

Maxillofacial Rehabilitaion of a Child with Anophthalmic Socket: A Case Report

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ABSTRACT

Loss of an eye has profound psychological, physical, and social effects on a child and his/her family. Use of an ocular prosthesis can help overcome these effects for a child. This article reports a case of an 8 years old male child treated for an eye prosthesis following enucleation of the left eye due to retinoblastoma. A functional impression technique and a stock eye was used to rehabilitate the enucleated site. Although this child continued to be visually impaired, the ocular prosthesis definitely contributed to the restoration of his aesthetics and confidence.

KEYWORDS: Retinoblastoma, Anophthalmic Socket, Ocular Prosthesis

INTRODUCTION

Disabled conditions can be many and visual impairment is one of them. The disfigurement associated with the loss of an eye can cause significant physical and emotional problems for an individual. There are various causes for blindness in children such as infectious diseases, accidents, prenatal influences and genetic disorders. Retinoblastoma is rare and affects approximately 1 in 15,000- 30,000 live births^{1,2}, but it is the most common intra ocular primary malignancy of childhood. It is caused due to mutation in RB1 gene leading to intraocular tumours and carries the risk of secondary tumours later in life, particularly in the colon.^{3,4} Most children are diagnosed before the age of five years old. Bilateral cases usually present within the first year, with the average age at diagnosis being 9 months. Diagnosis of unilateral cases peaks between 24 and 30 months. If left untreated the outcome will be fatal.

Loss of an eye has profound psychological, physical, and social effects on a child and his/her family. Anger, denial and depression set in and the parents of such children suffer great agony. Child neglect can also set in due to the unlikely situation. An ocular prosthesis should be provided as soon as possible for the psychological well being of the patient and their parents. Such special children and their parents present a challenge for the pediatric dentist that is often unparalleled.

This article reports a case of an 8 years old male child treated for an eye prosthesis following enucleation of the left eye due to retinoblastoma.

CASE REPORT

An 8 year old male patient reported to the department of Pediatric and Preventive Dentistry with a chief complaint

of retained upper front tooth since two weeks. Medical history revealed that the patient was diagnosed with unilateral retinoblastoma at the age of 2 years 7 months and the affected eye was enucleated. The family history was not contributory. Extra oral examination, showed bilateral facial asymmetry with the presence of anophthalmic socket on the left side (Fig 1,2). The eye socket did not show any pathology and the anophthalmic socket revealed a healthy epithelial lining with no sensation on palpation. Intra oral examination showed an over retained deciduous maxillary right central incisor. The treatment plan was extraction of the retained deciduous tooth followed by maxillofacial rehabilitation of the anophthalmic socket. The patient was referred to a paediatrician and ophthalmologist who confirmed the findings of the anophthalmic socket. The retained primary maxillary right central incisor was extracted under local anesthesia.



Figure 1: Pre operative: showing missing left eye

Fabrication of the ocular prosthesis: The patient was

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Figure 2: Left anophthalmic socket

asked to be seated in an upright position and instructed to gaze straight ahead to record the preliminary impression. An impression was made of the ocular defect using putty impression material (Aquasil™, Dentsply). Equal scoops of both the base and catalyst were kneaded into a homogenous mix. The eyelids were drawn gently apart and the impression material was introduced at the inner side of the palpebral opening. Excess material over and around the lids was used to form a handle. During this step, the patient's gaze was fixed so that the pupil could be well centred. With this impression a diagnostic cast was obtained.

A 'stock eye', which is made of clear acrylic, was selected to match the shade and approximate size of the contra-lateral iris. The size of the stock eye was reduced to the size of the socket using the acrylic trimming burs and the cast as a guide. With the help of metal burs vents were made on the facial surface of the stock eye. Using light body impression material (Express™ 3M ESPE) the stock eye was moulded by asking the patient to do various functional eyeball movements. The patient was guided to look up, down, right and left. The excess material was flushed out through the vents. The secondary impression was poured and another stock eye of the same colour matching was selected and trimmed according to the socket size. The trimmed stock eye was invested in a two piece flask with dental stone and processed conventionally using clear acrylic. The processed eye prosthesis was finished and polished (Fig 3).



Figure 3: Finished and polished modified stock eye prosthesis

It was then gently inserted into the socket. Evaluation of appearance and location was done following 10 minutes to allow for protective blephrosplasams of the orbicularis muscles to subside. The patient was taught the proper method of removal and insertion. Both patient and parents were instructed on the proper handling of the prosthesis during insertion and removal. The patient was advised to wear the eye prosthesis full time, except for the purpose of cleaning it once a day with a mild non-irritating soap solution or disinfectant⁵. He was recalled following 24 hours to check for any signs of inflammation. At the end of one week, further polishing of the prosthesis was carried out and an eye lubricant was advised. The acceptance of the eye prosthesis has been satisfactory with no associated problems observed over an 18 month follow up (Fig 4).



Figure 4: Patient after rehabilitation with modified stock eye prosthesis

DISCUSSION

Loss of the ocular globe during childhood due to congenital, traumatic or pathological etiologies affects the growth and development of the orbital area, which may result in hypoplasia, facial asymmetry and un-esthetic appearance.

If the eye is removed due to a malignant lesion, the radiation treatment further retards development. In case of infants with congenital deformities the treatment should be done within the first 4 weeks of birth by placing a small ocular prosthesis (conformer) in the conjunctival socket subsequently to prevent the cul-de-sac from shrinking and to promote development, a conformer of a larger size must replace the former as the child grows.⁶

An ocular prosthesis does not provide vision. Someone with an ocular prosthesis is totally blind on the affected side and has monocular (one sided) vision which affects

depth perception. The rehabilitation of a young patient who has suffered the psychological trauma of an ocular loss requires a prosthesis that will restore esthetics to the maximum.

The prefabricated ocular prostheses are made of glass or acrylic resin and are known as “stock eyes” that come in standard sizes, shapes and colors. These are relatively inexpensive and can be delivered quickly. A major drawback of ‘stock eye’ prostheses is the limited availability of iris colour and lack of control over size of both the iris and pupil.⁷ Customization of such a stock eye improves facial contours of the individual. The modified stock ocular prosthesis is a viable alternative, which is relatively inexpensive and easy to fabricate and does not require any special materials or technique for fabrication.

The use of conventional stock ocular prostheses during childhood entails periodic replacement with successive increase in size. The use of a customized ocular prosthesis does away the longer duration of treatment, associated with a conventional stock prosthesis. It is a simple and conventional method to promote a satisfactory fit and restore esthetics. However there are other treatment options such as implant supported eye prosthesis which is generally expensive and is advocated after the complete growth and maturation of the individual.⁸

CONCLUSION

The use of ocular prosthesis has been a boon to average patients who cannot afford the expensive treatment options available. A person with an asymmetric face will most likely suffer from poor self esteem and lack of acceptance by his peer group and family. Thus the

psychological implications for placing an ocular prosthesis are significant. Although this child continued to be visually impaired, the ocular prosthesis definitely contributed to the restoration of his esthetics and confidence.

Pediatric dentists need to apply their knowledge and clinical skills to render holistic treatment for a child, who goes beyond oral rehabilitation.

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