ORIGINAL ARTICLE

TREATMENT OF SENILE ENTROPION: A COMPARISON OF STANDARD AND MODIFIED SURGICAL TECHNIQUE

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Background: The aim of this study is to compare the postoperative functional outcomes of two different surgical techniques for the correction of senile lower lid entropion. It was a Quasi experimental study, carried out at BHY Hospital, Karachi, Pakistan from January to December 2018. **Method:** This study recruited fifty patients belonging to either gender with an age range of 60–70 years having unilateral lower lid senile entropion. All the patients were briefed about the study dynamics and divided into two groups with twenty-five patients in each group via convenience-based sampling technique. Those with a prior history of lid surgery or bleeding diathesis were excluded from the study. Patients of group A underwent the standard Weis surgical procedure whereas Group B patients underwent a modified surgical approach using an external tamponade. Main outcome measure was the rectification of abnormal lid position to the normal level. All the patients were followed for a period of six months postoperatively. Study approval was obtained from the institutional ethical review board. **Result**: This study included a total of fifty patients with twenty-five patients in each group. Mean age was 64.5±3.23 years. Recurrence was observed in 32% patients of group A and 4% patients of group B. **Conclusion**: The modified surgical technique for entropion repair using an external tamponade has a favourable outcome with minimal recurrence and symptomatic relief.

Keywords: Entropion repair; External tamponade; Senile entropion; Weis procedure

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INTRODUCTION

Inward rotation or Entropion is a unilateral or bilateral condition affecting the lower lid more frequently and is categorized into four forms; acute spastic, congenital, cicatricial and age related (involutional). It is a frequent entity among Asian inhabitants found more often in women in relation to men and has a greater prevalence in whites as compared to blacks.[1,2] The anatomical aspects accountable for the incidence of senile entropion comprise of laxity of the horizontal eyelid, lower lid retractors disinsertion and overriding of the orbicularis oculi muscle as a consequence of ageing process leading to an inward turning of the margin of the lid causing the eyelashes to stroke against the bulbar conjunctiva and the cornea. This constant irritation damages the ocular surface.[3]

Orbicularis oculi muscle along with the lower lid retractors, tarsus and canthal tendons maintain the horizontal lower lid stability. Any laxity within these structures causes the lower lid margin to turn inwards. Similarly, the vertical stability of the lower lid is provided by the lower lid retractors and any laxity will result in the lower lid to rotate inwards. A pinch test can be used to evaluate the degree of laxity.[4] Asamura *et al* assessed the overriding of pre-septal orbicularis muscle onto the pretarsal in Asian patients.[5] Various conservative and surgical techniques have been performed for the management of senile entropion depending upon the presence of anatomical deficit and to counteract the ocular surface irritation caused by misdirected eyelashes secondary to the inward turning of the lid margin. Conservative medical treatment encompasses instillation of lubricants, application of contact lens and injecting Botulinum toxin. However, the ultimate cure for treating senile entropion is surgical intervention. Surgical procedures can be temporary office based such as Quickert sutures [6] or more permanent such as Weis procedure, tightening of the lateral canthal tendon and lateral tarsal strip surgical procedure which takes care of all three senile etiologic factors, i.e., laxity of the horizontal lid, disinsertion of the lower lid retractors and preseptal orbicularis oculi muscle overriding.[7]

This study shares the outcome of performing a modified surgical technique as compared to the standard Weis surgical procedure for the management of senile lower lid entropion.

MATERIAL AND METHODS

This quasi-experiment study was conducted from January to December 2018. Fifty patients of either gender with an age range of 60–70 years having primary unilateral lower lid senile entropion and

otherwise fit for local anaesthesia were recruited in this study from the outpatient department of Ophthalmology at BHY Hospital, Karachi, Pakistan. The patients were randomly distributed into two groups with twenty-five patients in each group via convenience-based sampling technique. Study dynamics were briefed to all the patients and verbal consent was obtained. Study approval was taken from the institutional ethical review board. Patients with congenital entropion, cicatricial entropion, prior history of lid surgery, recurrent entropion, concurrent ocular and adnexal infection or bleeding diathesis were excluded from the study. Clinical examination was done to confirm the presence of senile entropion together with laxity of the medial and lateral canthal tendon and degree of laxity of the horizontal lid. Thorough history was taken to enquire about any previous trauma, surgery or skin disease as well as the use of topical ocular medication, diabetes and hypertension. Refraction was carried out and best corrected visual acuity documented. Ocular surface was examined via slit lamp to evaluate the corneal surface, conjunctiva and tear film followed by fluorescein staining. Intraocular pressure was measured via Goldmann applanation tonometry and contact lens fundoscopy was done. Patients of group A underwent the standard Weis surgical procedure whereas Group B patients underwent a modified surgical approach using an external tamponade. All the surgeries were conducted under local anaesthesia by a single oculoplastic surgeon (QQ). Main outcome measure was the rectification of abnormal lower lid position to the normal level.

Under sterile conditions, dermal incision site was marked 3-4 mm underneath the lower lid margin followed by injection of local anaesthesia along the entire lower lid length. For the safety of the globe, a lid guard was placed. Stabilization of the lower lid was carried out using 4–0 silk traction suture. A full thickness cut was made using a blade no. 11 at the marked site. Blunt dissection was done behind the pre-septal orbicularis oculi muscle exposing the fat pad. Flanked between the fat pad and conjunctiva, the fibrous white lower lid retractors were identified and three double armed 6–0 Vicryl sutures were passed via the conjunctiva and lower lid retractors anteriorly to the tarsus to leave beneath the lid margin and tied sufficiently enough to evert the lower lid margin. dermal incision was approximated using interrupted sutures.

Under sterile conditions, marking of the dermal incision was done 3 mm underneath the lid margin followed by injection of local anaesthesia along the entire lower lid length. Stabilization of the lower lid was carried out using 4–0 silk traction suture. Partial-thickness incision was made at the marking site and a 2–3 mm strip of skin, as per the laxity, was taken out along the entire length of the lower lid. Blunt dissection was done behind the pre-septal orbicularis oculi muscle exposing the fat pad. Flanked between the fat pad and conjunctiva, the fibrous white lower lid retractors were identified. Three uniformly spaced double armed 6–0 Vicryl horizontal mattress sutures were used to approximate the skin and orbicularis muscle with a bite of the retractors at the center. Silicone tube of 5 mm was introduced through each one of the 3 suture arms at first. By the end, both arms of the sutures were at identical level and tied to each other acting as an external tamponade. The sutures absorbed over the course of 3 to 4 weeks together with disintegration of the tubes resulting in a superior cosmetic outcome.

The post operative management included systemic antibiotics and anti inflammatory drugs together with the instillation of topical lubricant eye gel at night. All the patients of both the groups were assessed on the first post operative day followed by weekly interval up to one month and then every month for up to six months. Total follow up period in this study was of six months. Data was statistically analyzed using IBM SPSS 25.0.

RESULTS

Result: This study included a total of fifty patients with twenty-five patients in each group. Mean age was 64.5±3.23 years. There were thirty-three (66%) males and seventeen (34%) females. Twenty-six (52%) patients had an involvement of the right eye and twenty-four (48%) patients had an involvement of the left eye. Recurrence of the condition was observed in eight (32%) out of twenty-five patients in group A, who underwent the standard Weis surgical procedure, whereas only one (4%) out of the twenty-five patients of group B who underwent the modified surgical technique with external tamponade experienced recurrence. Chi squared test used to test the significance of difference in recurrence between the groups p value = 0.012. All nine patients of both groups were re-operated in the follow up period. Two patients of Group B complained of heaviness of the lid margin which resolved when the external tamponade disintegrated. Mean follow up period was 179.4±5.81days.

DISCUSSION

One of the principal causes of considerable ocular discomfort among the elderly, senile entropion, occurs due to the orbicularis oculi muscle spasm leading to significant ocular surface irritation owing to the inward turning of the lid margin and eyelashes, which may cause recurring bacterial conjunctivitis, increased tear secretion as a reflex, superficial

keratopathy and ulceration.[8] Management of senile entropion is directed towards the prevention of these adverse sequelae from occurring. Several methods have been utilized for the treatment of senile entropion[9–11] but this study compared the standard Weis surgical procedure with a modified surgical approach using an external tamponade for the rectification of senile lower lid entropion.

It is known that the tarsal plate inverts with the lower edge rotating superiorly and anteriorly whereas the upper edge rotates inwards with the intersection of inferior edge of tarsal plate along with lower lid retractors having an acute angulation in patients with entropion. Lower lid retractors were studied by Collin and Rathbun on the basis of histological changes among those with entropion compared to normal eyelids and observed that lower lid retractors and the orbital septum are within 3.5 mm of the inferior edge of the tarsal plate than 1.5 to 2.5 mm among normal lids, together with a greater quantity of orbital fat suggesting retractor dehiscence in senile entropion. [12, 6] This knowledge about the anatomical changes and pathophysiological events taking place guides a surgeon to plan the surgical repair. In 1954, Weis, devised a surgical method to correct the vertical lid laxity by placing a barricade anterior to the tarsal plate thereby averting any free orbicularis oculi muscle movement over it, however, in many cases it resulted in over correction and recurrence.[13] Jones performed plication of the lower lid retractors with advancement as a surgical treatment for senile entropion.[14] A study compared the outcomes of Weis versus Jones procedure and found that 14.3% and 6.7% of the cases ended up being unsuccessful. [15] Recently, modifications in the surgical techniques for the correction of senile entropion are being carried out in order to lower the recurrence rate following the surgical procedure with a good functional outcome. Tucking of the lower lid retractors with grey line splitting surgical procedure was performed by El Samkary and found a recurrence rate of 7.4% after 12 months.[16] A comparative study was undertaken to assess the functional and anatomical outcomes after performing lateral tarsal strip procedure compared to Quickert everting sutures for lower lid senile entropion and found 11.5% and 42.9% recurrence by the end of one year.[17] A mini incision surgical technique was conducted for the treatment of senile entropion in which threads were introduced transconjunctivally near the inferior fornix with subsequent connection of the lower lid retractors and tarsus via the threads. A recurrence rate of 6.5% was observed by the conclusion of the 12 months period.[18] In the current study, group A patients who underwent the standard Weis surgical procedure had a recurrence rate of 32%, whereas, the patients in group B who underwent modified partial thickness surgical entropion procedure with external tamponade had a recurrence rate of 4% by the end of six months follow up duration. Higher recurrence rate in Weis procedure could be due to the full thickness incision resulting in conjunctival cicatrization.

It was also observed in this study that there was a significant distinction between the occurrence of senile entropion among the two groups with senile entropion being more prevalent among males (66%) than in female (34%) population. This was also observed in studies by Abdel Fatteh *et al*, which had 20 male patients in comparison to 6 female patients[19] and El Samkary, which had 36 male patients and 24 female patients[16]. However, this was not found in studies by Boboridis *et al* in which there were 41 males as compared to 61 females[20] and Damasceno *et al* which had a prevalence of senile entropion of 2.4% among females than 1.9% in males[21].

In this present study, all the patients with recurrence were surgically rectified in the follow up period successfully. No overcorrection was encountered in this study. This study was limited in terms of small scale and follow up duration of only six months. Greater sample size with longer follow up period can additionally verify the effectiveness of this modified procedure.

CONCLUSION

The modified surgical technique with an external tamponade is an effective and simple procedure for the correction of senile entropion with an acceptable aesthetic and functional outcome along with minimal recurrence and symptomatic relief.

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Conflict of interest – None

AUTHORS' CONTRIBUTION

QQ: Primary Surgeon, Manuscript writing. Z K: Data acquisition and analysis, post intervention management

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