

617.77-085

Argon Laser Treatment of Trichiasis

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Abstract

The study comprised 25 patients (9 males and 16 females) suffering from symptomatic trichiasis. The total number of eyelids with trichiasis included in the study was 38. The average age of the patients was 45 years. An Argon laser delivery system connected to a slit lamp biomicroscope was used to ablate the follicle of the trichiatic eyelashes. The average follow up period was 7.4 months. The initial success rate after a single laser session was 57.9% while the final success rate following a second laser session for recurrent cases was 73.7%. No complications were encountered during the follow up period. Argon laser is a safe, effective procedure which allows more precise placement and control of the treatment with minimal cicatrization. So repeated treatment does not carry the risk of significant scarring of the treated area.

Introduction

TRICHIASIS is a very common disorder encountered by ophthalmologists as it is one of the complications of trachoma which is endemic in Egypt. Several procedures may be used in the treatment of trichiasis including epilation, electrolysis, cryotherapy, surgery or laser ablation [1].

Although electrolysis and cryotherapy

are widely used effective therapeutic options, yet they have the disadvantage of postoperative cicatrization with potential lid notching [2, 3, 4].

Argon laser treatment of trichiasis was first reported by Berry [5] in 1979. This was followed by other trials to assess the efficiency of laser treatment of trichiasis [6, 7, 8, 9].

The aim of this work is to evaluate the efficacy of argon laser treatment for trichiasis as a new therapeutic option.

Material and Methods

The study comprised 25 patients (9 males and 16 females) suffering from symptomatic trichiasis which was unilateral in 12 patients and bilateral in 13 patients (26 eyelids). Thus the total number of eyelids with trichiasis included in the study was 38.

The average age of the patients was 45 years (ranging from 25 to 64 years). In 16 patients the trichiasis was associated with cicatrizing trachoma (T_3), in 6 patients it was associated with trauma while in the remaining 3 patients it was associated with cicatrization caused by ulcerative blepharitis. Five patients had previously been treated for trichiasis, 12 patients were used to epilate the maldirected eyelashes and the remaining 7 patients had not received any previous treatment.

Infiltration anaesthesia by injection of 0.5 ml of 2% mepevacaine HCl with levonordefrine 1: 20.000 was used to anaesthetize the eyelid in the area of trichiasis. The eyelid was then everted away from the globe with a glass rod or a cotton-tipped applicator. The patient was then asked to look downwards or to the side away from the area of the treatment.

An argon laser delivery system connected to a slit lamp biomicroscope was

used to ablate the follicle of the trichiatric eyelashes.

The parameters of argon laser used to ablate the follicle were as follows: 0.7 to 1.2 w (average 0.9 w) power, 50 μ m spot-size, 0.2 second duration using the blue-green wavelength. The aiming beam was focused coaxial to the follicle of the maldirected eyelash and burns were applied successively deeper into the eyelid substance to reach the follicle. Usually the initial laser application produces a small brown spot due to vaporization of the eyelash. This brown spot absorbs the energy of the subsequent laser applications. Total destruction of the follicle is completed by the application of about 15 to 40 burns with a spot size of 100 μ m.

Antibiotic-corticosteroid eye ointment was applied to the lid margin at the end of the procedure. The patient was instructed to apply antibiotic corticosteroid eye ointment three times per day for 2-3 weeks. The follow-up period ranged from 3 months to one year (average of 7.4 months).

Results

The results of the treatment were considered successful if the maldirected eyelashes were completely ablated or if a regrown eyelash did not cause any symptoms as a result of change in its direction away from the globe, while treatment was considered unsuccessful if regrowth of the

treated lashes occurred with recurrence of symptoms.

The results of the treatment were evaluated 8 weeks postlaser. The success rate was 57.9% (22 eyelids) following a single laser session, while the remaining 16 eyelids were considered as failures. Among these 16 eyelids, 6 eyelids showed successful results following a second laser session to the recurrent maldirected cilia raising the overall success rate to 73.7%. Only 10 eyelids were recorded as final failures (26.3%). Complete healing of the treated areas occurred within 4-6 weeks following the treatment with no evidence of complications such as vascularization, distortion of the lid margin due to excessive scarring or maldirection or loss of the neighboring cilia.

Discussion

Rubbing lashes and trichiasis are common findings to Egyptian ophthalmologists during routine examination as they are usually associated with trachoma which is an endemic disease in Egypt. The major complication of trichiasis is that it is usually associated with marked corneal scarring with subsequent visual impairment. Several lines of treatment of trichiasis are considered each with its advantages and complications [1]. Although simple epilation is the easiest method to get rid of the maldirected eyelashes, yet it is followed by regrowth of

the epilated cilia which may become thicker and longer with aggravation of symptoms.

Electrolysis is widely used in the treatment of trichiasis with variable success rates and few complications [2].

So far cryotherapy is reported to be the most successful procedure to treat trichiasis with a success rate of 90% or more. On the other hand it has many potential post-treatment complications such as lid notching, corneal ulceration, acceleration of symblepharon formation, xerosis, cellulitis, activation of herpes zoster, skin pigmentation and severe soft tissue reaction [3].

Several surgical procedures have been described to excise or correct maldirected eyelashes, but this line of treatment is usually reserved for cases which were refractory to more conservative treatment [10].

In 1965, Lamb [11] reported that radiotherapy is highly effective in the treatment of trichiasis but due to its unfavourable complications it is not favoured by ophthalmologists.

The use of argon laser in the treatment of trichiasis was described by Berry [5] in 1979, to be a successful procedure in 7 out of 8 patients. In 1980, Berry [6] treated 21 patients by argon laser and achieved good results and reported that higher energy was needed to ablate the maldirected cilia in lightly pigmented eyelids (0.8 - 1.0 w)

than in darkly pigmented ones (0.2 - 0.4 w). Other parameters of laser treatment were not clearly mentioned in that study.

In 1986, Awan [7] reported that laser treatment of trichiasis is safe, convenient, precise and effective.

In 1990, Campbell [8] treated 15 eyelids in 12 patients suffering from trichiasis using argon laser. Five of the 15 eyelids (33%) were treated successfully with one treatment session, and 80% success rate (12 eyelids) was achieved with up to 3 treatment sessions. In another study successful treatment with no evidence of recurrence was achieved in 67.9% of eyelids after one to 2 laser sessions [9]. In all the above mentioned studies no complications related to laser treatment was reported.

In the present study the treatment was considered successful if no regrowth of the treated cilia occurred for at least 8 weeks follow up period or if the regrown eyelashes did not cause any symptoms as a result of change of their direction away from the globe.

According to the criteria of success in the present study, the success rate was 57.9% after a single laser treatment session and 73.7% after the second session for recurrent cases.

Although the initial and final success rates in the present study (57.9% and

73.7%) are lower than those reported by Sharif et al [9] in 1991 (67.9% and 100%), yet they reported their initial success rate after one or two laser sessions and their final success rate after up to 4 sessions in contrast to the present study where initial results were obtained after only one session and the final result after the second laser session.

Campbell [8] in 1990, reported a final success rate (80%) which is comparable to the final success rate of the present study.

In conclusion Argon laser treatment of trichiasis is a safe, effective procedure which allows more precise placement and control of the treatment with minimal cicatrization. Thus repeated laser treatment can be performed with little fear of inducing significant scarring. Accordingly Argon laser ablation of maldirected eye-lashes is preferred in trichiasis associated with cicatrizing conditions. Moreover, Argon laser treatment is found to be effective especially when few fine cilia are involved but repeated treatment is required for more and thicker cilia. The major drawback of Argon laser treatment is that it is costly.

As the initial results of Argon laser treatment for trichiasis are promising, so more studies with a larger number of patients are needed for proper evaluations of the procedure. Moreover, other types of laser may be tried which may prove to be more effective.

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