Involutional Lateral Entropion of the Upper Eyelids

A New Physical Finding in Asian Patients

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Objective: To describe a new physical finding called involutional lateral entropion (ILE) of the upper eyelid found in Asian patients.

METHODS: A prospective case series study of 53 consecutive patients with ILE of the upper eyelid, from the practice of one of the authors (J.G.C.), was performed. All of the patients in this series were Asian. Clinical findings on ocular examination, symptoms, age, and sex were obtained and tabulated.

RESULTS: The mean±SD age of patients was 68.9±10.1 years (range, 41-88 years); 70% were women and 30% were men. All patients presented with in-turning of only the lateral aspect of the upper eyelid bilaterally. The presenting symptoms were foreign-body sensation (85%), tearing (77%), eye redness (34%), eye pain (26%), and itchiness at the lateral canthal area (25%). Clinical findings included lateral dermatochalasis (100%), trichiasis (100%), lateral canthal eyelid laxity (100%), localized lateral conjunctivitis (42%), punctate epithelial keratopathy (11%), blepharitis (11%), and distichiasis (8%).

Conclusion: We describe ILE of the upper eyelid in Asian patients and explain the anatomic correlates responsible for this condition.

Arch Ophthalmol. 2002;120:1682-1684

According to Dryden and Doxanas and Fox, involutional entropion is the most commonly encountered form of entropion. Involutional entropion is defined as the in-turning of the eyelid margin toward the globe, caused by age-related changes. The pathological findings in this condition are different from other causes of entropion such as spastic, cicatricial, and congenital entropion.

While entropion of the lower eyelid has been reported extensively in the literature, involutional entropion of the upper eyelid is apparently rare. It has been theorized that involutional entropion of the upper eyelid does not occur due to a much wider upper tarsal plate that acts as a resisting force preventing inversion of the eyelid margin. Miller and Heese reported 2 cases of involutional upper eyelid entropion in a white patient and an African American patient. These 2 patients had entropion of the entire upper eyelid secondary to involutional lash ptosis. In both cases, bilateral dehiscence of the levator aponeurosis from the tarsus was noted during surgery.

In the practice of one of the authors (J.G.C.), we noted a physical finding in Asian patients as young as in the fifth decade of life. These patients had in-turning of only the lateral aspect of the upper eyelid margin, accompanied by various ocular problems (Figure 1). We propose to call this clinical condition involutional lateral entropion (ILE). In this study, ILE of the upper eyelid is described in a population of Asian patients.

METHODS

We prospectively studied 53 consecutive cases of patients who were noted to have in-turning of only the lateral aspect of the upper eyelid. The study was conducted from January 1997 to June 2000. Patients were excluded if they, on medical history review and ophthalmologic examination, had other forms of entropion such as spastic, cicatricial, or congenital entropion. We also excluded patients with any history of previous surgery or trauma to the eyelids and periorbital area. All of the patients in this series were Asian, and informed consent was obtained for the study. Age, sex, race, and clinical symptoms, as well as physical findings, were recorded.

RESULTS

A total of 53 consecutive patients with ILE were studied. The age range was 41 to 88...
years, with a mean ± SD age of 68.9 ± 10.1 years. Of 53 patients, 37 were women (70%), and 16 were men (30%). The racial origins of these patients were Filipino (40%), Japanese (34%), Chinese (17%), and Korean (9%).

The most common symptom at initial examination was foreign-body sensation (85%). Patients frequently pointed to the lateral aspect of the eyelid as their source of discomfort. Other symptoms included tearing (77%), eye redness (34%), eye pain (26%), and itchiness at the lateral canthal area (25%) (Table 1).

On ocular examination, patients were noted to have trichiasis (100%), lateral canthal tendon laxity (100%), and dermatochalasis (100%), which were more pronounced laterally. Clinical findings also included conjunctivitis localized to the temporal aspect of the globe (42%), punctate epithelial keratopathy (11%), blepharitis (11%), and distichiasis (8%) (Table 2, Figures 1, 2, and 3).

Of the 53 patients, 34 patients required surgical intervention. This consisted of excision of excess eyelid skin, removal of pretarsal orbicularis muscle from the tarsal plate, and full-thickness, everting absorbable sutures to rotate the offending eyelashes away from the globe. In some patients in whom lateral canthal tendon dehiscence was noted, appropriate surgical repair was performed. All patients became asymptomatic after the surgical procedure.

Table 1. Clinical Symptoms of Patients With Involutional Lateral Entropion

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>No. (%) of Patients (N = 53)</th>
</tr>
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<tbody>
<tr>
<td>Foreign-body sensation</td>
<td>45 (85)</td>
</tr>
<tr>
<td>Tearing</td>
<td>41 (77)</td>
</tr>
<tr>
<td>Eye redness</td>
<td>18 (34)</td>
</tr>
<tr>
<td>Eye pain</td>
<td>14 (26)</td>
</tr>
<tr>
<td>Itchiness</td>
<td>13 (25)</td>
</tr>
</tbody>
</table>

Table 2. Results of Ocular Examination

<table>
<thead>
<tr>
<th>Condition</th>
<th>No. (%) of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermatochalasis</td>
<td>53 (100)</td>
</tr>
<tr>
<td>Trichiasis</td>
<td>53 (100)</td>
</tr>
<tr>
<td>Lateral canthal laxity</td>
<td>53 (100)</td>
</tr>
<tr>
<td>Localized conjunctivitis</td>
<td>22 (42)</td>
</tr>
<tr>
<td>Punctate epithelial keratopathy</td>
<td>6 (11)</td>
</tr>
<tr>
<td>Blepharitis</td>
<td>6 (11)</td>
</tr>
<tr>
<td>Distichiasis</td>
<td>4 (8)</td>
</tr>
</tbody>
</table>

“Involutional Lateral Entropion” by Brian C. Lin, MD, and David S. Yee, MD.
Figure 4. A, Characteristic structure of the epicanthic upper eyelid. Note the lower insertion of the levator–orbital septal complex, causing the infradisplacement of the orbital fat. B, Factors contributing to involutional lateral entropion are: rotation of the eyelid margin toward the globe results from the combination of dermatochalasis and a shorter tarsal plate in Asians. With a shorter upper eyelid tarsus, less force is required to overcome the resistance to inversion in Asian eyelids (illustration by one of the authors [J.N.O.]).

COMMENT

There has been a scarcity of reports on involutional entropion of the upper eyelid. The only study is that of Miller and Heese,¹ who reported this condition in 2 patients—a white female and an African American male.³ They noted dehiscence of the levator aponeurosis, and horizontal laxity during corrective surgery. They theorized that involutional entropion of the upper eyelid is attributable to a combination of factors, including horizontal and vertical eyelid laxity, atrophy of the tarsal plate with advancing age, and overriding of the septal orbicularis.² ³

In this series, ILE was noted in only the lateral aspect of the upper eyelid and was always associated with dermatochalasis and lateral canthal tendon laxity. Patients as young as in their fifth decade of life were found to have ILE, though the mean age was 68.9 years. Our study is consistent with Chen’s report⁶ that elderly patients have an apparent increase in upper-eyelid dermatochalasis.⁵ With advancing age, ILE was noted to cause symptoms including foreign-body sensation, tearing, and eye redness, as well as physical findings of chronic lateral conjunctivitis, corneal abrasions, and lateral angular excoriation.

We believe that the unique anatomical characteristics of the upper eyelid of Asians predispose them to involutional entropion. Unlike white and African American individuals, the orbital septum of Asians fuses with the levator aponeurosis below the superior tarsal border (Figure 4).² Consequently, this inferior attachment of the orbital septum results in 2 major structural changes: (1) the preaponeurotic fat extends closer to the eyelid margin, and (2) the inferior extension of the orbital septum prevents the levator aponeurosis attachments from passing through the orbicularis muscle to the subcutaneous tissue and pretarsal skin.³ In addition, Asian patients have a shorter central tarsal height, measuring 6.5 mm to 8.5 mm, compared with an average of 10 mm in white patients.⁶ ⁷ According to several studies, a wide and stiff tarsal plate prevents inversion of the upper eyelid.² ³ We further noted that the inturmed eyelid margin reverted to its normal anatomical position when the examiner manually lifted the redundant fold of skin and pulled the eyelid laterally. Therefore, we believe that the additional weight from the lateral excess skin and lateral canthal dehiscence contribute to the development of ILE in Asians.

In summary, a new physical entity in Asians called ILE has been described, and the anatomical correlates responsible for this condition have been explained. We hope that this study will shed more light on the anatomic characteristics of the epicanthic upper eyelid and the clinical problems that may arise from these structural variations.

Submitted for publication March 19, 2002; final revision received August 16, 2002; accepted August 16, 2002.

The authors received no financial funding from any public or private sources.


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REFERENCES