Abstract:

Purpose: To assess the long standing effects of transverse lid-evertong silk suture in senile entropion.

Methods:

Eight patients (9 eyelids) who had only senile entropion participated in this prospective study. The lower lid have retractor laxity and upward migration of the pereseptal orbicularis muscle. The two Quickert-Rathbun silk suture is easily placed under local anesthesia. This is achieved with topical administration of tetracaine drops and subcutaneous infiltration of 2% lidocaine. The patient instilled topical betamethason and chloramphenicol every six hour for one week. All patients followed up regularly at 1 week, 8 weeks, 16 weeks and then, every year for eye lid position (suture was removed after 12 weeks).

Results:

Except for one patient, the others had good lid position and no symptoms of corneal discomfort during the three months postoperation. The other patient showed stitch abscesses and responded to medical treatment and early removed the suture.

Conclusion:

Although transverse lid evertong suture was used as a temporary measure, but long standing (three months) silk sutures have the more permanent effect.

The late removal of suture showed long lasting effects and cost-effectiveness as a simple outpatient procedure, especially in debilitated patients.
Key words: Senile entropion, transverse lid suture, Temporary suture

Introduction:

Involutional entropion is the most common phenomenon and by definition occurs as a result of aging. The lower lid always affected and there is a combination of lower lid retractors laxity and upward migration of the pereseptal orbicularis muscle. [1]

Medical management of senile enteropion including (Emollents, bandage, contact lens, botulinium toxin, …) which has a temporary effect. But in spite of over a hundred surgical approach which have been devised to correct involutional entropion, immediate relief can be efficiently brought to the patient with the non-incisional suture technique. Therefore, this should be an ideal and effective operation, with minimum discomfort, rapid recovery and simple enough for trainees, compared with more difficult operations such as a lateral tarsal strip and retractor reattachment. [2]

The everting sutures approach in correction of primary or recurrent lower lid involutional entropion was found a simple, successful, long lasting, and cost-effective procedure, by M. Wright et. al. [3]

This study was conducted to assess the effects of three months remaining non-incisional silk suture in elderly patients with senile entropion.

Materials and Methods:
A clinical trial treatment was carried out on 9 eyelids (8 patients), undergoing non-incisional lid-everting suture to correct involutional entropion. In this study, the patients were selected who had lower lid senile entropion. The method was explained to patients and they signed a consent paper. If they did not accept to participate in the study, they were omitted from the list. Exclusion criteria included a history of previous lower lid surgery other than senile entropion or patients with grade 4 medial canthal tendon laxity by the lateral distraction test. The main criteria for outcome was lower lid position and changes in lower lid retractor function. In this method, sutures are easily placed under local anesthesia. This is achieved with topical administration of tetracaine drops and subcutaneous infiltration of 2% lidocaine. To place the sutures, the eyelid is pulled from globe with forceps, one needle of double armed suture is passed deep in to the inferior fornix and up through the lid, exiting anteriorly through the skin 2 to 3 millimeters below the lash line. The second needle is passed in the same way, about 5 mm lateral to the first and tied to correct the lid position. A total of two stitches are placed in each lid, with the most lateral one exiting about 2 mm below the level of the nasal one. The patient instilled topical betamethason and chloramphenicol every six hour for one week.

To evaluate the immediate results, the patient was asked to look down, which demonstrated appropriate movement of the corrected lid. Suture was removed after three months and the Patients were follow up at 1, 8, 16, weeks periods postoperatively and then, they were assessed annually. Successful outcome was long time stability of lid margin without turning in which causes corneal-lash contact. It seems that permanent effect of silk suture was
associated with more induced inflammation and scar formation. The data was analyzed by descriptive statistics such as frequency and mean.

Results:
Most patients had excellent lid position and comfortable eyelid situation as early as post operation or thereafter (figure 1, 2), except for two patients who developed suture abscess in one case and recurrence of entropion in another one. The stitches abscess respond to oral antibiotics and the recurrence of entropion again underwent repairmen (Figure 3). In table 1, the other characters and outcomes are also summarized. The mean age of patients was 69 years old and all patients had lower lid senile entropion. Four eyes had left eyelid entropion and 5 eyes experienced right eyelid entropion. Five patients were male and other three were female. (One male was bilateral). Only one male patient developed stitches abscess 7 weeks after entropion repair, which responded to oral cephalosporin in one week. But the patient was gradually treated by enteropion again and managed by other procedures. Between 0.1 to 10 years (average 4.4 years) follow-up for this technique was associated with recurrence of two more senile entropions.

Discussion:
Non-incisional silk suture was concluded to be an effective, easy and temporary procedure which is associated with a high postoperative success rate. The only early complication was
stitch abscesses in one case that was a response to medical treatment. The long term effect was good anatomical and functional corrections which were achieved in 6 eyelides. There are other reports which describe stitch abscess and pyogenic granuloma too. [4,5] Except of one case of reoperation which was managed successfully and one stitch abscesses which responded to medical treatment, the lid everting silk suture not only caused temporary relief of symptoms, but also it was associated with long time effects. However, two other cases gradually had late recurrences which again properly managed by this simple approach.

A study conducted by Scheepers et.al. provides strong evidence that success rates at 18 months are higher in patients treated with everting suture and lateral tarsal strip (ES+LTS) procedure compared to ES alone. [2] Although many surgical procedures were described with varying long-term success rates for the treatment of entropion, the use of everting sutures alone is advocated by many surgeons because of advantages such as being quick and relatively simple to perform, and also anticoagulation treatment does not need to be omitted compared to more invasive eyelid procedures including anticoagulation. [1] This study shows the important role of the two months long non-incisional silk suture in this simple surgical approach. In this simple surgical approach, Caldato and his colleagues reported 96.60% success rate in 30 patients with senile entropion who underwent reinsertion of the lower eyelid retractor aponeurosis to the tarsal plate without horizontal shortening or resection of the skin or orbicularis muscle (after 29 months follow-up examination). This study also highlighted the low recurrence rate of senile entropion [6] , even though this
surgical approach was modified and its results were near to our study.

Low recurrence rate of entropion is associated with botulinum toxin A. It removes the discomfort symptoms in all patients with improvements in effectivity and acceptability. The mean active duration of the toxin was 70 days. The authors believe that botulinum toxin injection to the lower lid provides a more effective and acceptable interim measurement in relieving lower lid entropion. [7]

The other dilemma in the management of involutional entropion was the description provided by Bashour Mounir and Harvey on what John Dalglish and Smith believed to be overriding effect on orbicularis was not an etiologic factor. They conceded that "spasm or over-action of the palpebral orbicularis is a real possibility in cases of entropion, and needs further investigation". The temporary improvement of involutional entropion after botulinium toxin injection could be noted as a supporting evidence for this suggestion. [8]

There is a trend to find the ideal approach with minimal expense in any field of management that Wright et. al. also assessed the long term efficacy of everting suture [9]. I. Leibovitch introduced a minimally invasive single-stitch lateral wedge technique, Tsang S describe this a simple and effective procedure for repairing involutional lower eyelid entropion which is associated with low recurrence and complication rates. [10,11]

The most important result of our research was few complication and recurrences in senile
entropion, though our patients were 9 eyelids, but compared to the Tsang study, simplicity and outpatients procedures are other characteristic findings of this procedure.

This conclusion can be clearly reached in a comparative study of Boboridis.K, in which 6 of 37 (16%) eyelids had unsatisfactory results after the tendon plication in contrast to 31 of 65(48%) after the wies procedure (more invasion). [12] These data provide strong evidence that in the absence of horizontal shortening of the lower eyelid, a successful outcome is more likely to be resulted in non-incisional silk suture procedure.

**Conclusion:** Among many surgical approaches for repair of senile entropies, non-incisional silk suture seems to be the simplest and most repeatable procedure, with minimal manipulation of lower lid. It is also an outpatients' procedure that is associated with high postoperative success rate, in comparison to retractor reinsertion or wies procedure. A reduction on suture number (two sutures) and an increase in the bite of suture may play an important role in our study, even though silk suture induced more inflammation. However, a randomized case control study with a larger number of patients is required to evaluate these results.

**References**

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Figure legend:

Figure 1 First case; a, right lower lid entropion before repair, b the day after correction. Second case; c, left lower lid entropion before repair d, post procedure one month thereafter.

Figure 2 Thired case; a, right lower lid entropion three months after correction. b, 7 years thereafter. Forth bilateral case; c & d before and early of suturing. e, after 10 years of right lower lid correction. f, 5 years of left lower lid everting suture.

Figure 3. stitch indurations and abscess.
Figure 1 a, right lower lid entropion before repair, b, the day after correction, c, left lower lid entropion before repair, d, post procedure one month thereafter.

Figure 2 a, right lower lid entropion three months after correction, b, 7 years thereafter, c, after 10 years of right lower lid correction, d, 5 years of left lower lid everting suture.
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Table 1: Distribution of age, sex and follow-up outcome
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187 RLL=Right Lower Lid; LLL=Left Lower Lid