

Bursting Right Eye and Total Lost with Blowout Fracture in a Child

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Abstract: This is a progressive demonstration of severe damage to right orbit with bursting right eye. In this article we performed the treatment with enucleation and immediate reconstruction of orbital socket with blowout fracture with autologous implant of ear cartilage and series of reconstructive surgeries with the result to three years of accident.

Keywords: Cartilaginous graft, orbital floor reconstruction.

1. INTRODUCTION

Craniofacial trauma is defined as any other mechanical aggression either physical or chemical on the eyeball and or in their appendages and a rate of 60% to 80% of these eyeball traumas, take place into males 30 to 40 years old. Up to 25% take place in children [1]. This is very often, 89% of these eye traumas involve some orbital injuries without any eyeball injury. Actually, no more than 80% of these eye trauma injuries are on a secondary level, mainly due to traffic accidents and only a 20% of them, due to home accidents [2].

When some eye orbital traumas takes place, the main affected areas are the eye orbital floor, up to 58%, eye side wall, up to 32%, eye medial wall, up to a 24%, eye orbital rim, up to a 11% and the eye orbital roof, up to a 3% [3].

There are so many different classifications for eye orbital fractures. Lang, established the eye Blow-out fracture in 1889 [4], but after 1959 Smith and Converse, got a more exact definition for these fractures. Pearl, established in 1992, that a 50% of all eye orbital fractures patients, were related with eye medial wall fractures [5]. Generally, ocular traumas are grouped in closed eyeball, like bruises or laceration sheets and opened eyeball injuries, like penetrating eye injuries and ocular rupture or burst [1].

At this time, any injury higher than 50% of an eye orbital floor injury, requires a surgical treatment [6]. There are written studies about some techniques for blow out fracture corrections and their associated sequellae, finding endoscopic technique corrections,

some others using alloplastic materials, and autologous grafts, among others. These grafts have shown to be with a highest successfully rate due to its lower absorption pattern, lower rejection skill and less expensive procedure [7]. Castellani published in 2002 a paper related to repair orbital floor deficiency with atrium concha cartilage reaching up to 90% of success [8].

Autologous cartilage grafts have a favorable application in orbital floor reconstruction because to ease of access, malleability, and reliable support without evidence of resorption [8]. As described for autologous bone, postoperative complications such as infection, extrusion, and chronic inflammatory reactions are less prevalent than with alloplastic materials [9].

Although calvarial bone and alloplastic materials are commonly preferred for orbital floor repair, cartilaginous grafts have proven benefits. They are still used for small orbital floor fractures [10]. The predominant sources for cartilaginous grafting are auricular concha and nasal septum [7].

2. CASE REPORT

A 10 years old boy with light darkness skin admitted to emergency service, in critical condition with a frontal sinus fracture, right eye injury, with fracture of the orbital floor, eyeball bursting, secondary concussion caused by a car accident (Figures 1 and 2), with high probability of complication, taking place to perform a right eye enucleation, washing and draining for a safe handling and a front cover of the frontal sinus reconstruction with an adequate bones alignment. Ophthalmologist work was needed at the time of the right eye enucleation. Thin stainless steel wire number 5-0 was used for the frontal sinus reconstruction.

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Figures 1 and 2: show patient hospitalization in critical conditions.



Figures 3 and 4: show patient leaving the hospital before the secondary reconstructions.



Figures 5 and 6: show the patient ready to placement of temporary ocular fixed prosthesis.

Patient had a blow-out fracture at the orbital floor, the reconstruction was made with ipsilateral graft auricular concha, with an intensive care unit management for 24 hours, and a week of hospitalization with an adequate improvement, neurological recovery did not take time; after 5 days the patient was aware without deterioration (Figures 3 and 4). The Patient had a sepsis at the lacrimal sac after one month of the car accident date so he merited performing

a dacryinocistostomy, made by the otorhinolaryngology service.

The Facial reconstruction started after 3 months of the accident date using temporary ocular fixed prosthesis (Figure 5, 6 and 7). The bottom of the bag for the reconstruction of the orbital socket was lifted at the right position by the ear cartilage graft, allowed a wider bottom avoiding contractures. 3 months later was placed a definitive ocular prosthesis with the same size and same eye color without any problem (Figure 8).



Figure 7: shows the patient ready for placement of definitive ocular prostheses.



Figure 8: shows the patient with definitive ocular fixed prosthesis.

Final results are shown after some reconstructive surgeries with minimum residual scars on an outpatient basis ending definitely after 3 years (Figure 9).



Figure 9: shows final result after 2 years of the car accident day with facial reconstructions, scars and the final definitive prosthetics.

At this time, this patient is in general and neurological good conditions with one eye vision at a rate of 20/20, studying at the university level.

3. DISCUSSION

Synthetic mesh placement is a good way to make the correction of orbital floor fracture, but presents not less than 5% of contamination and extrusion of the mesh for the resolution of acute trauma [8, 9]. In this case, for the risk of extrusion, we decided to place autologous implant of ear cartilage. In order to avoid any contamination and because the lower rectal muscle, might be trapped into the maxilar sinus, the hematoma had to be drained, so we could not to risk any complications, because the cavity might be contaminated, that is the reason we did not put in the first stage the synthetic material.

4. CONCLUSIONS

The complex anatomy of the orbital floor reconstruction makes it difficult, even for the most experienced surgeons. The mechanisms of injury cause another injuries, so one more time, stays demonstrated than the reconstructive surgeon should not perform procedures of these features, without the support of other specialties such as the neurology, ophthalmology and otorhinolaryngology.

The experience gained, recommends than joint collaboration is essential for these cases of extreme gravity where a wide reconstruction and a multiple interventions are required.

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