CASE REPORT

An Integrated Approach for Cosmetic Rehabilitation of a Patient with Atrophia bulbi
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ABSTRACT
Atrophia bulbi is a small, shrunken, non-functional eye, most commonly due to trauma. It represents an ocular end-stage disease characterized by atrophy, shrinkage, and disorganization of the eyeball and intraocular contents, demonstrating the result of failed previous ocular therapy in which restoration of the morphologic and functional integrity of the eye is not possible. Majority of the patients with Atrophia bulbi eventually become blind and cosmetically unacceptable. The rehabilitation of such patients presents a challenging clinical situation, as the patient has already been clouded by the psychological distress. This paper demonstrates a case of 35-year male with Atrophia bulbi, who was successfully rehabilitated with precisely fabricated ocular prosthesis fitted over the atrophic eye.

Key Words: Atrophia bulbi. Phthisis bulbi. Ocular prosthesis. Trauma.

INTRODUCTION
The eye is a vital organ in terms of vision and facial expression. A patient who is sans eyes loses both an essential sense organ, but also the facial cosmesis as eyes are generally the first facial feature to be noticed. Eyes exhibit profound inflammatory response to noxious and irritating stimuli. Wound healing secondary to severe trauma, inflammation, necrotizing tumors etc. may result in an ocular condition known as Atrophia bulbi or Phthisis bulbi. It is characterized by small, shrunken, non-functional eye, leading to esthetic disfigurement of face, which significantly affects the individual physical, psychological, emotional and social well being. Rehabilitating such patients requires multidisciplinary approach involving an ophthalmologist, a psychotherapist and a maxillofacial prosthodontist.

This report describes an integrated approach for cosmetic rehabilitation of such a patient.

CASE REPORT
A 35-year man presented with complaint of unaesthetic facial appearance due to a scarred and shrunken left eye (Figure 1). There was history of trauma one year back, which resulted in redness followed by gradual loss of vision and shrinkage of left eye. Due to negligence, he did not seek any medical assistance, till he lost his vision completely with shrinkage and scarring. It was found that it was not the functional disability, but the poor esthetics of his eye that was troubling him.

The clinical examination revealed Class-III defect i.e. presence of phthisical globe with disfigured sclera and corneal scarring. After careful evaluation, treatment plan was formulated and thoroughly explained to the patient to gain his co-operation. The procedure was initiated by first arranging a psychological consultation session for the patient to allay all the hidden anxieties of his mind, to inculcate positive thinking and to develop a positive attitude towards the treatment. Next, he was referred to an ophthalmologist where slit-lamp examination, ophthalmoscopy, Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) were done. Visual evoked potential tests ruled out the possibility of any residual vision.

Once it was established that functional rehabilitation of patient, in the terms of regaining his ability to see, was not possible, cosmetic rehabilitation was planned. Patient's consent was obtained for making photographic records. Procedure was initiated by fabricating a custom impression tray, using autopolymerizing Polymethyl Methacrylate (PMMA) resin in its dough stage and molding it by adapting to form an ocular-shaped tray, as described by Allen and Webster. The tray was attached to a syringe (without needle) as shown in Figure 2A, and adjusted in the eye socket. Tray was perforated to aid...
the retention of impression material and to allow escape of excess material that could compress and distort the ocular tissues. Ophthalmic grade alginate was loaded into the syringe and injected into the socket. Impression was examined for accuracy as shown in Figure 2B, and a two-piece dental stone cast was poured from the impression (Figure 2C).

Wax pattern was made using carving wax mixed with sticky wax and adjusted in the patient's eye socket. Finally the iris, matching in size and color of the contralateral eye, was obtained from stock eye and positioned on the wax pattern. Trial was done and required corrections made. This was invested, after placing a bead of acrylic resin on iris to maintain its position post-dewaxing, followed by flasking, dewaxing (Figure 3) and processing in heat-cured tooth-colored acrylic (SC 10, Pyrax, Roorkee, India). The properly finished and polished prosthesis was inserted in the socket after disinfection and lubrication with an ophthalmic lubricant (Figure 4). Minor adjustments were made at the time of delivery as per the patient’s comfort and esthetics. Instructions were given regarding proper handling, insertion and removal and washing the prosthesis twice daily with mild soap and water to maintain its hygiene. The patient was put on a regular 6 months follow-up regime.

The prosthesis was evaluated clinically in term of retention, appearance of uniform eyelid contour, position of iris in central gaze, synchronization of movement with contralateral eye and patient reported comfort in wearing prosthesis.

After one year of follow-up period, further clinical and ophthalmic examination was performed and no complications with regard to the underlying residual ocular tissues were found. The prosthesis was in good shape without any need for relining or repairs. The treatment fulfilled standard success criteria when patient reported that the prosthesis was indiscernible and has helped him in successfully getting re-integrated in his social life without any embarrassment.

DISCUSSION

Rehabilitation of Atrophia bulbi presents a challenging clinical situation, as the patient has already been clouded by sadness and psychological distress due to loss of vision and facial aesthetics, as a result of failed ocular therapy. But this is not the end of treatment for this end-stage ocular disease, as cosmetic rehabilitation of patients with ocular prosthesis is an integral part of treatment, which fulfills aesthetic, psychological requirement of patient and helps in reintegration in society. The need of regular six-monthly recalls should be emphasized to monitor health of residual eye and to evaluate the prosthesis in terms of its retention, iris position and synchronization of movements with the contra-lateral eye. As desquamated epithelium and mucin products get accumulated on ocular prosthesis surface and scratches appear due to wear and tear, resulting in increase in mucous discharge from eye, so polishing of ocular prosthesis by dentist after every 6 months is must.

An ocular prosthesis fitted over atrophic eye is a positive and non-invasive approach to improve cosmetic appearance and psychological well-being of patient. Comprehensive treatment planning and multidisciplinary team approach are essential for successful rehabilitation of such patients.

REFERENCES

