PROSTHETIC REHABILITATION OF AN ANOPHTALMIC DEFECT

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Abstract

Every child has a fundamental right to his total health. Enucleation or evisceration of an eye can cause poor self-image especially in growing children. Dentists in general and Prosthodontists in particular play a major role in rehabilitation of the loss of eye in growing children by fabrication of various forms of eye prosthesis. It is paramount that the prosthesis helps in in the normal growth and development of the socket with acceptable esthetics and reasonable motility. This then contributes to the symmetrical development of the face and the overall health of the child. The objective of this clinical report is to describe the management and 5 year follow up of an infant with an anophthalmic socket rehabilitated with a custom ocular prosthesis.

Keywords: Ocular Prosthesis; Infant; Eyeloss.

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1. INTRODUCTION

Children with cancer are faced with many challenges related to their disease that disturbs their overall health. Retinoblastoma is a rare of malignant intraocular cancer occurring almost exclusively in children. The priority of treating these malignancies is to preserve the life of the child, than to preserve vision, and therefore frequently results in loss of the affected eye. Further, growth and development may be retarded on account of the ensuing adjunctive chemotherapy and radiation .[1] Eye loss is often followed by tissue shrinkage around the socket, atrophy of the residual muscle, constriction of eyelid and inability to closure and reduced socket width and depth,.[2] The associated disfigurement will lead to poor self-image and low self-esteem in growing children. Early replacement of eye is essential to minimize the aforementioned changes, which will then help in the symmetrical growth and development of the child's facial structures. [3] This in turn will improve the quality of life.

With continuing growth and development, the prosthesis may lose fit, rotate, decentrate and discolour.[4] Therefore, the prosthesis requires replacement or frequent modification at regular intervals to aid in the normal development [5] Thus, the construction of an ocular prosthesis for a child needs special and early attention. During early childhood, orbital volume increases in a linear fashion, achieving a significant proportion of its final growth by the time the child is 5 years old. [6] Full growth and development takes place by the age of 12 years.[1] A replacement is required between 18-26 months post prosthesis placement in children.[3] In addition it may be made as big as possible to stimulate normal development.[1] The parents should be made aware the necessity of slight exophthalmic appearance.

The objective of this clinical report is to describe the management of an infant with an anophthalmic socket rehabilitated with a custom ocular prosthesis.

CLINICAL REPORT

A new born few day old infant reported to the department of prosthodontics with the loss of his right eye (Fig.1). His history revealed loss of the right eye on account of retinoblastoma. No history of radiation or chemotherapy was noted. The infant was to be rehabilitated with a custom made ocular prosthesis. The eye socket was examined to determine the health of the tissues and absence of any edema and inflammation.

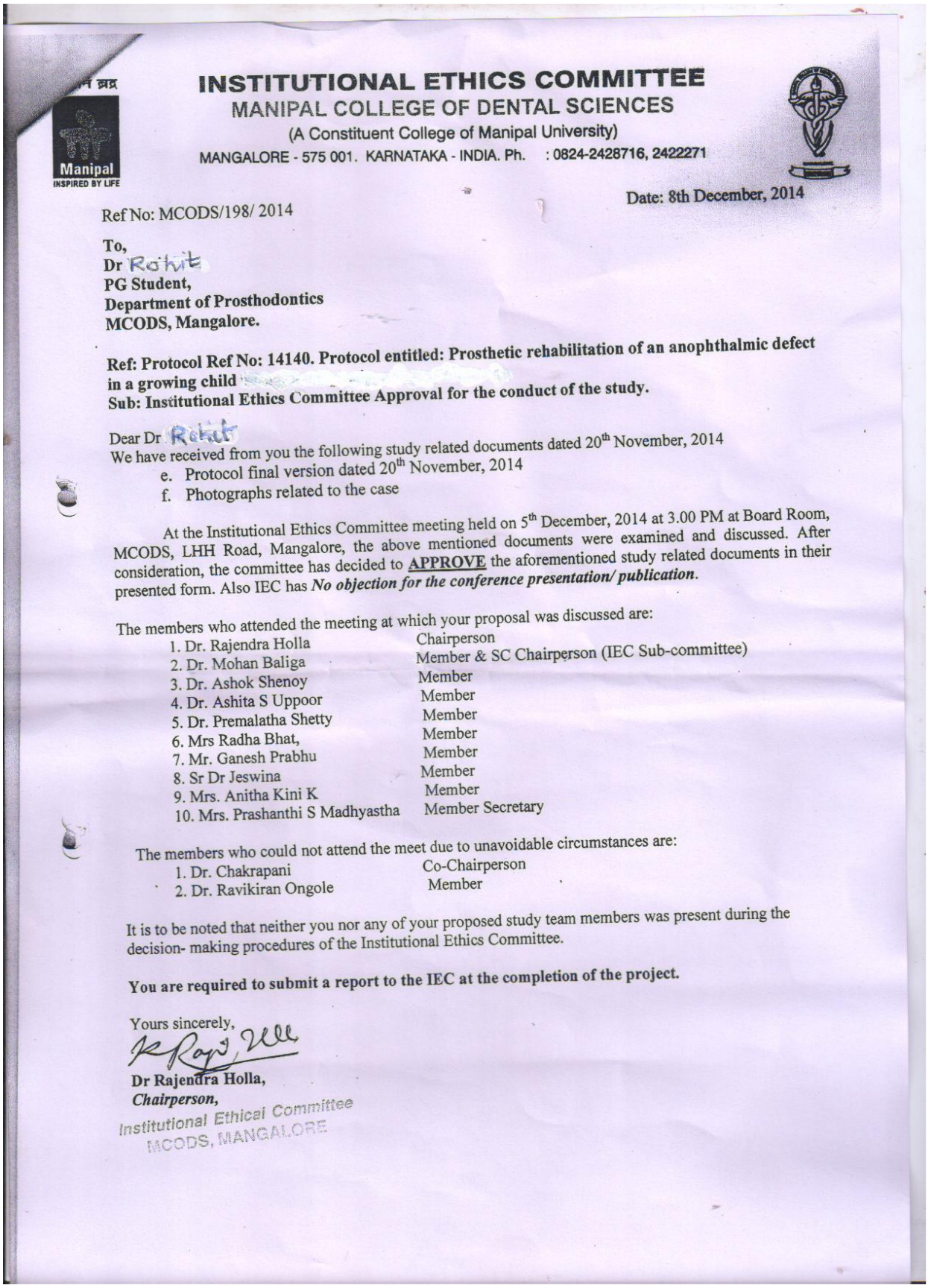
Conventional impression procedures with stock tray and elastomeric impression material was difficult due to the incessant crying of the infant, resulting in excessive contraction of the periocular muscles. Therefore, impression of the anopthalmic socket was made with softened modeling impression compound (Pinacle; Dental Products of India Ltd) with support of a stock tray (Fig. 2).The infant was rehabilitated with a conventional custom made ocular prosthesis (Fig. 3) and the parents were taught the method of insertion and removal of the prosthesis. Follow up evaluations were done initially at weekly intervals to evaluate the prosthesis and adjust as necessary. At 8 weeks interval, on account of the growth of the socket the prosthesis appeared sunken and hollow, providing insufficient support to the eyelids. It was decided to reline the existing prosthesis to keep pace with the growth of the infant. The prosthesis was reduced in size to provide sufficient clearance for the material. It was then coated with tray adhesive (Tray Adhesive; Dentsply Caulk) and lined with low viscosity elastomeric impression material (Aquasil Ultra LV;Dentsply Caulk). It was kept in the socket for 5 minutes so that the infant could direct the prosthesis through a full range of motion.

Thereafter impression was removed , inspected for acceptability and poured to make a two piece mold and processed with tooth coloured heat polymerizing acrylic resin (DPI Tooth Moulding Powder, Dental Products of India) in a water bath at 74ºC for 8 hours. The finished prosthesis was inserted into the defect (Fig. 4) and the post-delivery instructions on home care and prosthesis management was reinforced. The similar procedure of relining the prosthesis continued every six to eight weeks or earlier if there was reported ill-fitting of the prosthesis. In this manner, the prosthesis was relined 5 times till the infant was about one year of age. At this time it was decided to remake the prosthesis. Conventional procedures were followed to remake a new and slightly larger prosthesis to stimulate normal development of the bones and soft tissues of the eye socket. The patient was scheduled for regular post insertion appointments to ensure health of the tissue, to relieve pressure areas on the prosthesis , need for regular change and coordination with facial growth. Every year a new prosthesis was made and during the intervening period the same prosthesis was relined if necessary. The parents were also informed of the possibility of placement of an ocular implant on completion of the growth of the child at approximately 12-15 years of age.

SUMMARY

Early rehabilitation of the ocular defect and periodic follow up is invaluable in growing children. This clinical report describes rehabilitation and periodic follow up of a child with an anophthalmic socket rehabilitated using a custom made ocular prosthesis. The prosthesis helped in the normal growth and development of the socket with acceptable esthetics and reasonable motility in restoring normal appearance. Moreover, it promoted physical and psychological healing for the patient and social acceptance.

Source of Support: Nil
Conflict of Interest: Nil
Not presented at any meeting



INSTITUTIONAL ETHICS COMMITTEE
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Manipal
INSPIRED BY LIFE

Ref No: MCODS/198/ 2014

Date: 8th December, 2014

To,
Dr Rohit
PG Student,
Department of Prosthodontics
MCODS, Mangalore.

Ref: Protocol Ref No: 14140. Protocol entitled: Prosthetic rehabilitation of an anophthalmic defect in a growing child
Sub: Institutional Ethics Committee Approval for the conduct of the study.

Dear Dr Rohit
We have received from you the following study related documents dated 20th November, 2014

e. Protocol final version dated 20th November, 2014
f. Photographs related to the case

At the Institutional Ethics Committee meeting held on 5th December, 2014 at 3.00 PM at Board Room, MCODS, LHH Road, Mangalore, the above mentioned documents were examined and discussed. After consideration, the committee has decided to **APPROVE** the aforementioned study related documents in their presented form. Also IEC has ***No objection for the conference presentation/ publication***.

The members who attended the meeting at which your proposal was discussed are:

1. Dr. Rajendra Holla	Chairperson
2. Dr. Mohan Baliga	Member & SC Chairperson (IEC Sub-committee)
3. Dr. Ashok Shenoy	Member
4. Dr. Ashita S Uppoor	Member
5. Dr. Premalatha Shetty	Member
6. Mrs Radha Bhat,	Member
7. Mr. Ganesh Prabhu	Member
8. Sr Dr Jeswina	Member
9. Mrs. Anitha Kini K	Member
10. Mrs. Prashanthi S Madhyastha	Member Secretary

The members who could not attend the meet due to unavoidable circumstances are:

1. Dr. Chakrapani	Co-Chairperson
2. Dr. Ravikiran Ongole	Member

It is to be noted that neither you nor any of your proposed study team members was present during the decision- making procedures of the Institutional Ethics Committee.

You are required to submit a report to the IEC at the completion of the project.

Yours sincerely,

Dr Rajendra Holla,
Chairperson,
Institutional Ethical Committee
MCODS, MANGALORE

2. REFERENCES

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Legends

Figure 1: Preoperative view; age 1 month.
Figure 2: impression of the defect
Figure 3: Post-operative view ;age 1 month.
Figure 4: Postperative view; age 3 months.

Fig 1 Preoperative view; age 1 month.

Figure 2 : impression of the defect

Figure 3 : Postperative view; age 1 month

Figure 4 : Postperative view; age 3 months.