ORIGINAL ARTICLE

Outcome of Modified Weis Procedure Versus Jones Procedure in Senile Entropion at Tertiary Eye Centre of Western Nepal

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ABSTRACT

Introduction: Involutional lower eyelid entropion is a common condition of eyelid that affects ageing population. Various surgical procedures have been described for correction of involutional entropion of the lower eyelid that addresses one or more of the anatomical factors. **Aims:** This study evaluate the success rate, recurrence, and postoperative complications between the two procedures modified Weis versus Jones procedure for involutional lower lid entropion. **Methods:** A prospective, cross sectional study. All patients with senile entropion who met the inclusion criteria were randomly divided into Group A (modified Weis group) and Group B Jones group Patients were evaluated on the 1st and 14 postoperative day and followed up at 6 months. The surgical outcomes were normal eyelid position at rest, recurrence and complications of surgery. **Results:** 59 patients (64 eyelids) with involutional entropion that met the inclusion criteria underwent surgical repair. Left eyelid (29) was more involved than the right eye (25). 5 patients had bilateral entropion repair. There were no major intraoperative complications except bleeding which occurred in 8 eyelids (12.5%). Postoperative period was uneventful. The success rate of Modified Weis procedure at 6 months was 93.7% whereas it was 100% in Jones procedure. The success rate was same at 3 months and 6 months duration. **Conclusion:** The functional and surgical outcome for involutional entropion with either transconjunctival modified Weis approach or external Jones approach was same. But Jones procedure has comparatively high success rate and minimal or no recurrence.

Keywords: Jones procedure, Modified Weis, Senile Entropion, Western Nepal

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INTRODUCTION

Involutional Senile lower lid entropion is a common condition of eyelid that affects ageing population.[1] Without treatment, the inward rotation of the eyelid margin results in foreign body sensation, tearing, ocular irritation, corneal ulcer resulting in corneal scarring, decreased visual acuity and even sight loss.[2] The causative factors for the involutional entropion is multifactorial. Horizontal lid laxity, lateral canthal tendon laxity, overriding of preseptal orbicularis oculi muscle over pretarsal orbicularis muscle, and disinsertion or dehiscence of vertical lower lid retractors are considered to be pathogenesis of senile lower lid entropion.[3-6] The partial atrophy of orbital rim resulting from age related enophthalmos also predisposes to entropion.[7] Various surgical procedures have been described for correction of involutional entropion of the lower eyelid that addresses one or more of the anatomical factors. The treatment of choice which has been shown to have a positive impact on quality of life and recurrence rate varies in previous studies.[8] Because of the multifactorial nature of the disease, the best surgical technique to address all the factors has not yet been reported. This study aims to investigate the comparative success rate, recurrence, and postoperative complications between two procedures (modified Wies versus Jones procedure) for involutional lower lid entropion. Hence, this disease is one of the most commonly encountered department of oculoplasty at Lumbini Eye Institute Bhairahawa. This type of study has not been studied in the western part of Nepal.

METHODS

A prospective, cross sectional study was conducted in the Department of Oculoplasty at Lumbini eye Institute and Research Centre Bhairahawa from June 2019 to May 2020 after the ethical approval from Institutional Research Review Board

of Lumbini Eye Institute and research center. The study was approved on 20 May 2019 with approval number 022 (Reference no: 022/018/019) All patients with senile entropion whose age was more than 60 years attending to oculoplasty outpatient department (OPD) were included in this study. They were consecutively divided into Group A (modified Weis group) and Group B (Jones group). Exclusion criteria included the patients who had history of previous lower eyelid surgery, those not for surgery and post operative follow-up of less than 6 months period. Patient with other types of entropion like cicatricial, congenital entropion, upper lid entropion, recurent entropion were also excluded from the study. Written informed consent was obtained prior to initiation of the study which included use of the medication, inclusion in the study. All patients were evaluated through clinical history regarding patient age, gender, laterality of the entropion, meticulous clinical examinations and necessary investigations to exclude other causes of lacrimation. The nasolacrimal duct obstruction was excluded in all cases after lacrimal syringing test.[9] All the patients were examined under bimicroscopc slit lamp, best corrected visual acuity, corneal status and fundus evaluation was done.

Grading of entropion was done by following methods:

Grade 1- only posterior lid border is enrolled

Grade 2- turning of intermarginal strip

Grade 3- whole of lid margin including anterior border inturned

Data collection was done in standard proforma regarding age of patient at the time of surgery, gender, grades of entropion, type of surgery. Any intraoperative and postoperative complications, outcome of surgery and recurrence of entropion was noted.

Informed written consent was obtained from all patients. All surgeries were performed under local anesthesia. Approximately 2-3 ml of 2% lidocaine with 1: 1,00,000 dilution of adrenaline and 2% bupivacaine will be injected subcutaneously across the whole length of the lower lid. Surgery was performed by 3 experienced oculoplastic surgeons.

The modified Wies procedure were similar to the steps described by Bayer CK[10] in suture repair for entropion. After injecting local anesthetics traction suture with 4-0 silk was applied. Lower lid was everted with the help of Jaegar's spatula. An incision was made with no. 15 Bard Parker blade just inferior to the lower tarsal border through the conjunctiva and lower lid retractors. The horizontal length of the incision was titrated according to the extent of entropion and the length of the lower eyelid not extending medially beyond the lower punctum. 4-0 silk was passed through the skin just below the lash and along the anterior surface of the tarsus. Then, the suture was passed through the retractor conjunctival complex. Then the suture was retrieved back through the skin repeating the way back. Three middle, medial and lateral or rarely any two of such sutures were applied and tightened carefully to correct the entropion. Antibiotic ointment was applied. Eye pad was applied for a few hours. The technique for Jones procedure was similar to the methods previously described by Kamel et al.[11] A lid guard was placed to protect the globe. The lower eyelid was stabilized with a 4–0 silk traction suture and clamped to the guard and drape. A horizontal skin incision 4 mm from lashes was made with a no. 15 blade. The orbicularis muscle was cut. The skin and the orbicularis muscle layer were reflected up to expose the tarsal plate and down to expose the orbital septum and the underlying fat pad. The lower eyelid retractors were dissected from the tarsus and conjunctiva. The orbital septum was opened and the lower eyelid retractors were dissected. Three long-acting 6–0 absorbable plicating sutures were passed through the lower lid retractors, through the lower border of the tarsal plate and out through the lower lid retractors. The sutures were tied. The excess of the retractors was excised. The skin was closed with interrupted sutures. Sutures were removed in day seven to 2 weeks according to the need in both the procedures. All the patients were examined on the 1st and 14 postoperative days respectively. Subsequent follow up visits were done at 6 months. At each visit, eyelids were examined in primary and downgaze to see whether eyelashes touches cornea or not. The patients were asked to squeeze their eyelids closed to detect any latent recurrences. Surgical success was defined as complete disappearance of symptoms and good positioning of the eyelid margin, apposition to the globe in primary position of gaze, when looking down or blinking. The outcome of surgery were evaluated as:a) successful surgery i.e. normal eye lid position at rest b) corneal status and improvement in symptoms c) recurrence and complications.

The datae analysis SPSS statistical Package of Social Sciences, version 20 was used. Statistical analysis Mean, standard deviation, P value and correlation co-oefficient were calculated. The two groups were compared with Chi square test and paired t test.

RESULTS

59 patients (64 eyelids) with involutional entropion that met the inclusion criteria underwent surgical repair. Left eyelid (29) was more involved than the right eyelid (25). 5 patients had bilateral entropion repair. Mean age at the time of presentation in modified Weis group is 70.53 years ± 8.6 whereas it was slightly younger age in Jones group 67.52 years±9.2. (Table I)

Surgery Type	Mean Age(yrs) (SD)	Sex		Total n(%)
		Female n(%)	Male n(%)	
Group A	70.53± 8.6	13 (22%)	17 (28.8%)	30 (50.8%)
Group B	67.52±9.2	20 (33.9%)	9 (15.3%)	29 (49.2%)
p value	0.2	33 (55.9%)	26 (44.1%)	59 (100%)

Table I: Demographic profile of patients between two groups

Majority of patients had grade 3 entropion in both the groups with p value 0.6 which was statistically not significant. (Table II)

Surgery Type	Grade 2	Grade 3	Total no. of eyelids
Group A	12 (18.8%)	20 (31.2%)	32 (50.0%)
Group B	9 (14.1%)	23 (35.9%)	32 (50.0%)
Total	31 (32.8%)	43 (67.2%)	64 (100%)
P value 0.6			

Table II: Distribution according to grading of Entropion

In this study, corneal involvement was seen more in Modified Wies group in 25 patients than in Jones group where only in 22 patients had corneal involvement. (Table III)

Surgery Type	Clear cornea	Spk's	Epithelial defect	Corneal ulcer	Scar
Group A	7 (10.9%)	17 (26.6%)	2 (3.1%)	3 (4.7%)	3 (4.7%)
Group B	10 (15.6%)	15 (23.4%)	5 (7.8%)	1 (1.6%)	1 (1.6%)

Table III: Distribution according to corneal status of operated eyes

	1st POD			2 weeks POD			3 and 6 months POD		
	Normal N (%)	over correction n(%)	under correction n (%)	Normal N (%)	over correction n(%)	under correction n(%)	Normal N (%)	over correction n(%)	under correction n(%)
GroupA	30 (93.75)	2 (6.25)	0	29 (90.5)	2 (6.4)	1 (3.2)	30 (93. 6)	1 (3.2)	1 (3.2)
GroupB	31 (96.8)	1 (3.2)	0	32 (100)	0	0	32 (100)	0	0
p value	0.35			0.2			0.3		

Table IV: Post operative outcome of two study groups in different time intervals

The success rate in Group A at 3 and 6 months period was 93.6% and in Group B was 100%. In group A, 1 patient had overcorrection and 1 patient had undercorrection whereas no such complications observed in Group B at 3 and 6 months follow up. (Table IV) There were no major intraoperative complications except bleeding, which occurred in 8 eyelids (12.5%). Postoperatively, there were no major complications. However, one patient who underwent modified Weis procedure presented with bleeding after 1 week and managed with cauterization of the bleeding vessel. At 3 months follow up 1 case in modified weis group had recurrence because of spastic components along with involutional entropion. She was managed with injection botulinum toxin 5IU. Recurrence was improved at 1 month of follow up after then she was lost to follow up. The success rate of modified Weis procedure at 3 months was 93.7% whereas it was 100% in Jones procedure. The success rate was the same at 3 months and 6 months duration.

DISCUSSION

This study showed similar functional and surgical outcomes for involutional entropion with regards to recurrences and complications with either modified Weis approach or Jones approach. Though, modified Weis correction in our patients resulted in slightly higher recurrence rate but the differences were not statistically significant. In this study, two groups did not differ significantly with regard to age and gender of the patient. This study found that the senile entropion was more prevalent in females as compared to males which was the similar result found in studies by Erb et a[12], Cai et al[12] and Kamel et al[11] This may be due to smaller tarsal plates in females than in male populations. Unlike the Quickert everting suture, transconjunctival method used in the entropion repair correct the major pathogenesis of involutional entropion reattaching the lower eyelid retractors to the tarsal plate. The quickert procedure is technically easy and has a short learning curve. The present study has demonstrated that our entropion correction method through transconjuctival route i.e. modified Weis method has a lower recurrence rate (7%) compared to those previoulsy reported studies for Quickert sutures (11%) done in chinese population by Tsang et al.[13] This study is similar to the study by Borboris et al[14] which also concluded that Jones plication was superior to Weiss procedure. This study provided strong evidence that success rate was greater after the Jones procedure than the modified Weis procedure. More recurrence in entropion was observed after the modified Weis procedure (7%) which resembles with other literatures. The difference in the rates in this study was statistically not significant, probably because of the small sample size in this study. Likewise, Ben simon et al[1] also found that recurrence was higher with the internal approach (15% versus 3% with subciliary incision) but this also was not statistically significant in this study. This study reveals 100% success rate with Jones procedure with no recurrence which is comparable to the study by kadir et al[15] Unlike our study, Caldeto et al[16] found that the success rate after Jones procedure in senile entropion is only 96.6% with no recurrences but follow up was much longer 29 months than ours which is only 6 months . Similar to our study, Han et al [17] also found the success rate of transconjuctival method for entropion repair is 93.6%. We did not encounter any complications like lid retraction, pyogenic granuloma and ectropion which were found by the study by Ben simon et al.[1] However among the complications like, punctal ectropion and scarring as seen in study by kadir et al[15] we only observed only few cases of ecchymosis.

In this study, one patient with recurrent entropion showed good response with injection botulinum toxin which is the

similar result shown by Deka et al.[18] Similarly, Iozzo et al[19] showed that entropion can also be treated with injection botulinum toxin with significantly high success rate. The recurrence rate was 27% after 6 months, and 27% after 9 months. Of note, the patients with recurrence repeated the injection and showed an increasingly long wellness period. But in this study long term success rate of botulinum toxin cannot be observed because of lost to follow up of patient.

LIMITATIONS

The limitation of study arises from the small sample size. The sample size in this study was not calculated as all the cases attended to oculoplasty outpatient department that met the inclusion criteria in the given period were included. Additionally, short term follow up upto 6 months is also weakness of this study because of which recurrent entropion may be underreported. The importance of long-term follow-up for entropion surgery and its relationship between success rate of the surgical procedure have been emphasized in previous studies.[8] Although the follow-up duration in this study was not long, it is noteworthy that there were no recurrences or sight threatening complications during follow-up monitoring. The modified Weis procedure may be the treatment options for beginner surgeons as it is quick and safe method for involutional entropion.

CONCLUSION

Both functional and surgical outcomes for involutional entropion with either modified Weis approach or external Jones approach was satisfactory. But, Jones procedure has comparatively high success rate and minimal or no recurrence. But the difference in the success rate in this study was statistically not significant. However, the modified Weis procedure is technically easy and has a short learning curve.

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