

Outcome of Weis Procedure Versus Combined Procedure in Involutional Entropion of Lower Eyelid

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ABSTRACT

INTRODUCTION: Involutional entropion of the lower eyelid is a common problem in the ageing population. Surgery must correct horizontal laxity, vertical laxity and overriding of the tarsus by the intratarsal tissues. The purpose of this study is to evaluate the efficacy of the combined procedure over the Weis procedure in the management of involutional entropion in terms of anatomical success, recurrence rate and cosmetic appearance.

METHOD: In this retrospective comparative study, we reviewed 76 eyelids of 61 consecutive patients of involutional entropion from March 2013 to September 2014. Out of which 45 eyelids of 35 patients underwent combined procedure (retractor plication and lateral tarsal strip) and 31 eyelids of 25 patients underwent Weis procedure. Exclusion criteria included the patients who had undergone previous lower eyelid surgery and who followed up for less than 6 months.

RESULT: Entropion was not seen in first post operative day in both the groups. The mean follow-up period was 12 months. During the follow-up period, 9 of 31 (29%) eyes which had undergone the Weis procedure presented with recurrence, whereas 1 of 35 (3.5%) eyes treated with combined procedure presented with recurrence ($p=0.001$). The average time of recurrence in the Weis group was 4.8 months and 2 months in combined group. Three patients complained about a visible incision line after the Weis procedure. Age of the patients and duration of the symptoms was not significant.

CONCLUSION: The combined procedure is more effective than the Weis procedure in terms of anatomical outcome and less recurrence in the management of involutional entropion. The combined procedure addresses the three major causative factors in involutional entropion and makes it possible to perform the surgery using a small incision with more cosmetically acceptable result. Duration and cost of surgery in both the groups was not significant.

KEY WORDS: Involutional, lateral tarsal strip, vertical laxity, horizontal laxity.

INTRODUCTION

Involutional entropion leads to corneal epithelium problems, ocular irritation and blepharospasm in elderly population. If untreated, entropion can cause corneal ulceration, microbial keratitis, visual loss or even eye loss.¹

Involutional entropion is caused by following pathophysiology:

1. Dehiscence or disinsertion of lower lid retractors from lower tarsus,
- 2) preseptal orbicularis overriding pretarsal orbicularis,
- 3) horizontal laxity from involutional changes of medial canthal ligament and tarsal plate,
- 4) relative enophthalmos from absorption of orbital fat.²

Many surgical procedures have been described for the management of entropion and varying success rates have been reported. Because of the multifactorial nature of the disease, no entirely satisfactory surgical technique has yet been reported. Traditional

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procedures that correct only one or two of the etiologic factors have a high incidence of recurrence.

Due to lack of comparative studies, the best surgical technique remains controversial.

This analysis compared Weis procedure and combined procedure (lateral tarsal strip and inferior retractor plication with regard to anatomical success, recurrence rate and cosmetic appearance.

METHOD

In this retrospective study, we reviewed 76 eyelids of 61 consecutive patients .out of which 45 eyelids of 35 patients who underwent combined procedure (retractor plication and lateral tarsal strip) and 31 eyelids of 25 patients who underwent Weis procedure for the management of involutional entropion from March 2013 to September 2014. Exclusion criteria included the patients who had undergone previous lower eyelid surgery and who followed up for less than 6 months. The overall outcome was compared in terms of anatomical success, recurrence rate and cosmetic appearance.

Surgical technique.

All the operations were performed under local anesthesia by a single surgeon.

WEIS PROCEDURE

A full thickness transverse incision 4mm inferior to the lashes was made. Three double armed 6-0 vicryl sutures were placed through the conjunctiva and the lower lid retractors 2mm below the incision. The sutures were passed into the orbicularis muscle anterior to the tarsal plate in the upper wound edge and the sutures were emerged in the skin 2mm inferior to the lashes. The sutures were tied and the skin incision was closed with a 6-0 vicryl.

Combined procedure (LTS and retractor plication transconjunctival approach)

An approximately 1 cm long skin incision from the lateral canthus to the orbital rim was made. A lateral canthotomy and cantholysis to the lower limb of the lateral canthal tendon were performed. Orbicularis fibres over the lateral orbital rim were dissected and the lateral rim was identified. The periosteum was incised vertically and dissected medially to form a

periosteal flap. Blunt-pointed scissors were spread anterior to the retractor layer and the conjunctiva-retractor layer was cut at the level of inferior border of the tarsal plate transversally from the lateral canthal region to the punctum. The orbicularis muscle was also cut in the same fashion to separate the pretarsal from the preseptal. The lower lid was pulled laterally under moderate tension to assess the amount of horizontal shortening. Then a tarsal strip was prepared by excising the superior mucocutaneous junction tissue and the anterior lamella and debriding the conjunctival epithelium. The strip was shortened to achieve a slightly tight lid. The retractor layer was dissected posteriorly from the conjunctiva and then shortened. Three 6-0 polyester suture was passed in the following order: preseptal orbicularis, retractor layer and the conjunctiva in the lower wound edge, inferior border of the tarsal plate and pretarsal orbicularis. The sutures were tied to achieve a slight ectropion. Two sutures were passed through the tarsal strip and sutured in the periosteal flap. The lateral canthus was formed. The orbicularis over the rim and skin was closed with 6-0 vicryl suture.

Patients were evaluated on the first and seventh postoperative day. Subsequent follow-up visits were done at 1, 3, 6 months and 1 year. At each visits, eyelids were examined in primary and downgaze. The patients were asked squeeze their eyelids closed to detect any latent recurrences. Surgical success was defined as complete resolution of the inward rotation of the eyelid margin and the symptoms.

The categorized data were analyzed with Fisher's exact test. A probability level of <0.05 was considered statistically significant.

RESULT

The age and sex of the patients and duration of symptoms was not significant. There was no statistically significant differences between the two groups with regard to age and sex ($p > 0.05$).

Entropion was not seen in first post operative day in both the groups. The mean follow-up period was 12 months. During the follow up period, 9 of 31 (29%) eyes which had undergone the Weis procedure presented with recurrence, whereas 1 of 35 (3.5%) eyes treated with combined procedure presented with recurrence. The difference was statistically significant ($p = 0.001$).

The average time of recurrence in the Weis group was 4.8 months and 2 months in combined group. Three patients complained about a visible incision line after the Weis procedure. Combined procedure resulted in a high success rate and low recurrence rate. Cosmetic results are satisfactory with the combined procedure.

No intraoperative complications were observed in either group. In all patients, entropion was corrected on first post operative day. Cosmetically acceptable results were more seen with combined procedure.

DISCUSSION

Different surgical techniques have been described to correct the anatomical changes in involutional entropion with various success rates. Horizontal laxity can be corrected with lid shortening procedures such as LTS or full thickened wedge resection. In order to correct vertical laxity, surgical approaches such as retractor plication, shortening and reinsertion or placing the fornix sutures have been used. The sutures create scarring and adhesions between inferior retractors and tarsal plate as they dissolve and prevent further inward rotation and recurrence³. Surgical techniques that address only one or two pathogenic factors have been reported to have higher recurrence rates. Dryden ET al⁴ reported a recurrence rate of 16% after retractor attenuation repair. Iliff⁵ reported that 9% of his patients presented with recurrence after placing fornix suture.

Borboridis et al⁶ reported a recurrence rate of 5% after the Jones retractor plication technique. Scheepers et al³ reported a recurrence rate of 21% after everting suture and no recurrence after everting suture plus LTS. Hedin⁷ reported no recurrence after retractor plication combined with wedge resection. However, there are very few comparative studies done in Nepal. Due to lack of comparative studies, the best surgical technique remains controversial.

The present study compared two different surgical techniques. The Weis procedure mainly corrects two pathologies; vertical laxity and orbicularis dysfunction, whereas the combined procedure addresses three pathologies; vertical laxity, horizontal laxity and orbicularis dysfunction. In this study, there was no entropion observed on the first post operative day in both the groups. However, during follow up period, 9

of 31(29%) eyes presented with recurrence in Weis group and only 1 of 35(3.5%) eyes presented with recurrence. Borboradis et al⁶ also reported a recurrence rate of 17% after the Weis procedure. After the Weis procedure, scar formation and retractor tightening may not be strong enough to keep lids in a normal position over time. In addition, horizontal laxity is not addressed in Weis procedure. One etiopathogenic factor may clinically seem to dominate the other factors. In our study, from Weis group three patients also complained of visible scar below the lash line whereas in combined group the only incision is 1 cm long from lateral canthus to orbital line, so the scar is buried in stress line. Cosmetic result is as important as surgical results in oculoplasty surgeries. Also, LTS corrects horizontal laxity, avoids eyelid notching and phimosis.⁸ Full thickness eyelid resections may correct horizontal laxity but may add strain on the weakened lateral canthal tendon and may cause notching. Hedin⁷ and Allen⁹ reported lid notching after wedge resection. The LTS procedure more physiologically corrects lateral canthal tendon laxity than eyelid resections¹⁰. Didem Serin et al concluded in their study that combined procedure is a useful technique and results in a high success and low recurrence rate. The combined procedure addresses the three major causative factors in involutional entropion and allows the surgeon to perform the surgery using a small incision which is buried in skin stress lines.¹¹

A study done by Vivek M et al¹² reported the use of Jones procedure in patients with Senile lower lid entropion is a safe, effective and economically viable option requiring small skin incisions and relatively less surgical time, easy surgical skills to master, with no intra operative complication, with almost negligible chances of recurrence.

CONCLUSION

Combined procedure comprising retractor plication and lateral tarsal strip is a useful technique and results in higher success rate and lower recurrence rate. The combined procedure addresses the three major causative factors involved in involutional entropion and allows the surgeons to perform the surgery using a small incision which is buried in stress line leading to more cosmetically acceptable result.

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