

Treatment of Trichiasis and Distichiasis by Eyelash Trephination

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Purpose: To describe the methods and results of a new technique of eyelash trephination for treatment of trichiasis and distichiasis.

Methods: The medical records of all patients who underwent eyelash trephination by the authors to treat trichiasis or distichiasis were reviewed. Gender, diagnosis, number of eyelids treated, follow-up time, and surgical outcome were recorded. The technique involves boring of the affected lash follicle with a microtrephine, followed by removal of the follicle.

Results: The procedure was performed on 41 eyelids of 26 patients (15 females and 11 males). Patients were followed for 6 to 51 months after surgery. No recurrence was observed in 16 patients (62%) during this period. There were no adverse effects of the therapy.

Conclusions: Eyelash trephination is a safe, quick, and effective method of treatment for trichiasis and distichiasis.

Trichiasis is a condition in which misdirected eyelashes abrade the corneal surface. In distichiasis, eyelashes have an abnormal location, growing from the meibomian gland orifices, posterior to the normal lashes. These conditions can result in pain, light sensitivity, tearing, corneal scarring, ocular infection, and blindness. Many techniques have been used in an attempt to treat trichiasis and distichiasis.

Epilation is a simple office procedure with low risk, but the offending lashes typically regrow within 4 to 6 weeks.¹ Electrocautery followed by epilation is another relatively quick office procedure, but its success rate may be as low as 50%.^{1,2} Electrolysis may also be complicated by scarring of the eyelid.³

Argon laser treatment has also been used to treat trichiasis. Disadvantages of this technique include the need for a laser and a steep learning curve. This technique may also require dyeing of nonpigmented lashes.⁴ Complications of laser treatment include eyelid notching,⁵ hypopigmentation,⁶ and dimpling.⁶ Reported success rates range from 39% to 88%.^{3,6-8} The complication rate may be 15%.⁶ Because multiple

laser applications may distort the eyelid margin, this technique is best reserved for trichiasis that is not widespread.⁶

Cryotherapy has a reported success rate varying from as low as 34%⁹ to as high as 71% to 90% in treating trichiasis.¹⁰⁻¹³ However, the complication rate of cryotherapy has been reported to be as high as 26%.¹³ Complications may include recurrence, loss of meibomian gland function,¹¹ skin depigmentation, severe eyelid edema, eyelid notching, preseptal cellulitis, entropion,⁸ worsening of symblepharon, visual field loss, herpes zoster reactivation,¹³ loss of meibomian gland secretion,^{11,14} and induction of trichiasis.⁵ Furthermore, upper eyelid cryotherapy has been discouraged because of the cosmetic affect of loss of upper eyelid lashes.² Because cryotherapy may worsen conjunctival shrinkage, it must be used with caution in patients with conjunctival shrinking disorders such as ocular cicatricial pemphigoid.¹³ Cryotherapy has also been used to treat distichiasis, with a similar success rate.¹⁵⁻¹⁷

Many approaches involving relatively extensive surgery of the eyelid have also been described.¹⁸⁻²⁶ Traditionally, surgical intervention has been reserved for widespread aberrant lashes.²⁷ Clorfeine and Kie-lar¹⁹ described a surgical technique whereby a strip of tissue from the eyelid margin to several millimeters below the lash line, including the offending lashes, is excised. The skin adjacent to the resulting defect is then undermined and advanced into the defect. Although they report success in 13 patients, we fear that

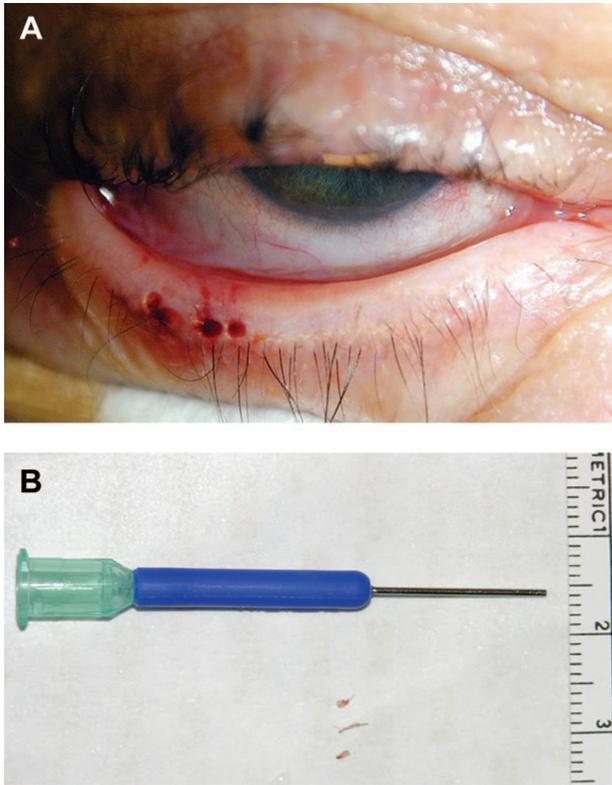
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A, Patient immediately after trephination and excision of offending lashes. **B**, Microtrephine with several lashes and follicles after trephination and excision. These lashes were trimmed before use of the trephine.

this technique excises a large amount of normal tissue and that advancement of adjacent skin in the defect may cause ectropion. The previously described surgical techniques are more time-consuming and more invasive than eyelash trephination. Furthermore, they may result in recurrence, scarring, decreased eyelid function,¹⁰ and poor cosmesis. Keller²⁸ described the use of a 1.0-mm trephine to treat trichiasis. Although he describes success with this technique, we submit that a 1.0-mm trephine excises an excessive amount of normal tissue along with the offending lash.

The Sisler ophthalmic microtrephine (Visitec, Sarasota, FL, U.S.A.) is a 21-gauge (0.81-mm diameter), hollow stainless steel tube originally used for boring out canalicular obstructions.²⁹ We have used this trephine to assist in the removal of the offending lashes in patients with trichiasis and distichiasis.

METHODS

Data were collected from the records of all patients on whom the authors performed eyelash trephination for trichiasis or distichiasis. The data included gender, diagnosis, number of eyelids treated, follow-up time, and surgical outcome. Only patients with a minimum follow-up time of 6 months were included. Institutional Human Research Protection Program approval for this study was obtained.

The procedure is performed with the patient in a supine position under monitored anesthesia care or general anesthesia. General anesthesia was used for children. Local infiltrative anesthesia, consisting of 0.25–0.5 ml lidocaine 2% with epinephrine 1:100,000 in a 50:50 mixture with bupivacaine 0.75%, is injected into the affected eyelid. The eyelid is then stabilized while the microtrephine is used to bore out the follicle of the abnormal lash. The lash is used as a guide to enter the lumen of the trephine. The lash follicles have been shown to be 2 mm deep to the eyelid margin,⁶ and the trephine is able to penetrate to this depth. The follicle and a minimal amount of surrounding tissue are occasionally removed from the eyelid within the trephine as it is withdrawn. Otherwise, the bored-out follicle and surrounding tissue are then pulled away from the eyelid with forceps and excised at the base of the trephination.

RESULTS

Eyelash trephination was performed on 41 eyelids of 26 patients (15 female and 11 male), ranging in age from 13 to 89 years. Of these 26 patients, 24 had trichiasis and 2 had distichiasis. Entropion was also present in 6 patients. Stevens-Johnson syndrome was the underlying diagnosis in 10 patients. Postoperative follow-up ranged from 6 to 51 months. During this period, 16 patients (62%) demonstrated no recurrence. The Figure shows a typical patient (A) and typical lashes and follicles after excision (B).

DISCUSSION

Although many treatments have been used to resolve trichiasis and distichiasis, an ideal treatment has not been discovered. Eyelash trephination is relatively quick and effective, with low morbidity. It is inexpensive and does not rely on additional machinery (laser, cryotherapy unit, etc.) In our case series, the success rate of eyelash trephination was comparable to that of electrocautery and argon laser treatment. This small series demonstrated no complications of eyelash trephination, which we believe is an advantage over cryotherapy and other surgical techniques.

Although all procedures in this series were performed under monitored anesthesia care or general anesthesia (in children), this technique is amenable to local anesthesia in the office setting.

One limitation of this study and other studies such as this is the inherent difficulty in differentiating recurrent trichiasis or distichiasis lashes from new abnormal lashes. For the purposes of this study, trichiasis or distichiasis lashes that were observed after treatment were considered recurrences unless unequivocally proved otherwise by photographic documentation. As such, we may have underestimated the effectiveness of this technique.

Further studies, such as a prospective series with greater numbers of patients and photographic slit-lamp documentation, would be beneficial to determine the true success rate of eyelash trephination in treating

trichiasis and distichiasis caused by specific disorders. We have found eyelash trephination to incite less scarring than electrocautery or cryotherapy. As such, it may be particularly useful for patients with Stevens Johnson syndrome or other cicatrizing disorders.

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