Gold Weight Implantation for Facial Palsy at King Hussein Medical Center

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ABSTRACT

Objectives: To evaluate the outcome of upper eyelid loading with gold weight implant in patients with lagophthalmos due to facial palsy. The indications, results and complications were investigated.

Methods: A retrospective observational study that was conducted at King Hussein Medical Center between January 2005 and June 2008 on 16 patients with facial palsy of different etiologies. Inclusion criteria included lagophthalmous of more than 5mm, and facial palsy of more than 6 months duration. Degrees of lagophthalmos and corneal coverage were assessed pre- and post- operatively. Follow-up period ranged between six months and three years.

Results: The mean age of patients was 57.2 years. The main cause of facial palsy was post cerebellopontine angle tumor surgery (10 patients). Other causes were Bell's palsy (5 patients), trauma (one patient). The degree of lagophthalmos improved from 5.8 mm to 0.8 mm on average. Corneal coverage improved from 69% to 99%. No serious complications occurred.

Conclusion: Upper lid gold weight loading is an effective and safe procedure in patients with facial palsy lagophthalmos with minimal complications.

Key words: Facial palsy, Gold weight, Lagophthalmous.

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Introduction

Normal facial function plays a critical role in a person's physical, psychological, and emotional makeup. Facial disfigurement can affect all these components and can result in social and vocational handicap.[1] Patients with complete facial nerve palsy are at higher risk due to corneal exposure and loss of blinking reflex that may lead to exposure keratitis, corneal abrasion and even blindness.[2-3]

The main goal of treatment is to maintain a comfortable eye in which the cornea is protected and visual acuity is preserved and to obtain good cosmesis at a later stage.[4] Methods of treatments in general are unsatisfactory. Medical treatment is used while anticipating recovery and restoration of orbicularis function. Methods include the use of eye patches and ointments that may disturb vision. Lid load operations by magnet and metal spring implantation lead to a high rate of complications, especially extrusion of implants.[5] Surgical options such as ectropion repair may not restore upper lid function.[6] Precious metal implantation such as gold is a relatively simple method to cure lagophthalmos. It has become the most commonly used technique for rehabilitation of the eye in patients with facial nerve paralysis with good cosmetic results, less lagophthalmos and low extrusion rate.[7-9]

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Table I. Causes of facial palsy

Etiology	No. of patients	%
Post C-P angle tumor surgery	10	62.5
Bell's palsy	5	31.25
Trauma	1	6.25
Total	16	100

C-P: Cerebellopontine.

Table II. Distribution of Complications:

Complication	No. of patients	%
Gold weight migration	1	6.25
Ptosis	1	6.25
Astigmatism	2	12.5

Table III. Pre and postoperative assessment of patients

Measure	Preoperative	Postoperative
Lagophthalmous	5.8 mm	0.8 mm
Corneal coverage	69%	99%

The aim of the study was to evaluate the outcome of upper eyelid loading with gold weight implant in patients with lagophthalmos due to facial palsy at King Hussein Medical Center. The indications, results and complications were investigated.

Methods

A retrospective observational study that was conducted at King Hussein Medical Center during the period between January 2005 and June 2008. Sixteen patients with facial palsy of different etiologies were enrolled in the study. Inclusion criteria included lagophthalmos of more than 5mm and facial palsy of at least 6 months duration.

The weight of the gold weight ranged from 0.7 to 1.6 grams (mean 1.2 g). The ideal weight was considered when complete voluntary closure was achieved without causing ptosis. The ideal weight selection was done by taping the demo lid weight to the upper lid, asking the patient to blink and then deciding the most suitable one. Weights come in steps from 0.6 to 1.6 grams. In ideal weight would improve eye closure without causing ptosis. A supratarsal lid crease incision was made and the weight was inserted at the junction of medial one third and lateral two thirds of the upper lid under the orbicularis and over the tarsus and fixed with 6-0 polypropylene sutures. All surgery was done under local anaesthesia (1% lidocaine hydrochloride with 1:100 000 epinephrine).

Degree of lagophthalmos and corneal coverage were assessed pre and post operatively. After the immediate postoperative phase, patients were followed up every 3 months, following the close follow up during early postoperative period. Follow up period ranged between six months and three years, the average being 18 months. Simple descriptive statistics was used to describe the study variables

Results

The mean age of patients was 57.2 years with a male to female ratio of 1.1:1. Table I shows the etiology of facial palsy for our patients. The main cause of facial palsy was post cerebellopontine angle (C-P angle) tumor surgery (10 patients). Other causes were Bell's palsy (5 patients), trauma (one patient). The degree of lagophthalmos improved from 5.8 mm to 0.8 mm on average. Corneal coverage improved from 69% to 99%.

One patient (6.25%) developed insignificant migration of the gold weight which did not affect the degree of corneal coverage. Two patients (12.5%) developed mild postoperative astigmatism. One other patient (6.25%) developed mild ptosis which could be due to an error in pre-operative measurement of the accurate desirable weight, Table II.

Serious complications like postoperative infection or extrusion did not occur in any patient.

Discussion

The ophthalmologist plays a pivotal role in the evaluation and rehabilitation of patients with facial nerve palsy.[1] The immediate ophthalmic priority is to ensure adequate corneal protection. The medium to long-term management consists of treatment of epiphora, hyperkinetic disorders secondary to aberrant regeneration and poor cosmesis. Causes of facial palsy includes idiopathic or Bell's palsy which is most common cause, infections such as herpes zoster of the geniculate ganglion caused by (Ramsay Hunt syndrome), other viral infections, tuberculosis, lyme disease, trauma, neoplasm and other causes such as stroke.

This modality of treatment in management of facial palsy was introduced to our center in January 2005 to give more comprehensive care to patients with

this problem. Some of the patients who had significant corneal exposure despite having had a static lateral tarsorraphy were best helped by having gold weight loading to their upper lids.

In our series we dealt with cases of irreversible and complete facial palsy hence Bell's palsy was only seen in 21.88% of cases in our study (as most cases of idiopathic Bell's palsy have good prognosis). The most common cause we encountered was post c-p angle tumor surgery accounting for more than two thirds of our patients. Table I lists the causes of facial palsy in our series.

All our patients had their surgery done under local anaesthesia by the same team. Degree of lagophthalmos and corneal coverage were assessed pre and post operatively. Patients were assessed every 3 months after their surgeries after the early close postoperative period. Table III shows the outcome of surgery after one year.

Lagophthalmos improved from 5.8 mm preoperatively to 0.8 mm post surgery. Corneal coverage was the patient's best corneal coverage judged in percentages with 0%, 25%, 50%, 75%, 90%, and 100% cut-off points. Mean corneal coverage was 69% preoperatively and improved to 99% one year after operation. Our review of the literature found that results of upper lid gold weight loading are satisfactory in general with good cosmetic and functional results.[2,4,5,11-12] A study conducted by Chepeha and his colleagues showed lagophthalmos improvement from 7.5 mm to 0.5 mm, corneal coverage from 73% to 100%, and mean satisfaction score from 3.5 to 7.1.[4] On the other hand, we found one study with unsatisfactory results.[13] In that study complication rate was 68%, distributed as follows infection in 7% of cases, loss of position in 18%, and finally extrusion of the weight in 43%.

The use of gold implants is not free from undesired effects. Reported complications include astigmatism, pseudoptosis, migration, bulging, and extrusion. The most common undesired effect we encountered was eye irritation that was reported in 22 patients. This was innocuous and resolved by using artificial tears in all patients.

A low-grade astigmatism of the cornea ranging from 1 to 2 D is seen in the approximately vertical cut corresponding to the pressure of the gold implant from above, as can be shown by means of corneal topographic photographs.[14] Astigmatism only occurred in one of our patients and was corrected by cylindrical lens. None of our patients had extrusion of the implant. Infection did not occur in our patients.

It is worth mentioning that he use of gold weight eyelid implants is certainly a desirable option for treatment of patients suffering from lagophthalmos, but it is not always successful or may not give the desired aesthetic result due to the thickness of the prefabricated implants and the anatomical structures of the eye. There are distinct anatomic differences between the Caucasian and Asian eyelids, which dictate the overlying aesthetic differences. Commercially manufactured gold implants are available in several weights and are usually used but may create a “brick-like” appearance within the eyelid. Custom-made weights that produce a much more aesthetic result can be fabricated by the dental professionals.[15]

Conclusion

The results of upper lid gold weight loading at King Hussein Medical Center showed that this operation is an effective and satisfactory procedure in patients with lagophthalmos with minimal complications.

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