CASE REPORT

Prosthetic Management of an Eviscerated Eye of a 13-month-old Patient: A Case Report

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Abstract

Background: On account of loss of eye following Rubella infection, a 13-month-old baby girl patient required a maxillofacial prosthesis to restore her facial esthetics and social health as she grows.

Case presentation: The process of prosthesis fabrication began at the time of enucleation where a conformer was given. Post healing the procedure was completed in a span of 2 days taking adequate trials and cross references for the like-like appearance of the prosthesis.

Conclusion: A heat-cure acrylic resin based prosthetic eye was delivered with adequate instructions on the insertion and removal and hygiene maintenance given to the care providers.

Keywords: Case report, Evisceration management, Eye prosthesis for children, Panophthalmitis, Prosthetic rehabilitation.

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Introduction

The eye is a distinct physical bodily component that is often inhabited by a network of bacteria. The eye is generally inflexible and protected by a continual flow of tear-containing antibacterial chemicals.[1]

However, an infection or inflammation might occur as a result of a significant bacterial, viral, or parasite overload, necessitating rapid intervention and treatment.

Endophthalmitis is described as the inflammation of the inner coating of the eye with the vitreous cavity containing exudation.[1] This needs quick treatment and care since it can escalate to a condition known as "panophthalmitis" if not treated. It is classified as "a severe ocular and orbital disease that may need evisceration or may progress to phthisis bulbi."[2] The majority of instances of panophthalmitis have been documented to be caused by endogenous causes, with just a few occurrences of exogenous panophthalmitis being present.

We present a case of panophthalmitis caused by pneumococcal infection in a 13-month-old baby girl patient. We plan to focus on the prosthetic treatment of such a situation.

Presentation of Case

A 13-month-old baby girl patient was sent to the Department of Prosthodontics for prosthetic replacement of her eviscerated eye (Fig. 1). An inflammatory response in the left eye was later identified as panophthalmitis owing to rubella infection, according to the diagnostic history.

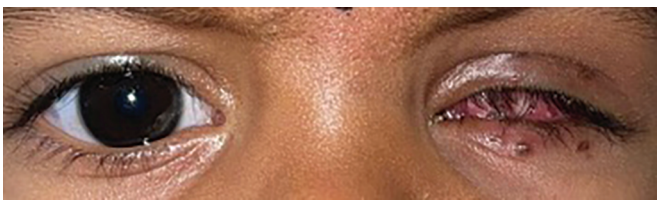

Fig. 1: Eviscerated eye

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Clinical Procedure

The patient would be given an eye prosthesis in order to keep the socket from collapsing to enhance the patient's appearance and social health.

Prior to suturing the eyelids, a conformer made of added silicone elastomeric impression material (putty normal set) was inserted into the socket throughout the healing process (Figs 2 and 3).

The left eye was sutured and left to recover for 2 weeks.

Following the healing time, the patient reported to the Department of Prosthodontics for the fabrication of the prosthesis. Considering the patient's age, making an impression under complete consciousness was a problem. With no alternative for lesser invasive techniques available to partially sedate the patient for 15–20 minutes, it was decided to put her under general anesthesia (GA).

The impression was created with an irreversible hydrocolloid impression material (Zhermack, Tropicalgin). The powder was thinly blended with water before being loaded into a 5 cc syringe. The impression material was injected into the socket using a sectioned piece of saliva ejector to fix the material inside the eye and facilitate recovery of the impression. As the patient was

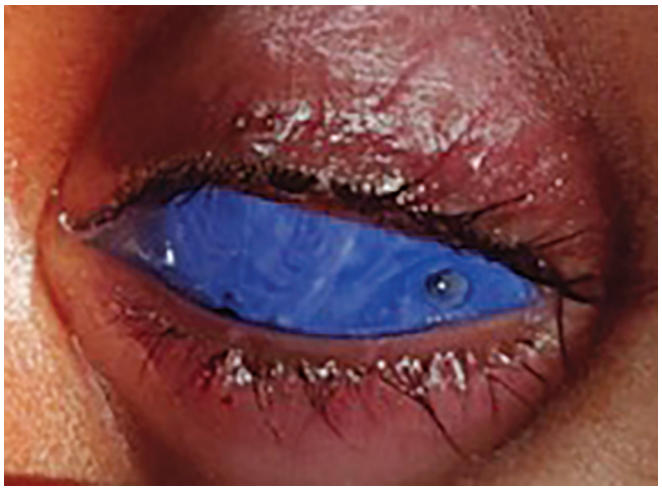

Fig. 2: The conformer was seated into the socket under GA

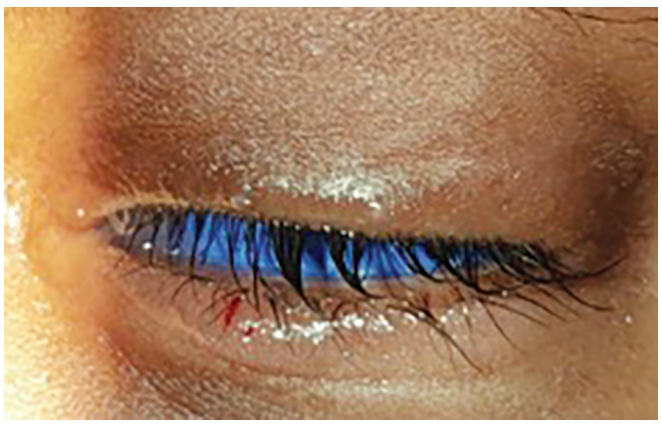

Fig. 3: The eyelids were approximated to ensure easy closure during suturing

Fig. 4: Impression

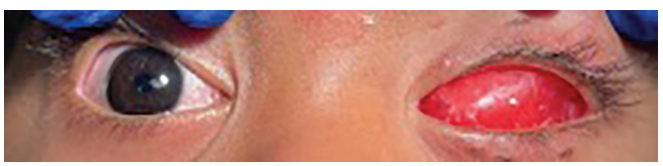

Fig. 5: Wax pattern

unconscious, the upper and lower eyelids were hand-molded, and the extra material was wiped out.

Once the impression material was set, it was slowly teased out while holding the saliva ejector and the syringe (Fig. 4).

The impression was indexed using an elastomeric impression medium body (putty normal set). The index was carved in a crisscross pattern to facilitate reorientation when the impression was removed. Melted modeling wax was poured into the index and left to cool. As a result, a wax pattern was created and tested on the patient while she was still sedated (Fig. 5).

Iris was made with transparent cold-cure acrylic resin. When combining clear acrylic resin with a cold cure, black acrylic paint was added.

The iris was centered on the wax pattern, and a conscious try-in was performed to evaluate contour, gaze, and the superior and inferior margins of the contralateral iris by analyzing the patient's eye movement. The iris location was calculated using many pictures and videos (Fig. 6).

For color matching, shade tabs of teeth molding material were utilized.

The pattern was placed in a flask and acrylized using a compression molding process with a short curing cycle (65°C for 90 minutes) using heat cure tooth molding material of the chosen shade (Fig. 7).

After acrylization, the eye prosthesis was removed, and excess material was trimmed. The patient's eye was examined again to ascertain the location and form of the iris (Fig. 8).

Fig. 6: Wax pattern try-in

Fig. 7: Investment mold after dewaxing

Fig. 8: Final try-in

Fig. 9: Final prosthesis

After the last try-in, the 1 mm contour thickness was scraped to fit the clear heat cure acrylic resin to achieve a clean corneal finish.

The prosthesis did not require any characterization to match the contralateral eye. The eye prosthesis was acrylized once again in the previous mold. Excess material was cut with acrylic trimming burs and finished with emery paper on a sandpaper mandrill. The prosthesis was polished after it had been smoothed with pumice powder and cotton buff (Fig. 9).

The eye prosthesis was inserted, and all motions were monitored (Fig. 10). The parents were instructed on how to insert and remove the prosthesis and were asked to practice. The parents were told to take the prosthesis out at night and clean it with antibacterial soap water before storing it in a tiny container filled with saline solution.

Pathological Discussion

Panophthalmitis is a severe and fulminant infection of the globe that can develop into phthisis bulbi and frequently necessitates evisceration or enucleation.

Evisceration is an ophthalmic surgery that involves the removal of the internal contents of the eye, followed by the implantation of an orbital implant to restore the lost ocular volume.[3]

The removal of the eye from the orbit is known as enucleation, and it entails the severance of all tissue connections between the globe and the orbit.[4]

In this case, the 13-month-old kid complained of redness, irritation, and fever in regard to the left eye.

The baseline examinations were completed, and the sepsis screen was positive. A magnetic resonance image of the brain with orbit confirmed the differential diagnosis of panophthlamitis. The blood and urine cultures were sterile, but the eye swab culture developed *Streptococcus pneumoniae*.

Torch panel screening was performed due to the ophthalmic involvement. Rubella and *Cytomegallovirus*, immunoglobulin (Ig) G antibodies were reactive. Rubella IgM was determined to be negative on repeat testing.

Fig. 10: Final insertion

Prior to the evisceration, the patient was given IV and topical antibiotics for 10 days. Then, 7 days later, resuturing was done.

Prosthetic Discussion

Cosmetic rehabilitation of various facial disfigurements with the use of custom-made prosthetic devices increases social acceptability and quality of life. However, problems with face prostheses develop owing to mobile tissue beds, poor prosthesis retention, and accompanying tissue bed irritation.[5] As a result, a comprehensive strategy is required to provide these patients with precise and successful rehabilitation and follow-up treatment.

In correlation to a stock prosthesis, which has poor apposition to the tissue beds and directly leads to tissue irritation and tear fluid accumulation, a custom-made prosthesis provides a very close approximation of the scleral shell, allowing even distribution of volume and weight in the socket, offering excellent movement, enhanced esthetic, and less unpleasantness to the patient.[6]

The precision of the laboratory stages and the operator's abilities are critical to the effectiveness of the ocular prosthesis. The prosthetic care of an eviscerated socket is demonstrated in this case report.

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