

Lower Lid Entropion in a 78-year-old Female: A Case Report

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Abstract

Introduction: Entropion is a malposition of the eyelids in which the eyelid margin folds inward and causes irritation to the eye. It can be caused by congenital, spastic, cicatricial and involutional entropion. Involutional entropion affects 10.6% in group over the age of 60, especially in Asian races as compared to Caucasian races.¹ It can have adverse effect on the eye such as trichiasis in which the eyelashes protrudes inwards towards the eyeball, leading to persistent erosions of punctate epithelium, pannus formation or ulcers. Definitive treatment for entropion is surgical intervention when feasible, such as the Jones procedure. The prognosis of corrective surgical intervention is highly correlated to the successfulness of the surgery and wound healing process of the patient, thus needing highly accurate and cautious procedure.²

Methods: This case report was taken from the Eye Clinic of Rumah Sakit Umum Siloam, in February 2022.

Results: A 78 years-old female presented with complaints of discomfort, foreign body sensation, irritation, itching, and glare in both eyes since 1 year ago. She had a history of cataract surgery 3 years ago.

Conclusions: Anamnesis and ophthalmological examinations results lead to suspected glaucoma, involution entropion ODS and pseudophakia ODS. Blepharoplasty was performed on the patient with appropriate surgical and therapeutic techniques. The post-operative examination showed results indicating a good prognosis in this patient.

Key Words: entropion, involutional, eye, ophthalmology, malposition of the eyelid

Introduction

Entropion is an eyelid disorder where the inversion of eyelid margin occurs causing unilateral or bilateral discomfort. There are 4 types of entropion based on its etiology, namely congenital, spastic, cicatricial and involutional. Inversion of the upper eyelid is more often caused by cicatricial causes, while entropion of the lower eyelid is associated with involution.^{1,2,3} Involutional entropion is generally found in the elderly over 60 years of age and is more common in women than men. The causes of involutional entropion are mainly due to degenerative processes such as weakening of the horizontal or orbicularis muscles, weakening of the vertical muscles (capsulopalpebral fascia or retractors),

accumulation of the pretarsal orbicularis muscles, and weakening of the orbital septum. The inversion of the eyelid margin towards the eyeball may result in abnormal friction between patient's eyelash and the eyeball. Continuous friction can result in abrasion and inflammation of the conjunctiva. Patients usually presents with complaints of red eyes, foreign body sensation, epiphora, and photophobia.^{1,2,3} Surgical intervention can be considered in entropion and provides definitive treatment. However, treatment outcome is highly dependent on patient's wound healing process, thus choosing the right surgical technique is crucial and beneficial in order to prevent overcorrection of blepharoplasty in entropion patients.

Case Presentation

This case was reported from Rumah Sakit Umum Siloam, in February 2022. A 78 years-old female patient, Mrs. M, was referred from An-Nisa Hospital Tangerang with complaints of discomfort on both eyes since 1 year ago. The patient also complained of progressive irritation with redness, foreign body sensation, itch, watery eyes along with glare in both eyes. This results in repetitive blinking and rubbing of both eyes. The patient admitted that her vision had been blurry for the last 2 years accompanied by pain. The patient admitted that she underwent cataract surgery 3 years ago for both eyes. The patient had a history of using prescribed glasses for a long time, denies using any unprescribed eye drops and previous trauma to the eyes. The patient had a history of controlled hypertension with amlodipine 5 mg/day, and denied any other diseases.

Examination showed patient was compos mentis and moderately ill. Blood pressure of 140/90 mmHg, pulse 83x/minute, respiratory rate 18x/minute, and body temperature 36.7°C. Examination of head, neck, thorax, abdomen and extremities were within normal limits. Ophthalmological examination showed that the visual acuity was 6/30 and 1/60, does not improve with pinhole. There was involutional entropion on the inferior lids with positive snapback test. Pinch test/distraction test also showed a distance of 14mm between the eyeball and the lid margin was 14mm. Positive lateral canthal laxity test, positive blink test, positive test of induced entropion (TIE-2 test) was also observed, along with decreased lower lid retractor function in both eyes.^{2,4,5} On inspection, epiphora was present on the

anterior segment of both eyes, without conjunctival injection, inferior punctate defect of the cornea was also observed. The pupil was round with a diameter of 3mm, isocor with positive direct and indirect reflex and positive corneal glass reflex in both eyes. Non-contact intraocular pressure showed an intraocular pressure of 17 mmHg and 13 mmHg, respectively. The posterior segment showed absent red reflex, with a cup-to-disc ratio of 0.8 for both eyes. OCT papil also showed RNFL asymmetry ODS of 43%. Which thickness of OD at 60 Mikro M and OS of 64 Mikro M. Based on the ophthalmological status, the diagnosis of this patient is suspected chronic glaucoma ODS, involutional entropion ODS and pseudophakia ODS.

Reconstructive surgery with Jones procedure blepharoplasty was planned for the inferior lids of both eyes with general anesthesia. Therefore, this patient was indicated for hospitalization with postoperative medication (doxycycline 2 x 100 mg, mefenamic acid 3 x 500 mg, gentamicin 0.3% EO 2 x gtt 1 ODS, and artificial tears 6 x gtt 1 ODS) and the patient was told to return for another check-up 1 week post operative. Patients were also informed to use eye protection, keep the surgical wound clean, sleep with head elevation of 30° and prevent touching both eyelids.

One week after surgery the suture was removed and the patient no longer had any complaints. Physical examination showed visual acuity was 6/30 and 1/60 ODS with the superior and inferior eyelids showing no edema nor hyperemia. Examination also showed negative snapback test, 5mm pinch test, negative lateral canthal laxity test, negative blink test, negative test of induced entropion (TIE-2 test), and lower lid retractor function was normal at 3mm, but there was

slight entropion of the lower eyelids. NCT of 19 mmHg/17 mmHg respectively was obtained. The posterior segment showed a pale fundus reflex, with a cup-to-disc ratio of 0.8 for both eyes. Examination showed a good prognosis in the patient.



Figure 1. Involucional Entropion ODS pre-operation and 1 week post-operation

Discussion

A 78-year-old woman presented with complaints of discomfort in both eyes since 1 year ago, accompanied by irritation, red eyes, itching, watering, glare and foreign body sensation in both eyes. On inspection, an inversion of the lower eyelid towards the posterior/ involucional entropion was observed. Other examination shows positive snapback test, and positive pinch test/distraction test where the distance between the eyeball and the eyelid margin reaches 14mm. Other tests such as Lateral canthal laxity test, test of induced entropion (TIE-2 test), blink test shows positive results. Test on lower lid retractor function in both eyes shows negative result.^{2,4,5} The complaints of discomfort along with foreign body sensation, irritation, red, itchy, watery,

glare and watery eyes is caused by cilia or eyelashes pointing inward.^{1,3} Eyelashes are turned inwards may lead to friction towards the conjunctiva and cornea, causing irritation.

Entropion is an inversion of the eyelid. Based on the etiology, entropion is divided into mechanical, involucional/senile, cicatricial, and congenital. Involucional entropion occurs in elderly caused by weakness of the horizontal and vertical muscles, as well as weakening of the pretarsal orbicularis muscle, and weakness of the orbital septum. Congenital entropion is caused by structural abnormalities, such as dysgenesis of the eyelid retractors, structural defects in the tarsus, and shortening of the posterior lamella. In cicatricial entropion, which more commonly found in the upper eyelid, may be caused by cicatricial contraction of the conjunctival lids, associated with trachoma, pemphigoid, chemical burns, and inflammation in Steven-Johnson syndrome. Meanwhile, mechanical entropion occurs due to lack of support from the eyeball, such as in patients with phthisis bulbi.^{1,3} In this patient, there was no history of any significant disease and history of trauma leading to mechanical, cicatricial or congenital entropion and on examination there was no palpebral cicatricial. This leads to the diagnosis of involucional entropion for this patient.

The diagnosis of involucional entropion can be established by anamnesis, clinical manifestations and physical examination. The main symptom of involucional entropion is foreign body sensation. Other symptoms include epiphora, photophobia, eye discharge, and in patients with corneal abrasion may cause decreased vision or blurred vision. The main clinical sign is the eyelid inversion. Eyelid inversion is classified into 3 stages: stage I inversion

only occurs towards the posterior border, stage II involves the inversion up to inter-marginal line. Meanwhile, stage III inversion affects the entire eyelid margin, including the anterior border. Another clinical sign of entropion involucional is the signs of causative etiology. For example, scarring of palpebral conjunctiva in cicatricial entropion or horizontal laxity in involucional that can be examined with snap-back test. There are several simple tests that can be done to help diagnose entropion involucional, including snapback, medial canthal laxity test, lateral canthal laxity, pinch test/distraction, and test of induced entropion (TIE-2 test).^{1,3,6}

On examination, laxity of horizontal, inferior palpebral, and medial canthus muscles was found in this patient. Weakening of the horizontal muscles was seen from the positive snap back test results, while the weakness of the inferior palpebral was shown from the distance between the eyeball and the eyelid margin with the pinch test/distraction test reaching 14mm. In addition, weakness of the medial canthus was also demonstrated by a positive lateral distraction test. Examination of the test of induced entropion showed a positive result indicating the presence of the lid margins pointing inward when the preseptal portion of the orbicularis oculi muscle overrides the preseptal portion of the lid. However, any signs of entropion complications such as recurrent corneal abrasions to corneal ulcers were not found in these patients.

The mechanism that may occur in this patient is suspected to be caused by degeneration of the patient's fibrous tissue of the eyelids causing horizontal laxity. In addition to that, there is a stretch in the canthal ligament, especially in the lateral part, making it easier for the palpebral

margin to be inverted - resulting in involucional entropion. As ageing proceeds, weakness within the palpebral capsule ligament occur, causing the stability of the vertical inferior palpebral muscle to weaken. Therefore, a weakened palpebral capsule ligament may cause the inferior tarsus margin to move anteriorly, causing an inversion to the palpebral margin.

Other differential diagnoses that can be considered in this patient are trichiasis and distichiasis. Trichiasis characterized by an inward rotation of the eyelashes in the setting of a normally-positioned eyelid margin, while distichiasis is a condition where eyelashes arise from the eyelid margin.^{2,3} However, based on the physical examination performed, eyelid margin inversion was observed which resulted in abnormal cilia pointing towards the eyeball. Thus differential diagnosis of trichiasis and distichiasis can be ruled out. In addition, dermatochalasis can also be considered as a differential diagnosis in this case. Dermatochalasis is a degenerative process causes excess eyelid skin and protrusion of orbital fat, shown as 'baggy appearance' with normally-positioned lid margins and may resemble misdirected eyelashes on examination.^{2,3} In this patient, the abnormality found on the inferior palpebra caused by inversion of the lid margin and not because of the 'baggy appearance' from dermatochalasis. Therefore, dermatochalasis can be ruled out from the diagnosis. In conclusion, based on the clinical manifestations and physical examination, the diagnosis that can be made in this case is involucional entropion with age as the patient's supporting risk factor.



Figure 2. 5 mm horizontal incision below the palpebral margin, positioned $\frac{1}{3}$ medially and $\frac{2}{3}$ laterally.¹²

Both pharmacological and non-pharmacological treatments were implemented in this patient. According to The College of Optometrists⁸ and National Eye Health Scotland⁹, non-pharmacological therapy can include temporarily taping the upper eyelid with a micropore, epilation of the eyelashes where trichiasis is present and using contact lenses with soft silicone hydrogel to prevent corneal damage. However, the definitive treatment for patients with entropion is surgical intervention with blepharoplasty. Numerous surgical techniques that can be performed are Transverse Suture and Everting Suture, Wies Operation, Jones Operation, Quickert procedure, and Lateral Tarsal Strip (LTS).³ In this patient, Jones procedure was performed as a definitive treatment. The Jones procedure is indicated for severe cases, it is done by creating a horizontal incision through inferior palpebral retractor and fascia of the lower tarsal border, then shortened and sutured to avoid overlapping of the preseptal muscles. This is useful for

strengthening the vertical traction of the lower eyelid ligaments. The procedure was first done by asepsis and antisepsis of the incision site. A 5mm horizontal incision below the lid margin is then made, which is positioned on the medial side and on the lateral side (Figure 2) with monopolar cautery on the skin and orbicularis under the skin. After the incision is made, the retractors under the fascia are visible as the fascia and pre-aponeurotic fat are lifted. In this stage, as the patient is asked to look down there will be a tugging movement of the inferior palpebral retractor. Next a 4-0 silk thread is sutured through the skin, inferior orbicularis muscle, eyelid retractor, tarsus, superior orbicularis muscle and back through the skin superior to the previously made incision. Similar sutures are made throughout the incision to close the wound from the incision, and are removed after 7-14 days.^{3,10,11,12}

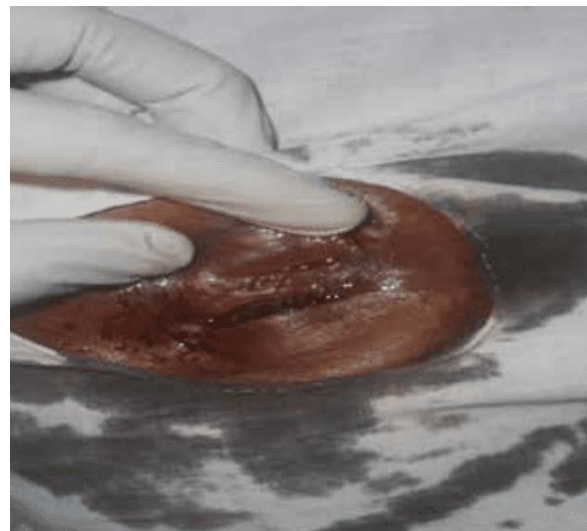


Figure 3. Retractor muscle below the fascia can be seen when the fascia and pre-aponeurotic fat pulled upward.¹²



Figure 4. 4-0 silk thread is sutured through the skin, inferior orbicularis muscle, eyelid retractor, tarsus, superior orbicularis muscle and back through the skin superior to the previously made incision.¹²



Figure 5. Inferior palpebra sutured with silk 4-0 post operation¹²

Overcorrection of inferior palpebral during blepharoplasty can occur due to scar

formation of posterior lamella (retractors, tarsus and conjunctiva) and medial lamella (orbital septum) postoperatively. If overcorrection of the operation occurs, complications such as scleral show and/or ectropion may be experienced. Ectropion can interfere with the patient's vision so it is important for blepharoplasty to be done in a highly accurate and cautious manner in patients with entropion. Although ectropion can occur post-operatively, it is crucial to wait for at least 2 weeks post-operative to evaluate whether or not scleral show can resolve physiologically due to palpebral edema.

If it does not resolve, the condition may be caused by scarring of the posterior and medial lamellae or overcorrection of the skin and orbicularis muscle, so scleral show/ectropion may occur and at times, further surgery is necessary to re-correct the palpebra. This may be observed in elderly patients where the healing process from surgical wounds can form scar tissue causing scleral show and/or ectropion.^{3,10,11}

The appropriate pharmacological management given to this patient is artificial tears 6 x gtt 1 ODS to lubricate and protect the eyeball. Oral antibiotics of doxycycline 2 x 100 mg for prophylactic growth of gram positive and gram negative bacteria¹³ were also given. Along with oral non-steroidal anti-inflammatory drugs such as mefenamic acid 3 x 500 mg to inhibit the activity of cyclooxygenase-1 and -2 enzymes as to reduce formation and prostaglandins and thromboxane to reduce inflammation¹⁴ In addition to oral antibiotics, eyedrop antibiotics of gentamicin 0.3% EO 2 x gtt 1 was given as an aminoglycoside antibiotic to inhibit the growth of gram-positive and gram-negative bacteria and protect the eyeball after surgery.¹⁵

Postoperative sutures were removed after 1 week and the patient no longer had complaints in both eyes. Ophthalmological examination showed resolvment of entropion from the negative snap back test. Post-operative entropion usually has a good prognosis, with minimal recurrence (3.3%) of cases. However surgical intervention can be reimplemented as a treatment to overcome the recurring complaints.^{16,17}

Prognosis of entropion depends on the underlying cause, severity, and surgical techniques. The most common complication that needs to be considered is overcorrection of the surgical intervention which may further result in ectropion and/or scleral show. There was significant clinical improvement of this patient with a good prognosis on patient's eyelid function.^{16,17}

Conclusion

Entropion is an eyelid malposition marked by an inward turning of the eyelid margin causing the cilia to point towards the eyeball and can lead to erosion or even corneal ulcer. This complication can be prevented by various non-pharmacological treatments. One of the definitive treatment options is surgery with Jones procedure. Prognosis depends on the underlying cause, severity of the case and the success rate of the surgery. However, patients who have undergone surgery have a good prognosis with a small chance of recurrence. Surgery should be performed with caution to avoid post-operative complications. It is very important to ensure that the surgical wound heals nicely and does not cause any scarring which can lead to scleral show or ectropion due to over-correction, especially in the elderly.

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