Original Article

Clinical experiences in patients with ectropion surgery: the results from a territory hospital

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Abstract

Background: This study aimed to present the clinical results of our patients who underwent ectropion surgery in our clinic and to compare the results with the literature data.

Methods: The records of the patients who underwent ectropion surgery in the Ophthalmology Clinic of Adana Numune Training and Research Hospital between June 2016 and December 2017 were evaluated retrospectively. Age, gender, surgical techniques (lateral tarsal strip (LTS), pentagonal resection, Z plasty or combined surgical techniques) and relapse rates were evaluated.

Results: Forty-seven eyes of 47 patients were included in the study. 16 (34.1%) of the patients were females and 31 (65.9%) were males. The mean postoperative follow-up was 16.55 ± 4.58 (12-26) months. The mean age of the cases was 64.49 ± 10.72 (42-82) years. The cases were most frequently operated for involutional ectropion (18 eyes, 38.3%). The second most common cause of operations was paralytic ectropion (13 eyes, 27.7%). The second most common cause of operations was cicatricial ectropion (10 eyes, 21.2%), and fourth was mechanical ectropion (6 eyes, 12.8%). 11 eyes (23.4%) underwent LTS, 5 eyes (10.6%) underwent LTS + Z plasty, 10 eyes (21.2%) underwent pentagonal resection and 21 eyes (44.6%) underwent combined surgeries (pentagonal resection + flap, resection + autografting, LTS + pentagonal resection). At the end of the follow-up period, ectropion recurrence developed in 8.4% (4 eyes) of the cases.

Conclusions: In our clinic, ectropion surgery was mostly performed for involutional reasons. Surgical methods appeared to be quite effective in the treatment of ectropion.

Keywords: ectropion, recurrence, surgery

Introduction

The most common etiological causes of ectropion may divide into two main groups as congenital and acquired. The subtypes of acquired ectropion are involutional (senile), cicatricial, paralytic and mechanical ectropion [1]. While the tenderness of the tendons and support structures play a role in senile ectropion, cicatricial ectropion is generally caused by previous surgeries and burns. Paralytic ectropion is caused by the paralysis of the facial nerve. Tumors and cysts that pull down the eyelid may cause mechanical ectropion [2-5].
In clinical practice, medications can be performed without any surgical treatments in patients with initial epiphora. However, there is still a need for ectropion surgeries today. Epiphora is more prominent in an ectropion which includes punctum and does not respond to medical treatment. In the later stages, the emergence of changes in the eyes such as drying and keratinization necessitates surgical treatments [1]. The etiology of ectropion is the most important factor in determining the success of surgical treatments. Etiology is also the basis for determining the type of surgery to be applied. Different surgical techniques are used according to the clinical status of each patient [2-5]. In this study, we aimed to present the clinical results of our patients who underwent ectropion surgery in our clinic and compare the results with the literature data.

Methods
Forty-seven eyes of 47 cases who underwent ectropion operation between June 2016 and December 2017 in the Ophthalmology Clinic of Adana Numune Training and Research Hospital were included in the study. After the approval of the local ethics committee, our study was carried out in accordance with the Helsinki Declaration.

The patient records were retrospectively reviewed. Patients with irregular follow-up and lack of information were not included in the study. Age, gender, indications for surgery, surgical techniques (lateral tarsal strip (LTS), pentagonal resection, Z plasty or combined surgical techniques) and relapse rates were evaluated.

Lateral tarsal strip and pentagonal resection techniques were frequently used in cases with involutional and paralytic ectropion. Skin graft, Z plasty or local flaps were used in patients with cicatricial ectropion. Tumor resection + autografting was performed in patients with mechanical ectropion [Figure 1-3].

![Figure 1. (A) A case of involutional ectropion. (B) Postoperative first-month view.](image1)

![Figure 2. (A) A case of paralytic ectropion secondary to facial paralysis. (B) Postoperative first-week view.](image2)
Figure 3. (A) A case of cicatricial ectropion secondary to burns. (B) Postoperative third-month view.

A direct closure was applied by the pentagonal resection method in cases with relatively good internal and external canthal tendons. 5.0-6.0 vicryl sutures were used for the skin and lid margin. 6.0-8.0 vicryl sutures were used for suturing the tarsus and conjunctiva.

In the postoperative period, antibiotic pomade and topical artificial tear drops were used for two weeks. All surgeries were performed by the same surgeon. All patients were operated under local anesthesia. No intraoperative complication was observed in any cases.

The patients were examined with a biomicroscope for the condition of eyelids and complications at the 1st day, 1st week, 1st, 3rd, 6th and 12th month after the operation. The evaluation of recurrent ectropion was based on the final follow-up examination. The success of ectropion surgery was interpreted by taking the postoperative position of the eyelid. The operation was accepted to be successful in patients with a lower eyelid-limbus distance of 2 mm or less and no lagophthalmos [1].

Statistical Method
In the descriptive statistics of the data, mean, standard deviation, median, lowest, highest, frequency and ratio values were used. Quantitative variables were presented as mean ± standard deviation. Qualitative variables are presented as percentage ratios. Statistical analysis was performed with SPSS 22.0 (SPSS Inc. Chicago, USA).

Results
Forty-seven eyes of 47 patients were included in the study. 16 (34.1%) of the patients were females and 31 (65.9%) were males. The mean postoperative follow-up was 16.55 ± 4.58 (12-26) months. The mean age of the cases was 64.49 ± 10.72 (42-82) years [Table 1].

Table 1. Demographic variables of the sample

<table>
<thead>
<tr>
<th>Age</th>
<th>Mean±SD / N%</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>31</td>
<td>65.9%</td>
</tr>
<tr>
<td>Female</td>
<td>16</td>
<td>34.1%</td>
</tr>
</tbody>
</table>

The cases were most frequently operated for involutional ectropion (18 eyes, 38.3%). The second most common cause of operations was paralytic ectropion (13 eyes, 27.7%), third was cicatricial ectropion (10 eyes, 21.2%) and fourth was mechanical ectropion (6 eyes, 12.8%).

11 eyes (23.4%) underwent LTS, 5 eyes (10.6%) underwent LTS + Z plasty, 10 eyes (21.2%) underwent pentagonal resection and 21 eyes (44.6%) underwent combined surgeries (pentagonal resection + flap, resection + autografting, LTS + pentagonal resection).

At the end of the follow-up period, ectropion recurrence developed in 8.4% (4 eyes) of the cases. Postoperative ectropion recurrence was observed in one case with paralytic ectropion (2.1%), in one case with mechanical ectropion (2.1%) and in two cases with cicatricial ectropion (4.2%) [Table 2,3].
Table 2. Clinical characteristics of the sample

<table>
<thead>
<tr>
<th>Etiology</th>
<th>N / %</th>
<th>Recurrence, N / %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involutional</td>
<td>18 / 38.3%</td>
<td>0 / 0.0%</td>
</tr>
<tr>
<td>Paralytic</td>
<td>13 / 27.7%</td>
<td>1 / 2.1%</td>
</tr>
<tr>
<td>Mechanical</td>
<td>6 / 12.8%</td>
<td>1 / 2.1%</td>
</tr>
<tr>
<td>Cicatricial</td>
<td>10 / 21.2%</td>
<td>2 / 4.2%</td>
</tr>
</tbody>
</table>

Table 3. Surgical methods

<table>
<thead>
<tr>
<th>Surgical method</th>
<th>N / %</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTS</td>
<td>11 / 23.4%</td>
</tr>
<tr>
<td>Pentagonal resection</td>
<td>10 / 21.2%</td>
</tr>
<tr>
<td>LTS + Z Plasty</td>
<td>5 / 10.6%</td>
</tr>
<tr>
<td>Combined surgery</td>
<td>21 / 44.6%</td>
</tr>
</tbody>
</table>

LTS: Lateral tarsal strip.

Discussion

Ectropion can be defined as the eversion of the eyelid outwards. It is observed more frequently in the lower eyelid. The lower eyelid is more affected by gravity and mechanical forces. Additionally, the tarsus of the lower eyelid is shorter than the upper eyelid, and as a result, tarso-canthal structures are looser [6,7].

The etiological causes of ectropion are usually divided into two main groups; congenital and acquired. Congenital ectropion is a rare entity and it is often considered as a form of cicatricial ectropion [5,6]. Involutional ectropion occurs as a result of the loosening of the eyelid supporting structures, such as medial or lateral canthal tendon and tarsus. Involutional ectropion is also seen as a result of skin changes due to advanced age [8,9]. Cicatricial ectropion develops due to contractures of the skin and underlying tissues as a result of the trauma of the lower eyelid, previous surgery, cicatricial skin diseases or burns. Paralytic ectropion (also called as neurogenic ectropion) occurs frequently after facial nerve palsy. Mechanical ectropion is caused by tumors and cysts that rotate the eyelid mechanically [8].

Age-related involutional ectropion is the most common cause of lower eyelid malpositions. Cicatricial ectropion secondary to trauma and mechanical ectropion secondary to tumor come after age-related involutional ectropion [10]. In our study, 38.3% of the sample presented involutional ectropion, 27.7% presented paralytic ectropion, 21.2% presented cicatricial ectropion and 12.8% presented mechanical ectropion. Most of our patients had involutional ectropion followed by a paralytic and cicatricial ectropion.

The etiology of ectropion is the most important factor in determining the type and success of the surgery. The patient's age, gender and additional diseases should also be considered in the treatment plan. In most of the involutional malpositions, there may be lateral tendon looseness that results in horizontal eyelid looseness. LTS has been shown to be a very effective surgical method in such cases [11]. Other surgical procedures are lateral or medial canthopexy, wedge excision, skin graft, local flaps, cartilage graft, fascial slings and combined procedures. In the present study, 23.4% of the patients were performed LTS, 21.2% were performed pentagonal resection, 10.6% were performed LTS + Z Plasty and 44.6% were performed combined surgery.

In previous studies, different recurrence rates were reported after ectropion surgery. Liebau et al. reported that 13.8% of the patients had to be reoperated [12]. Franzo et al. demonstrated recurrence rates of 6.5% in patients with cicatricial ectropion [13]. In the study of Xu et al., they showed no recurrence after reconstruction of the lower eyelid ectropion [14]. In another study conducted by Hintschich, the recurrence rate was found to be 3.7% [15]. In our study, the total recurrence rate was 8.4%. There was no recurrence in patients with involutional ectropion and a recurrence was observed in only one patient with paralytic ectropion (2.1%), one patient with mechanical ectropion (2.1%) and two patients with cicatricial ectropion (4.2%).

The treatment of ectropion begins with preoperative evaluations of the deformity and the analysis of the underlying pathogenetic factors. Depending on the deformity, a variety of surgical methods can be performed. The correct diagnosis of the causative factors has priority for the successful treatment of ectropion. The severity of ectropion, the chosen surgical method and the experience of the surgeon are also important factors in surgical success.

Conflict of interest

There is no conflict of interest.
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References