it was planned operation "Removing of the soft tissues from maxillary sinus to right orbit by eliminating defect of the lower wall using with an autocartilage and collagen membrane, under general intubation anesthesia.

6 d) Stages of our operation method

The operative site is carefully cleanedunder intubation anesthesia.

A cut line is drawn with a medical felt-tip pen under the ciliary edge and sequentially IX-X of the rib area, soft tissues of the palate are infiltrated with anesthetics. The skin incision is made underciliary edge of the lower eyelid and exfoliates 1.5-2.0 cm, then infraorbital muscle and periosteum dissected and raised with a special Farabeuf surgical instrument.

The lower wall of the orbit is revised carefully, the interposition and perforated ocular fiber is pulled out. If it is not possible to completely fiber is removed from the maxillary sinus, in this case, the "window" is opened from the oral cavity side and this auxiliary to remove soft tissues from both sides.

In the region IX-X of the costal arch on the skin, an incision until the cartilaginous part of these ribs is made. A block of split cartilage with a thickness of 0.2-0.4 mm is taken without destroying the integrity of the ribs. A wound is seed layer-by-layer.

Cartilaginous block is prepared to close the defect in orbital lower wall; the above part is closed with bone-cartilaginous from the collagen membrane, which prevents further relapses, perforations, and interposition of the optic tissue in the maxillary sinus. Soft tissues are sewed in layers, and intradermal sutures are put. g h i j k l Fig. **??**: g -opening the "window" in the anterior wall of the maxillary sinus; h, i -taking the auto-cartilaginous

block; j -defect correction with an auto-cartilage graft and closing of the defect with a collagen membrane; k -stitching of the skin; l-view of patient after surgery on 14th day.

7 Analysis of Results

This type of operation showed that after surgical treatment of the patients with fractures of the orbital lower wall, the general state of health improved, the intensity of sickliness (OR pain) decreased significantly, asymmetry of the eyeballs during eye movement disappeared. The formation of an aesthetic scar was noted under the ciliary edge of the eyelid. Using an auto-cartilaginous block without destroying the integrity of the rib and it makes it possible to heal the postoperative field quickly. Also, there is a complete closure of the collagen membrane with bonecartilaginous combination, which prevents further relapses, perforation and interposition of the orbital tissue in the maxillary sinus at the same time.

8 a) Findings

Thus, our experience should be evaluated as positive to achieve good anatomical, functional, and aesthetic results in the surgical treatment of children with fractures of the orbital bottom.

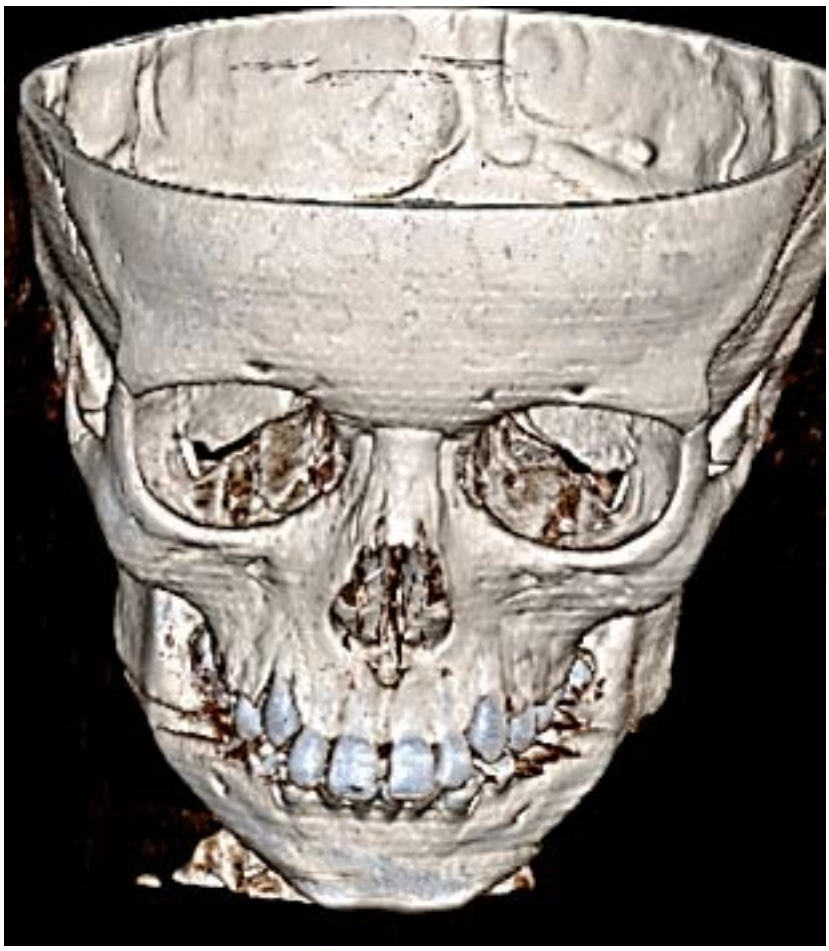

Figure 1:

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Figure 2: Fig. 1 :

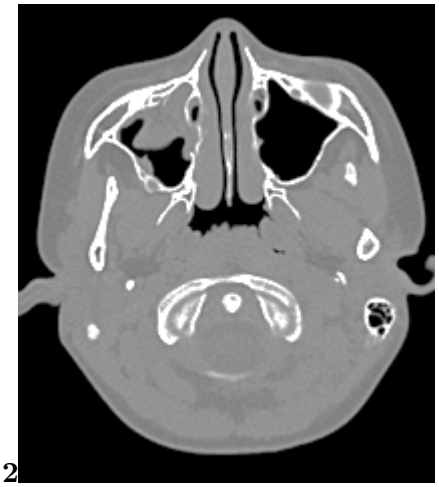

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Figure 3: Fig. 2 :

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