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

Priya Subramaniam¹, Girish Babu KL², Disha Lakhotia³

1-Principal, Professor & Head, Department of Pedodontics and Preventive Dentistry, The Oxford Dental College, Hospital and Research Centre, Bangalore, India. 2-Professor & Head, Department of Dentistry, Hassan Institute of Medical Sciences, Hassan, Karnataka, India. 3-Former PG Student, Department of Pedodontics and Preventive Dentistry, The Oxford Dental College, Hospital and Research Centre, Bangalore, India.

Correspondence to:
Dr. Priya Subramaniam, Principal, The Oxford Dental College, Hospital and Research Centre, Bangalore, India
Contact Us: www.ijohmr.com

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 births⁴,⁵, 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.⁶,⁷ 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.

Fabrication of the ocular prosthesis: The patient was...
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).

It was then gently inserted into the socket. Evaluation of
appearance and location was done following 10 minutes
to allow for protective blephrospasms 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 disinfectant. 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).

**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.

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
Subramaniam P et al.: maxillofacial rehabilitation of a child with anophthalmic socket

CASE REPORT

Subramaniam P et al.: maxillofacial rehabilitation of a child with anophthalmic socket

Subramaniam P et al.:

maxillofacial rehabilitation of a child with anophthalmic socket

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. 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.

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.

REFERENCES


Source of Support: Nil
Conflict of Interest: Nil