

CASE REPORT

Management of lower eyelid laxity with pressure using conformer and custom ocular prosthesis

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ABSTRACT

Keywords: Conformer, Lower eyelid laxity, Ocular prosthesis

One of the successes in making an ocular prosthesis is sufficient eye socket condition, so post-enucleated patient treatment with lower eyelid laxity is a challenge for prosthodontists due to its difficulty in obtaining the retention of an ocular prosthesis. Long-term use of an ill-fitting ocular prosthesis will cause lower eyelid laxity and irritation due to the movement of the prosthesis that is insubordinate with the eye muscles when it is functioning. This paper represents the management of lower eyelid laxity in a post-enucleated patient with pressure using conformer and custom ocular prosthesis. A twenty-year-old female patient came to Dental Hospital Universitas Sumatera Utara with a red, swollen, and frequent discharge from the eye socket. The custom ocular prosthesis used by the patient often falls out of the socket and she requests a new custom ocular prosthesis. The patient was referred to an ophthalmologist for irritated socket. Then, a definitive impression is made. Two sclera waxes were fabricated in a definitive cast to obtain a conformer and custom ocular prosthesis. Conformer was worn for three weeks to ensure an adequate lower eyelid. Then, a new custom ocular prosthesis was inserted into the socket. Pressing the conformer towards the lower eyelid will stimulate and train the eyelid muscles to move and prevent atrophy, so it can restore the support of the lower eyelid. Lower eyelid laxity can be corrected with a pressure-assisted conformer, resulting in a functionally and aesthetically pleasing custom ocular prosthesis. (IJP 2024;5(1):87-90)

INTRODUCTION

Physical limitations that affect appearance or functionality affect an individual's ability to lead a normal life and encourage individuals to seek treatment that can bring them to their normal state. The loss of eyes is one of the sensory organ losses that has an impact on life. New eyes must be obtained in order for the patient to resume their usual life after eye loss. An ocular prosthesis simulates human anatomy by using prosthetic materials to make it appear as though the eye and its surrounding tissues are healthy and normal.^{1,2}

There is a dynamic relationship between the surface of the eye socket and the ocular prosthesis. Properly positioned prosthesis should support the eyelids, restore functioning, and be aesthetically pleasing in addition to restoring the eyes' normal opening. Because the movement of the ocular prosthesis is incompatible with the movement of the eye muscles when functioning, improper ocular prosthesis conditions, also known as ill-fitting ocular prosthesis that lasts for a long time, will result in lower eyelid laxity and irritation.³

Lower eyelid laxity can be treated using a variety of techniques, both surgical and non-surgical. If none of the non-surgical therapy options have been tried or cannot be used, surgical techniques are used. In the meantime, the non-surgical approach involves altering the ocular prosthesis by emphasizing the eye socket or, alternatively, by minimizing the stress placed on the lower eyelid. This paper describes the treatment of lower eyelid laxity in post-enucleation patients with an emphasis on using conformer and custom ocular prostheses.^{2,4,5}

CASE REPORT

A 20-year-old female patient came to Dental Hospital Universitas Sumatera Utara with complaints of red, swollen, and frequently discharged eye sockets. The patient lost his left eye between the ages of 1 year and 8 months due to an infection in his left eye due to measles, so he had to have enucleation surgery. A new custom ocular prosthesis was ordered because the patient's old one, which was constructed



Figure 1. Condition of the patient's eye sockets



Figure 2. Individual impression



Figure 3. A. Working model, B. Sclera wax.

in January 2020, frequently came loose from its socket. The patient is referred to an ophthalmologist for irritation socket therapy.

Management

After receiving therapy from an ophthalmologist, the condition of the patient's eye sockets improved and continued with the manufacture of a new custom ocular prosthesis. Individual impression trays are created by duplicating the patient's existing customized ocular prosthesis and then perforating the center until it is wide enough for the mixing tip of the light viscosity polyvinyl siloxane impression substance to be set appropriately. To prepare the impression space, the intaglio section of the old customized ocular prosthesis was reduced by 1-2 mm. Vaseline was applied to the patient's eyelashes, and an individual impression was taken using a light viscosity polyvinyl siloxane impression material. The patient was told to move her eyes during the impression in order to get the edge of the eye area.

The master cast is made with a split cast technique, namely by implanting the intaglio surface on a type IV plaster using a plastic cup, and key holes are made on the superior, inferior, medial, and lateral sides before the plaster hardens. From the results of individual printing, a mold will be obtained for custom ocular prosthesis printing.

There will be two sclera waxes produced with this master cast. In order to create conformers from heat-cured acrylic, one of the sclera waxes is cast on the cuvette. The conformer was inserted onto the patient after it had been polished, and its dimensions, comfort, support for the superior and inferior eyelids, and eye movement were all evaluated. For three weeks, the patients were instructed to use the conformer and were observed.

In the second sclera wax, a try in and alignment with the patient's eye socket is carried out. Sclera wax is inserted into the eye socket and adjustments are made to the size and shape according to the patient's anatomy, until the palpebral fissure and anterior curvature of the eye are equal to the collateral eye.

A symmetrical measuring tool was used to perform slices at the next appointment. The patient was told to look straight ahead while the guide points for the vertical and horizontal lines of face symmetry were connected to position the symmetry measurement tool in line with the patient's midline. Next, the sclera wax was marked with the peak's highest point and midway.⁶ The determination of the color of the iris is carried out using photos taken with a mobile phone in the sun. After that, Adobe Photoshop is used to alter the image, and photo paper is used for printing. The results of the iris coloring mold are coated with UV resin and cured with a UV lamp.⁷

Try in sclera waxes is done by positioning the midpoint that has been marked on the sclera. After the position of the iris button is correct, do a shake of the ocular prosthesis. Sclera wax and iris buttons that have been passedened are planted into the cuvette. Sclera reduction is carried out by using the putty index as a guideline for placing clear acrylic to get clear lenses on the custom ocular prosthesis. Sclera is re-rubbed using clear acrylic and polishing is carried out using polishing burs and pumice. The installation of a custom ocular prosthesis is carried out on the patient and evaluated for suitability, aesthetics, and coordination of movements with the collateral eye. Post-installation instructions are given to the patient regarding the method of installation and maintenance of the ocular prosthesis.



Figure 4. A. Custom conformer, B. Custom conformer insertion.

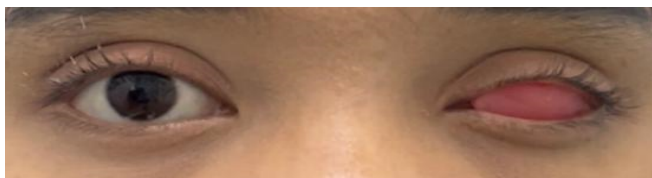


Figure 5. Try in sclera wax.

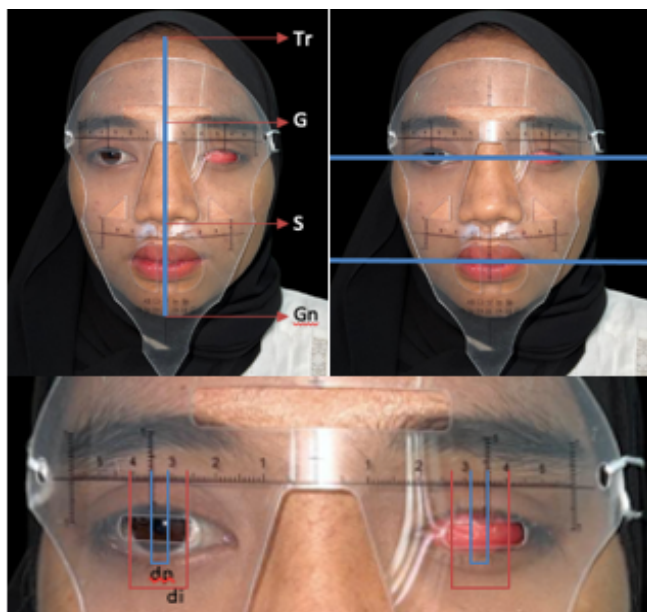


Figure 6. Iris positioning.

DISCUSSION

Lower eyelid laxity is the main factor that causes ectropion of the lower eyelid. The lower eyelid must support an additional load of prosthesis in the otophthalmic socket, which can cause excessive lower eyelid laxity or obvious ectropion. The prosthetic design that minimizes weight and the replacement of the prosthesis that follows the socket change can prevent lower eyelid laxity. Use of a pressure conformer against the socket will train and stimulate the eyelid muscles to move, preventing atrophy and restoring lower eyelid support.^{2,4,8}

Several surgical and non-surgical treatment options for patients with lower eyelid laxity are described by Keith et al. (2015). The first non-surgical technique of treatment involves modifying the prosthesis by adding the sclera portion to the anterior and inferior margins in order to produce a negative curve under the iris. The second way involves adding material to the inferior medial and lateral edges of the prosthesis to spread the pressure of the ocular prosthesis to the edge.²

According to Raizada K. (2016), managing lower eyelid laxity involves modifying the volume of the custom conformer, namely by removing the anterior apex of the sclera wax and moving it to the upper section of the eyelid to reduce the strain placed on the lower eyelid. The patient is then told to practice winking 25 times per day, and a week of observation follows.⁴

Insertion of conformers minimizes alterations in the socket and prevents the development of scar tissue. Additionally, it enables a clinical evaluation of muscle movement, retention, and eyelid support. If surgery is not an option and scarring has caused the socket depth to decrease, a heat-curable acrylic resin can be added to a custom-made conformer to change its size. The use of stock conformers is not recommended because it requires more complicated adjustments and takes longer.^{5,9,10}

After three weeks of observation, the socket can be fixed by using a conformer before a definitive customized ocular prosthesis is made. The manufacture of custom-made conformers that are attached close to the tissues in the socket stimulates and trains the eyelid muscles to move and prevents atrophy in the eye sockets. This can be accomplished more easily since it makes use of the sclera wax that was obtained from earlier printing

CONCLUSION AND SUGGESTION

In order to treat a patient who has lower eyelid laxity brought on by an inadequately fitting ocular prosthesis, it is highly recommended that an eye conformer with pressure be inserted first, followed by the fabrication of a definitive prosthesis. The custom-made conformer maintains the ideal conformation of the orbital cavity. Before a final prosthesis is constructed, any adjustments to size and shape can be made with ease. This method means the definitive ocular prosthesis no longer requires as many fitting adjustments. The advantages and relative ease and simplicity of fabrication can be considered as the first step in the treatment of infected eye sockets.

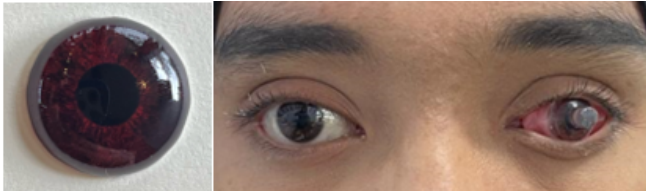


Figure 7. Try in sclera wax.



Figure 8. Installation of definitive eye prostheses.

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