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Original article

WIES VS. JONES PROCEDURE FOR ENTROPION: YOUNG OPHTHALMOLOGISTS LEARNING CURVE

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ABSTRACT

Entropion is a common eyelid disease with various etiologies that represents a change in the position of the eyelid, in which the edge is turned inward towards the eyeball. If left untreated, entropion can lead to several eye diseases.

Aim: We compared two possible entropion reconstruction options; the Wies and Jons procedures, performed by young ophthalmologists under supervision.

Methods: We selected 30 well-documented cases of patients operated > 3 years previously and followed for e" 2 years; 15 patients operated with the Wies technique and 15 with the Jones technique. The total operative time and learning curve of young ophthalmologists were observed and compared.

Results: We compared the degree of entropion correction, cosmetic outcomes, and recurrence for up to two years. As a cosmetic result, our observations demonstrated the advantages of the Wies technique. In the Jones procedure, plication caused slight thickening of the lower eyelid below the operative incision, making the operative cicatrix more visible. There were two cases of relapse with Wies and none with Jones during the first year.

Conclusion: Both techniques were applied for entropion correction. However, the Weis technique was suitable for manifest cases of entropion because it showed greater entropion reduction and better aesthetic postoperative results and was the method of choice for reoperation for the same disease. Young ophthalmologists adopted the Wies procedure much faster than did Jones.

Keywords: entropion, oculoplastic surgery, Weis, Jones,

INTRODUCTION

Entropion is a common eyelid disease with various etiologies that represents a change in the position of the eyelid, in which the edge is turned inward towards the eyeball. If left untreated, entropion can lead to several eye diseases, including conjunctivitis, keratitis, corneal scarring, and perforation, which can cause vision loss [1, 2, 3].

AIM

This study aimed to evaluate the learning curve in adopting the procedures by young ophthalmologists. We compared the postoperative results of two operative techniques based on anatomical, functional, and aesthetic norms and the number of recurrences over a two-year period.

MATERIALS AND METHODS

We compared 30 patients (19 [63%] men and 11 [36%] women) with entropion who underwent Jones or Wies procedure –based on aesthetic, anatomical, and functional results. The procedures were performed between 2022 and 2024. The patients were followed for two years for recurrence and anatomic, functional, and cosmetic outcomes. The total operative times were compared between both procedures. Surgeries were performed at the eye clinic, Pleven, by three young ophthalmologists. The patients were divided into two groups; 15 patients who underwent surgery using the Jones method and 15 who underwent surgery using the Wies method. In this division, each surgeon performed five Jones and five Wies procedures.

The surgeons had equal experience and age, and all procedures were performed with the assistance of a senior ophthalmologist. Each surgeon was compared with himself and the other two regarding the operative time and learning curve.

The total operative time was measured, excluding the time required to clean the operative field and administer anesthesia. The surgeries that were compared passed without complications, which increased the operating time. In one case, the operating time was extended because of a change in the type of anesthesia. The period during which the anesthesia team prolonged the operation was subtracted from the total operative time.

Lower eyelid laxity was not corrected, and cases with excessive laxity were excluded because they require another type of surgery.

SURGICAL TECHNIQUE

In the Wies procedure, the lower eyelid was cut to a full thickness of 4–5 mm from the lash line so that it did not affect the tarsus. Medially, an incision reached 3–4 mm in front of the lacrimal puncta. The depressor muscle from the orbital edge of the incision was identified and sutured to the orbicularis muscle from the tarsal side using three Vicryl 6/0 sutures. The eyelid margin remained mildly ectropic. The skin was sewn using an interrupted or running suture 6/0 silk [2].

In the Jones procedure, an incision was made 4–5 mm below the lash line, which included the skin and orbicularis muscle. The septum was identified, carefully incised, and peeled off using blunt scissors to provide access to the depressor muscle. Three Vycryl 6/0 sutures were passed through it with several bytes; therefore, if tightened, the plication and retraction of the depressor muscle shortened its length. The skin was closed with 6/0 silk, interrupted, or running sutures [3].

In most patients, skin suturing was performed with interrupted sutures, and in a few, with a single running suture. The operative time for applying the running suture was extended by 2:1 over interruption to avoid an excessive shortening of the total operative time.

Local anesthesia with/without premedication was used in all cases, and general anesthesia was used in one case.

Anatomical, functional, and cosmetic results were evaluated using two grades; excellent and sufficient.

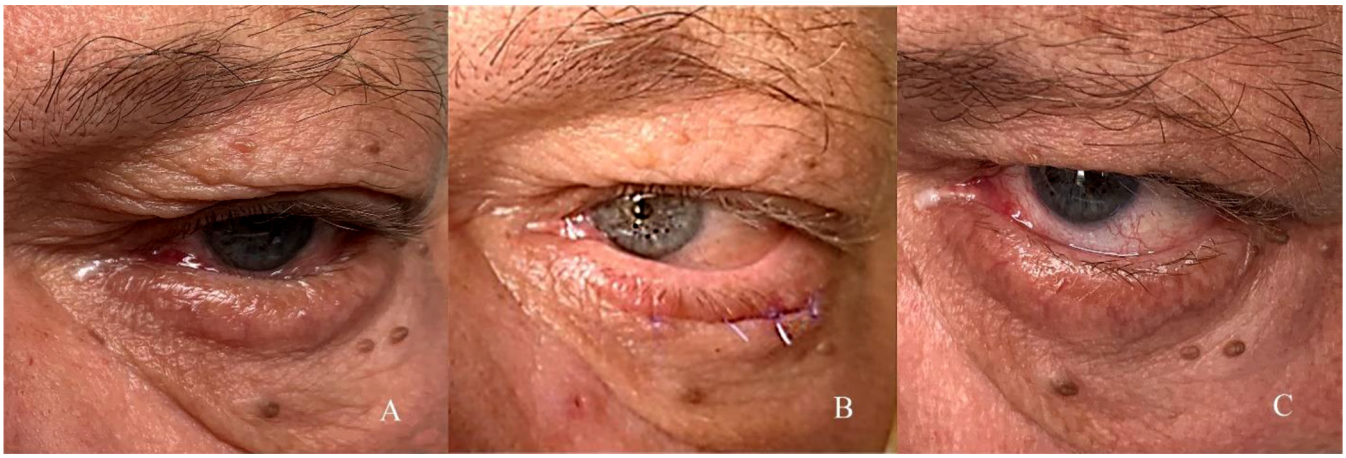
No complications occurred intraoperatively and postoperatively. The surgical wounds were closed with a sterile dressing for 24 h. Thereafter, the wound was left undressed. The skin sutures were removed on postoperative day 7.

The study was conducted in accordance with the requirements of the Declaration of Helsinki and approved by the Local Ethics Committee.

RESULTS

Weis procedure

Fig. 1. Wies procedure. (A) Preoperative, (B) postoperative day 7, and (C) postoperative day 30



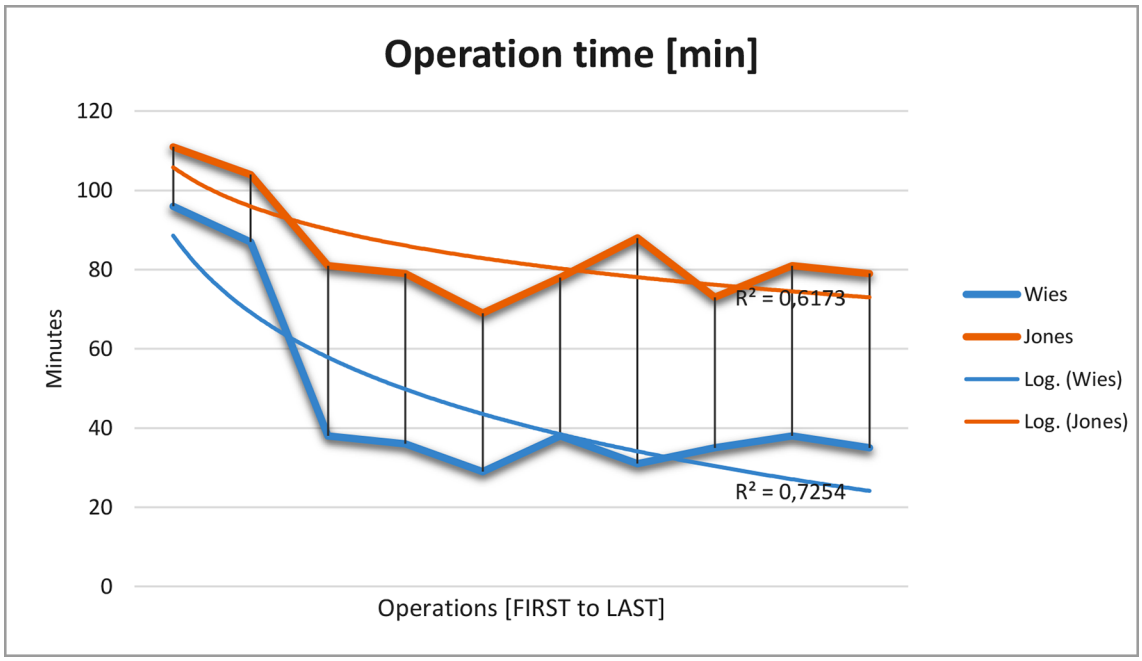
Jones procedure

Fig. 2. Jones procedure. (A) Preoperative, (B) postoperative day 7, and (C) postoperative day 30

Based on the anatomical and functional results, both techniques yielded excellent results in 81% and sufficient results in 19% (Figs 1 and 2, respectively). As a cosmetic result, the Wies technique was more advantageous than that of Jones (94% vs. 67%). In the Jones procedure, the depressor muscle is plicated, resulting in its shortening. However, this plication caused a slight thickening of the lower eyelid below the operative incision, making the operative cicatrix more visible. Conversely, the posterior lamella remained intact, which was not observed in the Wies procedure.

In the Wies procedure, the incision covers the entire thickness of the eyelid and lamellae. The cutaneous cicatrix was almost imperceptible in postoperative month 2, whereas the conjunctival cicatrix persisted for approximately six months.

Fig. 3. Operative time and learning curve of young ophthalmologists. Faster adoption of the Wies technique was observerd.



In the first procedures performed by young ophthalmologists, the operative time for both techniques was long, and with repetition of the same procedure, it decreased, which is normal. The operative time for the Wies procedure was less than that in the Jones procedure. The Wies procedure in each young doctor's first procedure took an average of 96 min, and Jones surgery took 111 min. Recently, Wies was performed in approximately 35 min, which is a 67% reduction in operative time, and Jones in approximately 79 min, which is a 29% reduction.

Two (7%) recurrences were observed during the two-year follow-up period after Wies surgery. The patients were successfully reoperated using the same method.

DISCUSSION

Both procedures showed good postoperative functional results (81% excellent, 19% sufficient); however, cosmetic results were better with the Wies procedure. Moreover, we found that the Wies procedure was suitable for all degrees of entropion, whereas the Jones procedure was suitable only for mild-to-moderate entropion.

However, this procedure was more easily mastered by young ophthalmologists, resulting in a drastic shortening of the operative time by 67% from at baseline.

The operative time in the Jones procedure decreased as the technical skills of the young ophthalmologists increased, but at a significantly lower rate (29 %). This is because it is difficult to identify tissues, particularly the orbital septum. This is the steepest part of the learning curve for this procedure among young ophthalmologists.

We believe that the Jones technique is suitable for mild-to-moderate entropion, whereas the Wies technique is suitable for manifestly pronounced entropion.

Some authors have found that the Jones procedure, combined with other methods (Hotz), results in a lower recurrence rate than if used alone [4]. Others have found that if the Weis procedure is combined with an external

tamponade, the results are improved [5]. The authors recommend two-stage reconstruction with division and full-thickness reversal [6].

The follow-up by Beleyen I, et al. [7] showed that 89 patients underwent surgery using the Weis method, with a success rate of 85%. Thirteen (10%) patients developed complications, and 18 (14%) relapsed. Ten of the latter patients were successfully reoperated using the same method [7]. In our case, the percentage was lower, but followed the same trend.

In our study, recurrences were only associated with the Wies procedure and at a much lower percentage than those in the literature, although some authors showed the opposite [8].

Contrastingly, other authors have shown more satisfactory cosmetic results with the Jones procedure than with the Wies procedure [9, 10]. We hypothesized that this was due to the patient selection (ours or theirs). Patients with marked lower lid laxity showed worse postoperative outcomes with the Jones procedure and more recurrences with the Wies procedure. This may explain the results of the present study.

CONCLUSION

Both techniques find their place in the surgical treatment of entropion; however, our results indicate that the Weis procedure is suitable for manifested cases of entropion, shows better aesthetic postoperative results, and is the method of choice for reoperation for the same disease. Conversely, the Jones procedure is a good option for mild-to-moderate entropion and recurs at a lower rate than the Wies procedure. Young ophthalmologists learn the Wies procedure more rapidly than the Jones procedure because of the difficulty in differentiating individual muscles and tissues with the latter.

Acknowledgements

Availability of data and materials

Data are available on request due to privacy or other restrictions.

Statement of Ethics

The study was conducted in accordance with the principles for human experimentation as defined in the Declaration of Helsinki, local Good Clinical Practice guidelines and local Medical University of Pleven institution guidelines (Ethics Committee approval No. 716-KENID/12.1.2023).

Informed Consent

Not applicable.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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Author Contributions

All authors have equal contribution to the study, including: patient follow-up, conception and study design, data analysis, writing, revision and final article preparation. There are no other parties to acknowledge.

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