Use of Upper Eye Lid Gold Weights to Treat Lagophthalmos

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ABSTRACT

Lagophthalmos is a serious condition affecting the eye both aesthetically and functionally. The resulting exposure and hence dryness of the cornea lead to ocular discomfort, recurrent attacks of inflammation and infection, corneal ulcers, perforation and may finally lead to complete loss of vision. Several options are available to treat the condition. Among these options is upper lid loading. Gold is the commonest substance used nowadays for upper lid loading. Upper lid gold weights are used to treat 28 patients in the current study. The results concluded that the use of gold plates to treat lagophthalmos is a safe and effective method to treat the condition.

Key words: Lagophthalmos, gold plate, upper lid.

INTRODUCTION

Lagophthalmos produces corneal exposure. Exposure leads to drying of the cornea, which can cause ocular discomfort, reduced vision, corneal ulcers, infection, and perforation. A poor Bells phenomenon, corneal anesthesia, or preexisting dry eye increases the risk of these complications.

The use of upper eye lid weights has been advocated to be effective in management of paralytic lagophthalmos.

Several materials are used for upper lid weights. Nowadays, gold is used because of it is relatively inert and it has a substantial weight for its small dimension, and because it is easy to handle during the operation.

PATIENTS & METHODS

Twenty-eight patients with unilateral lagophthalmos due to facial nerve paralysis were included in the present study. Patients of both sexes and at different ages were included. Various etiologies included cerebello pontine angle tumor excision, bells palsy, fracture base of the skull and after iatrogenic facial nerve injury. Pre operative thorough history taking and informed consent were done. Pre and postoperative photography were taken and patients were followed up for at least 2 years.

Gold plate:

The gold weights were custom made. Each lid load was a 24-carat gold plate, 16 mm long, and 5 mm in height, fashioned as a rectangle with round borders. The body of the lid load had three holes to facilitate suspension to the tarsal plate. It is smooth in surface and weighted .9 to 1.5 g. (Fig. 1). Pre operatively, the proper weight is selected by taping different weights to the upper eye lid. The proper weight should close the eye on levator relaxation and does not cause ptosis on levator contraction.

Intra operatively, the lid load was shaped with a convexity on its anterior surface and a concavity on its posterior surface, which allowed the gold weight inside the eyelid to slide along the globe.

Surgical technique:

The procedure is done either with local infiltrative anesthesia and intra venous sedation or general anesthesia. An incision about 1 cm long is made in the skin crease in the upper eye lid centered over the pupil. The orbicularis oculi is then slit opened down to the tarsal plate and the pocket is created beneath the muscle over the middle third of the upper eye lid keeping at least 2 mm above the lid margin. The gold plate is inserted in the pocket and fixed in the tarsal plate through its holes with prolene 6-0. The
Orbicularis oculi is closed using vicryl 6-0 and the skin is closed with prolene 7-0. Eye dressing is used for 24 hours and the patient is discharged in the 1st day post operatively. Oral antibiotics together with antibiotic eye ointment are used for 5 days.

RESULTS

The present study included 15 males (53.57%) and 13 females (46.43%). The age of the patients ranged between 6 and 55 years. Lagophthalmos was due to facial nerve paralysis due to cerebello pontine angle tumor excision (12 cases), Bell's palsy (7 cases), fracture base of the skull (5 cases) and after iatrogenic facial nerve injury (4 cases).

The gold weights used ranged between 0.9 and 1.5 g, however the most commonly used weight is 1.1 g. (13 cases) followed by 1.2 g. (5 cases). Careful dissection is necessary as the orbicularis oculi muscle is thin and atrophic due to facial nerve paralysis. Once it is identified it is slit open down to the tarsal plate. The pocket is created beneath the muscle and over the tarsal plate. In all cases we found no difficulty in creating the pocket and fixing the gold plate with prolene 6-0 to the tarsal plate. Closure of the orbicularis oculi using vicryl 6-0 and the skin with prolene 7-0 is done. Post operative oral antibiotics and eye ointment are used for 5 days. Patients are followed up for 2 years. In addition to upper lid loading, four patients had lateral tarsal strip suspension for the lower eye lid.

There was a reduction in the eye inflammation episodes from 3-5 to 0-1 per month. Complete resolution of symptoms was observed in 22 cases (78.57 %). No extrusion or infection were observed in the period of study, however 5 patients had noticeable bulge in the upper eye lid and one patient had implant migration causing disfigurement of the upper eyelid. The implant migration was easily managed by repositioning of the gold plate under local anesthesia. Exploration of the previously placed gold implant possessed no further difficulty than the original procedure. None of the patients developed ptosis or eye complications after the gold plate insertion in the period of study. The results are shown in figure 2, 3 and 4.

Fig. 2: Patient with right side lagophthalmos, preoperative view (a), and after gold weight insertion (b).

Fig. 3: Patient with left side lagophthalmos, preoperative view (a), and after gold weight insertion (b).

Fig. 4: Patient with left side lagophthalmos, preoperative view (a), and after gold weight insertion (b).
DISCUSSION

Lagophthalmos is a serious condition affecting the eye both aesthetically and functionally. Exposure with consequent dryness of the cornea will cause ocular discomfort, reduced vision, corneal ulcers, infection, and perforation. A poor Bell’s phenomenon, corneal anesthesia, or preexisting dry eye increases the risk of these complications (1).

The management of lagophthalmos in facial palsy is divided into nonsurgical and surgical methods. Nonsurgical methods provide comfort and protect the cornea from trauma and drying. Ophthalmic drops, ointments, protective taping, occlusive moisture chambers, soft contact lenses, and scleral shells are the mainstays of nonsurgical therapy, but these methods are cumbersome, can obscure vision, and are most helpful in patients with acute facial paralysis in whom recovery of orbicularis oculi function is expected (7).

Surgical rehabilitation of the upper eyelid includes methods that are directed to treat the facial nerve as a whole as direct nerve repair, nerve graft and hypoglossal-facial anastomosis and methods to correct the lagophthalmos alone as tarsorrhaphies, canthoplasties, palpebral springs, eyelid magnets, and upper lid weights (8).

Upper lid weight such as gold, platinum, and platinum/iridium alloy weights are implanted into the upper eyelid to permit an increase in the effects of gravity to close the upper eyelid, or at least to allow for a reduction of lagophthalmos with an improvement in its symptoms. Placing a weight on the upper eyelid to increase the effects of gravity to close the upper eyelid is a very useful procedure for the patient with eye symptoms resulting from exposure and drying of the cornea. This surgical procedure has been established as a treatment for lagophthalmos (2,9,10).

A gold weight is now accepted as the most suitable material; it combines the desirable characteristics of high density and malleability with the ability to be camouflaged beneath the thin skin of the upper eyelid (11).

In our study encouraging results were achieved in all cases. The eye inflammation episodes were reduced from 3-5 to 0-1 per month and complete resolution of symptoms was observed in 22 cases (78.57%). From the aesthetic point of view, 5 patients had noticeable bulge in the upper eye lid which was accepted by all patients. Infection, extrusion and inflammation were not detected in any of our cases in the follow up period. Only one patient complained of implant migration which necessitated correction under local anesthesia.

We believe that early restoration of facial nerve function is the best option to treat lagophthalmos. However in delayed cases where repair of the nerve is not possible, upper lid loading is a very good alternative. Also, in cases where the facial nerve function is expected to return, gold plate can be used as a temporary protective measure to the eye if complications start to occur. After return of facial nerve function, the gold plate can be safely removed.

Conclusion:
Gold plate insertion in the upper eye lid is a valuable procedure to treat lagophthalmos. The procedure is safe, effective and with low complication rate.

REFERENCES

7- May M.: Surgical rehabilitation of facial palsy: total approach. In: May M, ed. The


