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Treatment of trichiasis with argon laser

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PURPOSE. *In this prospective study, argon laser photocoagulation was used to eliminate misdirected cilia. The cases were followed up to see the results and recurrences with this treatment.*

METHODS. *60 eyelids of 45 patients with trichiasis were treated with the argon laser. After topical anesthesia a blue-green argon laser was used with 1 watt power, for 0.20 seconds, with 100 micrometer beam diameter. The beam was directed coaxially to the lash follicle to create a 2-3 mm crater and vaporization was observed. After crater formation, the laser parameters were changed to 1.2 watt power, for 0.20 seconds, with 200 micrometer beam diameter, to destroy residual follicular tissue. Up to five lashes were treated in one session. At the end of each session an antibiotic ointment was used t.i.d. for a week.*

RESULTS. *Patients have been followed for 4-12 months (mean 6 months). Recurrences have been seen in 15 of 60 eyelids (25%). Laser treatment has been used with the same protocol for the cases with recurrence and results have been successful in eight of them. Postoperatively severe pain, hemorrhage, scar formation, neovascularization of lid margin, or infection were not seen in any patient. In three cases mild hypopigmentation and in three other cases mild lid notching were observed.*

CONCLUSIONS. *Argon laser lash ablation can be done as an effective office procedure with topical anesthesia. The advantages include low recurrence and complication rates in carefully selected patients and minimal postoperative discomfort. (Eur J Ophthalmol 2000; 10: 273-5)*

KEY WORDS. *Blue-green argon laser, Trichiasis, Lash ablation*

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INTRODUCTION

Trichiasis is an acquired condition in which the lashes are directed posteriorly toward the surface of the eye. Symptomatic trichiasis has been treated with electrolysis, cryotherapy, mechanical epilation and surgical methods. Some of these methods have high recurrence rates and some have serious complications. Since 1979 the argon laser has been used for the treatment of trichiasis with considerable advantages, (1, 2).

In this prospective study, we investigated the effects of argon laser treatment of 60 lids of 45 patients with trichiasis who were referred to the Ophthalmology Department at the Cerrahpaşa Medical Faculty between March 1997 and April 1998.

METHODS

Our study involved 60 lids of 45 patients (31 women, 14 men) who underwent argon laser treatment for trichiasis involving the upper lid, the lower lid or both. Their age ranged from 35 to 82 with a mean of 55 years. In all, 135 lashes were treated.

Prior to treatment a detailed history was taken for each patient and a general ophthalmologic examination was done including fundoscopy. Electrolysis had been done for 12 patients and lid surgery for two before the argon laser treatment. The other patients had only undergone mechanical epilation. The etiology of trichiasis was ocular pemphigoid for 3 cases, trachoma for 2, previous lid surgery for 2 and chronic blephar-

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itis for 12 cases. The remaining 26 eyes were accepted as idiopathic. Patients with entropion were excluded.

We used 4% oxybuprocaine hydrocloride eye drops for topical anesthesia. In some cases a small cotton pledget soaked with the same agent was applied for 1 minute. Regional infiltration anesthesia was not used. The patient was placed in front of the blue-green argon laser unit. The eyelid was rotated slightly outwards with a cotton-tipped applicator to align the root of the misdirected lash with the laser beam. No protective plastic lenses were used. The laser beam (spot size 100-200 μm, exposure time 0.20 sec, power 1 watt was focused at the base of eyelash. The first application created a crater at the base of the lash. To ensure destruction of the whole lash folicle, the laser settings were changed to spot size 200 μm, exposure time 0.20 sec, and power 1.2 watt. Lashes were treated individually and approximately 20 burns were applied for one lash.

Postoperatively, antibiotic ointment was used daily for one week. Acetominophen was used for only five cases to relieve the pain. Patients were followed up at regular intervals for 4-12 months (mean 6 months).

Findings

Recurrence was defined as regrowth of one or more lashes per treated eyelid; 15 of the 60 cases showed recurrence after the first session (25%). For eight of these successful results were obtained with the same protocol after approximately three sessions.

No patient complained of intolerable pain either at the time of laser ablation or in the postoperative period. A non-narcotic analgesic was used for only five cases. Bleeding was not seen in any patient. All eyelids healed smoothly within six weeks after treatment without any scarring or vascularization. Faint hypopigmentation was visible in three patients (5%). Mild notching occurred in the three pemphigoid cases, who were treated without any exacerbation of symblepharon formation or conjunctival inflammation. No infections occurred.

DISCUSSION

Trichiasis can be a most irritating eyelid problem for both the patient and the ophthalmologist because of the annoying symptoms and its recurrent nature. The patient's activities and lifestyle are limited by the pain and discomfort of foreign body sensation and photophobia. Trichiatic lashes are most bohersome when they abrade the cornea and may produce linear epithelial defects, corneal ulcer, corneal edema, and scarring, and can finally lead to serious visual loss. Chronic blepharoconjunctivitis, viral conjunctivitis, trachoma, ocular cicatricial pemphigoid, Steven-Jonhson syndrome, erythema multiforme, drug-induced pemphigoid (pseudopemphigoid), trauma, chemical injury, and surgical procedures are the main causes of trichiasis (2-4).

Many therapeutic modalities have been tried like mechanical epilation, electrolysis, cryotherapy and surgery methods (5-7). All these methods have some disadvantages and complications. In view of the high recurrence rate, mechanical epilation cannot be considered for long-term results. Electrolysis is the destruction of the lash follicle with electrical current. It has a high recurrence rate too and may cause excessive scarring of the treated eyelid. Cryotherapy gives more satisfactory results but may produce many complications such as the loss of all lashes – both normal and abnormal – in the frozen area, loss of meibomian gland secretion, skin depigmentation, lid notching, eyelid edema, scar formation and exacerbation of inflammation (8-10). Cryotherapy leads to more tissue destruction than argon laser in rabbit models.

For cases with anatomical lid abnormalities many surgical procedures have been used and many different results are reported. Selection of the patient and the surgical method is the most important prognostic factor for these cases. Radiotherapy is another strategy, especially for severe cases (11-13).

The argon laser was first used for trichiasis by Berry in 1979 (14). Argon laser thermoablation involves repeated application of argon laser burns to the hair root and follicle (15). It offers selective follicle ablation without damage to the pilosebaceous units. The suggested depth of ablation is 2-2.5 mm (16). Various results have been reported for the treatment of trichiasis with the argon laser. Compbell reported 80% success for 15 patients in 1990 (17). Sharif et al reported 67.9% success for 21 patients after approximately two consecutive laser sessions and stated that the number of aberrant lashes per lid dictated the number of treatment sessions required (18).

In 1992 de Bartley et al reported 59% success for 44 patients with only one laser session (19). Oshry et al achieved 80% of successful results in 17 trachoma patients (20). Arslan et al reported 76.4% success with one session, and 90.9% after the treatment of recurrent cases (2). In Arslan's study, trauma and previous surgical procedure were the main etiological factor in unsuccessful cases and atypical follicular position was the main factor in the development of trichiasis (2). Gossman reported 11.6% recurrence and underlined trauma as the main etiological factor (21).

Our impression is that argon laser treatment leads to less tarsal tissue thinning, causes limited tissue destruction and chronic inflammation, and has some capillary coagulation effect too. These properties mean that this laser can be recommended for the treatment of trichiasis as an office procedure.

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REFERENCES

1. Gossman DM, Brigtwell JR, Huntington AC, Newton C, Yung R, Eggler S. Experimental comparison of laser and cryosurgical cilia destruction. Ophthalmic Surg 1992; 23: 179-82.
2. Arslan AK, Söylev M, Acar M, Kasim R, Duman S. Trikiazisin argon lazer ile tedavisi. Türk Oftalmoloji Gazetesi 1993; 23: 406-9.
3. Sullivan JH. Trichiasis and distichiasis. In: Keates RH, ed. Surgery of the eye. London, Churchill Livingstone, 1998; 454-9.
4. Kaltreider SA. Trichiasis. In: Roy FH, ed. Master technique in Ophthalmic Surgery. Baltimore, Williams & Wilkins, 1995; 509-19.
5. Oba E, Akmut T, Er H. Trikiazis olgularinda uyguladiğimizcerrahi tedavi yöntemleri ve sonuçlari. Türk Oftalmoloji Gazetesi 1993; 23: 274-7.
6. Steinkogler FJ. Surgical aspect of the upper lid entropion. Klin Monatsbl Augenheilkd 1988; 192: 20-2.
7. Reacher MH, Munol B, Alghassony A, Daar AS, Albualy M, Taylor HR. A controlled trial of surgery for trachomatous trichiasis of the upper lid. Arch Ophthalmol 1992; 110: 667-74.
8. Johnson RLC, Collin JR. Treatment of trichiasis with a lid cryprobe. Br J Ophthalmol 1985; 69: 267-70.
9. Wood JR, Anderson RL. Complications of cryosurgery. Arch Ophthalmol 1982; 66: 460-3.
10. Wingfield DL, Fraunfelder FT. Possible complications secondary to cryotherapy. Ophthalmic Surg 1979; 10: 47-55.
11. Schei HG, Albert DM. Districhiasis and trichiasis. Origin and management. Am J Ophthalmol 1966; 61: 718-20.
12. Huneke JW. Argon laser treatment of trichiasis. Ophthal Plastic Reconstr Surg 1992; 8: 50-5.
13. Haltzler J, Neldler KH, Forstat SL, X-ray epilation for the treatment of trichiasis. Arch Dermatol 1984; 120: 620-5.
14. Berry J. Recurrent trlchiasis treatment with laser photocoagulation. Ophthalmic Surg 1979; 10: 36-8.
15. Ladas ID, Karamaunas N, Vergados J, Damanakis A, Theodsosiadis GP. Use of argon laser photocoagulation in the treatment of recurrent trichiasis. Long term results. Ophthalmologica 1993; 207: 90-3.
16. Elder MJ. Anatomy and physiology of eyelash follicules: relevance lash ablation procedure. Ophthal Plast Reconstr Surg 1997; 1: 21-5.
17. Campbell DC. Thermoablation treatment for trichiasis using the argon laser. Aust NZ J Ophthalmol 1990, 18: 427-30.
18. Sharif KW, Arafat AF, Wykes WC . The treatment of recurrent trichiasis with argon laser photocoagulation. Eye 1991; 5: 591-5.
19. Bartley GB, Lowry JC. Argon laser treatment of trichiasis. Am J Ophthalmol 1992; 113: 71-4.
20. Oshry T, Rosenthal G, Lifshitz T, Shami L, Yassur Y. Argon green laser photoepilation in the treatment of trachomatous trichiasis. Ophthal Plast Reconstr Surg 1994; 10: 253-5.
21. Gosmann DM, Yunh R, Berlin AJ, Brightwell JR. Prospective evaluation of the argon laser in the treatment of trichiasis. Ophthalmic Surg 1992; 23: 183-7.