

Original Research Article

Delayed removal of temporary non-incisional silk suture in Senile Entropion; A Simple Method for Long-time Relief

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Abstract:

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

Methods:

Eight patients (9 eyelids) who had only senile entropion participated in this prospective study. The lower lid had retractor laxity and upward migration of the preseptal 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 bethamethasone and chloramphenicol every six hour for one week. All patients were 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 postoperative period. The other patient developed stitch abscess and responded to medical treatment and early removal of the suture.

Conclusion:

28 Although transverse lid everting suture **has been** used as a temporary measure in treatment of
29 senile entropion, **long standing three months** silk lid sutures **have been shown to have more**
30 permanent effect.

31 The late removal of suture showed long lasting effects and cost-effectiveness as a simple
32 outpatient procedure, especially in debilitated patients.

33 **Key words:** Senile entropion, **transverse lid suture**, Temporary suture

34

35 **Introduction:**

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

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

46 The everting sutures approach in correction of primary or recurrent lower lid involutional
47 entropion was found a simple, successful, long lasting, and cost-effective procedure ,by M.

48 Wright et. al. [3]

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

51 **Materials and Methods:**

52 A clinical trial treatment was carried out on 9 eyelids (8 patients), undergoing non-incisional
53 lid-everting suture to correct involutional entropion. In this study, patients with only lower
54 lid senile entropion were assessed . The procedure was explained to patients and they
55 signed a consent paper. If they did not accept to participate in the study, they were omitted
56 from the list. Exclusion criteria included a history of previous lower lid surgery other than
57 senile entropion or patients with grade 4 medial canthal tendon laxity by the lateral
58 distraction test.

59 The main criteria for outcome was lower lid position and changes in lower lid retractor
60 function. In this method, sutures are easily placed under local anesthesia. This is achieved
61 with topical administration of tetracaine drops and subcutaneous infiltration of 2% lidocaine.
62 To place the sutures, the eyelid is pulled from globe with forceps, one needle of double armed
63 suture is passed deep in to the inferior fornix and up through the lid, exiting anteriorly
64 through the skin 2 to 3 millimeters below the lash line. The second needle is passed in the
65 same way, about 5 mm lateral to the first and a knot was tied to correct the lid position. A
66 total of two stitches are placed in each lid, with the most lateral one exiting about 2 mm
67 below the level of the nasal one. The patient instilled topical betamthasone and

68 chloramphenicol every six hour for one week.

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

76

77 **Results:**

78 Most patients had excellent lid position and comfortable eyelid situation as early as post
79 operation or thereafter (figure 1, 2), except for two patients who developed suture abscess in
80 one case and recurrence of entropion in another one. The stitch abscess responded to oral
81 antibiotics and the recurrence of entropion again underwent repair. (Figure 3). In table 1, the
82 other characters and outcomes are also summarized.

83 The mean age of patients was 69 years old and all patients had lower lid senile entropion.
84 Four eyes had left eyelid entropion and 5 eyes experienced right eyelid entropion. Five
85 patients were male and other three were female. (One male was bilateral).

86 Only one male patient developed stitches abscess 7 weeks after entropion repair ,which
87 responded to oral cephalosporin in one week. But the patient again managed by other
88 procedures. Between 0.1 to 10 years (average 4.4 years) follow-up for this technique was

89 associated with recurrence of two more senile entropions.

90

91 **Discussion:**

92 Non-incisional silk suture **has been found** to be an effective, easy and temporary procedure
93 which is associated with a high postoperative success rate. The only early complication was
94 stitch **abscess** in one case that **responded** to medical treatment. The long term effect was
95 good anatomical and functional corrections which were achieved in 6 eyelides. There are
96 other reports which describe stitch abscess and pyogenic granuloma too. [4,5]

97 Except **for** one case of reoperation which was managed successfully and one stitch (**abscess**)
98 which **responded to medical treatment and other surgical approach**, the lid everting silk suture
99 not only caused temporary relief of symptoms, **but also it was associated with long time**
100 **effects. However, two other cases gradually had late recurrences which again properly**
101 **managed by this simple approach.**

102 A study conducted by Scheepers et.al. provides strong evidence that success rates at 18
103 months are higher in patients treated **with everting suture and lateral tarsal strip** (ES+LTS)
104 procedure compared to ES alone. [2] Although many surgical procedures were described
105 with varying long-term success rates for the treatment of entropion, the use of everting
106 sutures alone is advocated by many surgeons because of advantages such as being quick and
107 relatively simple to perform, and also anticoagulation treatment does not need to be omitted
108 compared to more invasive eyelid procedures including anticoagulation. [1]

109 This study shows long time relief of senile entropion which indicate the important role of the
110 three-month remaining non-incisional silk suture. The surgical approach that Caldato and his
111 colleagues reported, 96.60% success rate was describe in 30 patients with senile entropion
112 who underwent reinsertion of the lower eyelid retractor aponeurosis to the tarsal plate without
113 horizontal shortening or resection of the skin or orbicularis muscle (after 29 months follow-
114 up examination). This study also highlighted the low recurrence rate of senile entropion [6] ,
115 even though this surgical approach was modified and its results were similar to our study.
116 Low recurrence rate of entropion is associated with botulinum toxin A. It removes the
117 discomfort symptoms in all patients with improvements in effectivity and acceptability. The
118 mean active duration of the toxin was 70 days. The authors believe that botulinum toxin
119 injection to the lower lid provides a more effective and acceptable interim measurement in
120 relieving lower lid entropion. [7]

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

127 There is a trend to find the ideal approach with minimal expense in any field of management
128 that Wright et. al. also assessed the long term efficacy of everting suture [9] . I. Leibovitch
129 introduced a minimally invasive single-stitch lateral wedge technique, Tsang S describe this a

130 simple and effective procedure for repairing involutional lower eyelid entropion which is
131 associated with low recurrence and complication rates. [10,11]

132
133
134 The most important result of our research was few complication and recurrences in senile
135 entropion, though our patients were 9 eyelids, but compared to the Tsang study, simplicity
136 and outpatients procedures are other characteristic findings of this procedure.

137 This conclusion can be clearly reached in a comparative study of Boboridis.K, in which 6 of
138 37 (16%) eyelids had unsatisfactory results after the tendon plication in contrast to 31 of
139 65(48%) after the wies procedure(more invasion). [12] These data provide strong evidence
140 that in the absence of horizontal shortening of the lower eyelid, a successful outcome is more
141 likely to result from non-incisional silk suture procedure.

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

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183 **Figure legend:**

184 **Figure 1 First case; a, right lower lid entropion before repair, b the day after**

185 **correction. Second case; c, left lower lid entropion before repair d, post procedure one**

186 **month thereafter.**

187 **Figure 2 (Third) case; a, right lower lid enteropion three months after correction. b, 7**

188 **years thereafter .Forth bilateral case; c & d before and early of suturing. e, after 10**

189 **years of right lower lid correction. f, 5 years of left lower lid everting suture.**

190 **Figure 3. stitch indurations and abscess.**

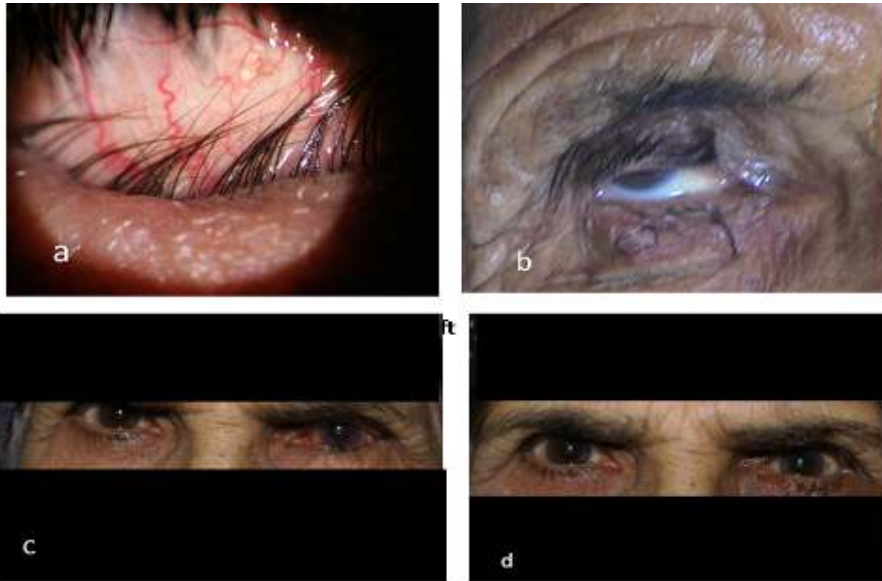


Figure 1 a, right lower lid entropion befor repair, b the day after correction c, left lower lid entropion befor repair d, post procedure one month thereafter

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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 evert ing suture

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Figure 3. stitch indurations and abscess

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Table 1: Distribution of age ,sex and follow-up outcome

Number	Gender	Age	Lid	Recurrence	Complication	<u>Follow-up</u> Year
1	♀	65	RLL	No	No	5
2	♂	70	RLL	Yes	No	7
3	♂	62	LLL	No	Yes	1
4	♂	60	RLL	No	No	5
5	♀	76	LLL	No	No	5
6	♂	75	LLL	No	No	5
7	♀	75	RLL	No	No	4
8	♀	75	LLL	Yes	No	2.5

9	♂	65	RLL	No	NO	2
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196 RLL=Right Lower Lid; LLL=Left Lower Lid