# Everting Sutures for Entropion Repair: Recurrence Rate and Quality of Life Metrics

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## Introduction

Entropion is defined as an inward turning of the eyelid margin. Prevalence is positively correlated with age and it is associated more strongly with east Asians in comparison to the white population with blacks having the least prevalence [1]. It can be classified into congenital, involutional, spastic or cicatricial

Pathophysiology of entropion is predominantly two-fold: horizontal and vertical lid laxity. Everting sutures address the vertical laxity by tightening the lower lid retractors. In this technique, double-armed sutures are placed deep into the inferior fornix below the tarsal border, through the lower lid retractors and exiting through the skin. Recurrence rate after two years is around 30% [2] .

Horizontal lid tightening is classically done with a lateral tarsal strip (LTS). Lateral canthotomy is performed in addition to an inferior cantholysis. A horizontal incision through the superior tarsal plate creates a strip which is then sutured to the lateral orbital rim.

Although studies suggest combining horizontal and vertical eyelid tightening techniques is associated with better surgical outcomes [3], everting sutures is a relatively non-invasive, quick and cheap alternative surgical treatment [4].

## Method

This will be a retrospective study analysing 58 patients who were treated with everting sutures between April 2019 and March 2020; cases were identified by the coding department. Experience of practitioners ranged from trainees to consultant. Patients who had primary LTS were excluded from the study.

Patients were telephoned in order to:

- Describe their symptoms pre-operatively (pre-op) and post-operatively (post-op) (Epiphora/Irritation/Redness)
- Complete a quality of life questionnaire before and after the surgery utilising the European quality of life questionnaire (EuroQoL) **(figure 1).**

**Fig. 1 Quality Of Life Questionnaire**

| Mobility | Self-care | Usual Activities | Pain / Discomfort | Anxiety / Depression |
|---|---|---|---|---|
| I have no problems in walking about | I have no problems with self-care | I have no problems with performing my usual activities | I have no pain or discomfort | I am not anxious or depressed |
| I have some problems in walking about | I have some problems washing or dressing myself | I have some problems with performing my usual activities | I have moderate pain or discomfort | I am moderately anxious or depressed |
| I'm confined to bed | I'm unable to wash or dress myself | I'm unable to perform my usual activities | I have extreme pain or discomfort | I am extremely anxious or depressed |

## Results

Between April 2019 and March 2020, 58 everting sutures cases were identified, however 16 of these were not contactable leaving 42 cases to be included in the study results.

In terms of quality of life: mobility, self-care and anxiety/depression were not affected pre-op or post-op for most patients. 88% of patients complained of pain/discomfort pre-op. 66.6% of patients had their usual activities affected. Quality of life was improved in 80.9% of patients post-op **(Figure 2**).

Recurrence rate of 26.7% was noted within 12 months. Please see (**Figure 3)** for recurrence rate table.

**Fig. 2 Changes In Quality Of Life**

| QoL changes post-op | Patients |
|---|---|
| Improved | 80.9% (34 pts) |
| No change (asymptomatic pre-op) | 14.3% (6 pts) |
| worse | 4.7% (2 pts) |

**Fig. 3 Recurrence Rate Table**

| Time of recurrence after Everting Sutures | Number of patients | Percentage |
|---|---|---|
| 1 month | 3 | 5.1% |
| 3 months | 2 | 3.4% |
| 5 months | 1 | 1.7% |
| 6 months | 2 | 3.4% |
| 7 months | 2 | 3.4% |
| 8 months | 2 | 3.4% |
| 12 months | 3 | 5.1% |
| 15 months | 1 | 1.7% |
| 18 months | 1 | 1.7% |
| 23 months | 1 | 1.7% |

Good lid position was reported in 94.8% soon after the surgery with 1.7% noting a partial correction and 3.4% noting no correction. Therefore there was an initial short-term anatomical success of 96.5%.

With regards to entropion symptom improvement, 62.9% had complete resolution of epiphora, 72.7% reported resolution of irritation and 86.3% no longer reported redness. Please see (**figure 4)** for summary of entropion symptom results.

**Fig. 4 Symptom Improvement Table**

| Symptoms | Improvement | Patients |
|---|---|---|
| **Epiphora** (27 patients) | Complete resolution | 62.9% (17 patients) |
| | Partial resolution | 29.6% (8 patients) |
| | No improvement | 7.4% (2 patients) |
| **Irritation** (33 patients) | Complete resolution | 72.7% (24 patients) |
| | Partial resolution | 21.2% (7 patients) |
| | No improvement | 6% (2 patients) |
| **Redness** (22 patients) | Complete resolution | 86.3% (19 patients) |
| | Partial resolution | 13.6% (3 patients) |
| | No improvement | 0% (0 patient) |

## Discussion and Recommendations

Initial success rate for everting sutures was 96.5%. This suggests that everting sutures is associated with great short-term success for entropion. One year success rate was 73.3% implying that there is evidence for long-term success however this may tend to decrease with time. Despite this, a longer follow-up time, for example 2 years, may provide us with a more accurate depiction of long-term success rates.

With 80.9% of patients having improvements in quality of life, our results suggest that everting sutures benefit patients with regards to their day-to-day lives as well as having anatomical success. Complication rate was low at 1.7% inferring its great safety profile.

There were limitations to this study; for instance although 58 everting suture cases were identified, only 42 were used in the study results. A larger sample size would have increased the power of our results. Secondly, this was a retrospective study and hence recall bias was a possibility which may have reduced the reliability of our results. Finally, there was no stratification for the surgeon's experience; this ranged from trainees to consultants. It is possible that a variation in skill may have an impact on surgical outcomes.

## Conclusion

Everting sutures is a quick and minimally invasive procedure with extremely low complication rate and high short-term success rate. Due to these aforementioned characteristics, with prudent patient selection, we feel this procedure is a valuable tool in the armamentarium against entropion.

## References

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